iFIX 6.1

iFIX Database Reference

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iFIX Database Reference

This e-book is intended for process engineers responsible for designing and building a process database. It contains the following sections which provide more details on how to use the database blocks and functions that are available in the iFIX Database Manager:

Creating a Process Database

To create a process database:

1. In the Database Manager, create a new database.
2. Create primary blocks for your I/O points.
3. Create any secondary blocks you need.
4. Connect the primary and secondary blocks to form chains.
5. Verify the database for errors.
6. Correct any errors and fine-tune the database.

Click the appropriate link below for more detailed information on creating a process database:

Learning Database Basics

Click any of the following links for more information about learning database basics :

- Creating, Opening, Saving, and Loading Databases
- Creating, Modifying, and Deleting Blocks

Creating, Opening, Saving, and Loading Databases

Click any of the following links for more information about creating, opening, saving, and loading databases:

- Creating a New Database
- Opening a Database
- Closing a Database
- Saving a Database
- Saving a Database with a New Name
- Loading or Reloading a Database

Creating a New Database

To create a new database:

In the Database Manager, in Ribbon view, on the Home tab, in the Process Database group, click Load Empty.

- Or -

In Classic view, click the New button on the Database Manager's toolbar.

An empty spreadsheet appears.

Opening a Database

To open a database:

1. In the Database Manager, in Ribbon view, click the Main Button, then click Open.

   - Or -

   In Classic view, on the Database Manager's toolbar, click the Open button.
2. Double-click the SCADA server to which you want to connect.

Closing a Database

To close a database:

1. In the Database Manager, in Ribbon view, click the Main Button, and then click Close.

   - Or -

   In Classic view, on the Database Menu click Close.

2. If you made changes to the database, you are prompted to save when exiting.

   WARNING: If you click Yes to save and there is an AAD file mismatch, the database is not saved even though it appears that the system saves it. An error message does not appear.

Saving a Database

To save a database:

In the Database Manager, in Ribbon view, on the Home tab, in the Process Database group, click Save.

- Or -

In Classic view, on the Database Manager's toolbar, click Save.

NOTE: If there is an AAD file mismatch, you cannot save the file. An error message will appear if you try to save.

Saving a Database with a New Name

To save a database under a new database name:

In the Database Manager, in Ribbon view, click the Main Button, then click Save As.

- Or -

In Classic view, on the Database Menu, click Save As.

The Save As Dialog Box appears.

2. In the Enter Database Name field, enter the name of the database.
3. Click Save As to save the database.

Loading (or Reloading) a Database

To load or reload a database:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Process Database group, click Reload.

   - Or -

   In Classic view, on the Database Menu, click Reload.

   The Reload Dialog Box appears.

2. Double-click the node whose database you want to reload.
3. Double-click the name of the database you want to load.

   IMPORTANT: When you reload a database, all I/O points are reset to the appropriate starting values. Do not use this function during an active production cycle.

   NOTE: When you reload the database, all of the new database tags are added to Historian. In addition, all of the tags from the previous database are hidden from Historian. It may seem as though those tags are deleted, but they are not.

Creating, Modifying and Deleting Blocks

Click any of the following links for more information about creating, modifying, and deleting blocks:

- Adding a Primary Block to a Database
- Adding a Secondary Block to a Database
- Chaining Two Blocks Together
- Modifying Blocks
- Deleting Blocks
- Displaying Blocks
- Enabling Event Messages
- Enabling and Disabling Alarming
- Assigning Alarm Areas to a Database Block
- Entering Alarm Limits
- Selecting an Alarm Priority
- Configuring a Block to Require Electronic Signatures

Adding a Primary Block to a Database

▶ To add a primary block to the database:

1. In the Database Manager, double-click a cell in an empty row of the spreadsheet.
2. Double-click the type of primary block you want to add.
3. Complete the block dialog box.

   NOTE: If the block you are adding will be collected by GE Historian, and the Collector is running, it takes approximately two minutes for the addition to appear. This change affects all blocks; at the time of addition, all tags stop collecting briefly while the tag is added to the collection.

Adding a Secondary Block to a Database

To add a secondary block to the database:

1. In the Database Manager, double-click a cell in an empty row of the spreadsheet.
2. Double-click the type of secondary block you want to add.
3. Complete the block dialog box.

Chaining Two Blocks Together

To chain two blocks together:

1. In the Database Manager, double-click any cell of the first block in the chain you want to create.
2. In the Next field, enter the name of the next block in the chain, or click the Browse button to select the next block from the list that appears.

Example 1 of Chained Blocks

Incorrect: AI1 > CA > AI2

Correct: AI1 > CA > AO

Example 2 of Chained Blocks

Incorrect: AI1 > CTR > AI2

Correct: AI1 > CTR > AO

Long Tag Names

With iFIX 6.0, tag names and description lengths increased from 30 characters to 256. This helps support longer tag names with complete hierarchies coming from the PLC. Please be aware of the following limitations when using long tag names:

- Older iFIX nodes cannot connect to iFIX 6.0 or greater SCADA server. For example, you cannot connect a 5.9 iClient to a 6.1 SCADA server. However, a 6.1 iClient can still view a 5.9 or earlier SCADA server.
- If using the Auto Alarm Manager (AAM), all the iFIX sender and receiver nodes (servers and clients) must be of same version. This is specific to iFIX 6.0 and above, as older iFIX nodes (iFIX 5.9 and below) cannot connect to a newer SCADA server.
- When browsing tags in the Expression Editor on an iClient (view node), it may take 50% longer to perform the initial tag lookup.
- When using with GE Historian 7 SP6 or earlier, you must limit iFIX tag names to 199 characters or less to support the Historian iFIX Collector and Historian Administrator interface. Using tags longer than 199 characters with Historian will result in an unstable system. This limitation does not exist in Historian 7.1 and later.
- The maximum column length when you export an Enhanced Chart is 200 characters. Be aware that when you take into account the node name and other characters that make up the tag such as the tag type (for example: .F_CV) the tag length maximum is probably closer to around 175 characters.

- If using iFIX with Batch Execution, be aware that long tag names and descriptions are not support by Batch Execution. Batch Unit Definitions, Batch Phase Tag Definitions, and the Batch Watchdog Tag are all limited to 255 characters. When using iFIX for these Items, the full Node:Tag:Field address must be used, so the length of your iFIX tag names should be considered when creating your iFIX database tags.
- The Recipe Builder Reports limit the Tag Identifier to 100 Characters.
- Tag Control Panel and Quick Trend screens are limited to tag names of 234 characters.
- Microsoft Visual Basic limits character identifiers in scripts to a maximum of 255 characters.
- The Discover and Auto Configure tool and the OPC Client Driver do not support long tag names or descriptions.

Modifying Blocks

To modify a block:

1. In the Database Manager, double-click any cell of the block you want to modify.
2. Modify the fields in the block configuration dialog box as needed.

   NOTE: If the block you are modifying is collected by GE Historian, and the Collector is running, it takes approximately two minutes for the modification to appear. This change affects all blocks; at the time of modification, all tags stop collecting briefly while the tag is modified.

Deleting Blocks

To delete blocks:

1. Select the blocks you want to delete.
2. In the Database Manager, in Ribbon view, on the Home tab, in the Blocks group, click Delete.

   - Or -

   In Classic view, click the Delete button on the Database Manager's toolbar.
3. Click Yes to delete a single block or click Delete All to delete multiple blocks and place their chains off scan.

   NOTES:

   - If you are using GE Historian to collect block values, and you delete a block from the iFIX database, the tag is also deleted from the Historian Collector.
   - If the block you are deleting is collected by GE Historian, and the Collector is running, it takes approximately two minutes for the deletion to appear. This change affects all blocks; at the time of deletion, all tags stop collecting briefly while the deleted tag is removed from the collection.

Displaying Blocks

To display a block's configuration dialog box:

1. Select the block you want to display.
2. In the Database Manager, in Ribbon view, on the Home tab, in the Blocks group, click Show.

   - Or -

In Classic view, on the Database Manager's toolbar, click Show button.

Enabling Event Messages

To enable event messages:

1. In the Database Manager, double-click the block you want to modify from the database spreadsheet.
2. From the block configuration dialog box, click the Alarms tab.
3. Select the Enable Event Messaging check box.

Enabing and Disabling Alarming

To enable or disable alarming:

1. In the Database Manager, double-click the block you want to modify from the database spreadsheet.
2. From the block configuration dialog box, click the Alarms tab.
3. Select the Enable Alarming check box to enable alarming or clear the check box to disable alarming.

Assigning Alarm Areas to a Database Block

To assign alarm areas to a database block:

1. In the Database Manager, double-click the block you want to modify from the database spreadsheet.
2. From the block's configuration dialog box, click the Alarms tab.
3. Double-click a line in the Alarm Areas list box.
4. Enter an alarm area name.
5. Repeat steps 3 and 4 until you enter all the names you require.

   You can also select alarm areas from the alarm area database by double-clicking a line in the Alarm Areas list box and selecting the Browse button. When Configure Alarm Areas dialog box, perform one or more of the following tasks, as desired:

   - To assign all available alarm areas, select the Use All Alarm Areas check box.
   - To add individual alarm areas, clear the Use All Alarm Areas check box, select the area in the Available Areas list box, and click the right-arrow button to add it to the Configured Areas list box.
   - To create a new alarm area, clear the Use All Alarm Areas check box, enter the alarm area name in the field provided, and click the Add New button. The new alarm area appears in both the Available Areas list box and the Configured Areas list box.

Entering Alarm Limits

To enter an alarm limit or condition for a block:

1. In the Database Manager, double-click the block you want to modify from the database spreadsheet.
2. From the block configuration dialog box, click the Alarms tab.
3. In the Alarms area, complete the fields for the analog blocks. For digital blocks, in the Alarms Type area, select the type of alarm you want.

Selecting an Alarm Priority

To select a block's alarm priority:

1. In the Database Manager, double-click the block you want to modify from the database spreadsheet.
2. From the block configuration dialog box, click the Alarms tab.
3. From the Priority area, select the alarm priority.

Configuring a Tag to Require Electronic Signatures

To configure a tag to require Electronic Signature:

1. In the Database Manager, navigate to the Advanced tab of the tag's dialog box.
2. Select the type of electronic signature that you want for this tag:
   - **None** – Do not require Electronic Signatures for this tag at run time. This is the default option.
   - **PerformOnly** – Require a Performed By signature for any changes or alarm acknowledgements to this tag at run time.
   - **Perform and Verify** – Require both a Performed By and a Verified By signature for any changes or alarm acknowledgements to this tag at run time.
3. Select the options that you want for this tag:
   - **Allow Continuous Use** – Select to allow the operator to repeatedly sign for successive actions by supplying only a password. Continuous use applies only to the person performing an action and does not affect the person verifying an action. This is selected by default.
   - **Exempt Alarm Acknowledgement** – Select to allow operators to acknowledge alarms without entering a signature, even when this tag requires electronic signature for data entry.

- **Comment Required** - Select to open a dialog box to provide information needed for the comment. The comment is enforced depending on the option configured for the tag.

4. Select how you want the tag to handle unsigned writes. Your options are as follows:
   - **Accept** - Accept the unsigned write.
   - **Log** - When an unsigned write is accepted, send a message indicating that the tag accepted an unsigned write. This option is only available when the tag is configured to accept unsigned writes.
   - **Reject** - Reject the unsigned write and do not update the database. A message is sent indicating that the tag rejected an unsigned write. (default)

   NOTE: You must have purchased the Electronic Signature option for these parameters to take effect at run time.

Enabling or Disabling Block Collection by Historian

To enable or disable block collection by Historian:

1. In the Database Manager, right-click the block you want to modify from the database spreadsheet.
2. Select Enable Collection to begin block collection by Historian. Select Disable Collection to stop block collection by Historian.

   NOTES:
   - If Enable Collection is unavailable from the menu, it means that the selected block has already been designated for collection. Similarly, if Disable Collection is unavailable, the selected block has been removed from collection by Historian.
   - To modify default GE Historian collection options, double-click the block and on the GE Historian tab of the dialog box, choose the desired parameters.

   TIP: To view which blocks are collected, add the Collect column to the database; it displays if a block is collected or not. For instructions, see Adding Columns to a Spreadsheet.

Managing Blocks

Click any of the following links for more information about managing blocks:

- Adding Multiple Blocks to a Database
- Selecting a Database Block
- Copying and Pasting Blocks
- Duplicating Blocks
- Moving Blocks to Another Database

Adding Multiple Blocks to a Database

To add multiple blocks to a database:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Blocks group, click the Generate button.

   - Or -

   In Classic view, on the Blocks menu, click Generate.

   The Generate Wizard appears.
2. Use the Generate Wizard to create the block you want.

Selecting a Database Block

To select a block type:

1. In the Database Manager, double-click the type of block you want to create.
2. Complete the dialog box that appears. Refer to the Database Block Reference topic for more information about the block types available.

Selecting a Block from the Generate Wizard

To select a block from the Generate Wizard:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Blocks group, click Generate.

   - Or -

   In Classic view, on the Blocks menu, click Generate.

   A message about SAC appears.
2. Click OK to continue. The Generate Wizard dialog box appears.
3. Click the browse (...) button next to the Enter tag field to display the Select Tag Names dialog box. The Select Tag Names dialog box appears.
4. From the Nodes list box, select the SCADA server containing the database block you want to use.
5. In the Enter Tag Name field, enter the name of the block you want the Generate Wizard to use as a template or select the block from the Tag Names list box.
6. Click OK.

Selecting a Column in the Generate Wizard

To select a column for the Generate Wizard:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Blocks group, click Generate.

- Or -

In Classic view, on the Blocks menu, click Generate.

A message about SAC appears.

2. Click OK to continue. The Generate Wizard dialog box appears.
3. Enter the required information on each page of the wizard. Click Next until you are on page 3 of the wizard.
4. On page 3 of the wizard, click the browse (...) button next to a field name to open the Select Column dialog box.
5. Double-click the column (block field) that you want to use. The Select Column dialog box closes and you return to page 3 of the wizard.
6. Repeat steps 5-6 for each field name that you want to add.
7. On page 3 of the wizard, enter information into the Prefix, Start, End, Inc, and Suffix field, as required.
8. Click OK. When the wizard creates the blocks you specified, it will assign a custom value for the block fields you have selected.

To copy and paste a block:

1. Select a cell in the row you want to copy.
2. In the Database Manager, in Ribbon view, on the Home tab, in the Clipboard group, click Copy.

   - Or -

   In Classic view, click the Copy button on the Database Manager's toolbar.
3. Reload an empty or existing database into memory.
4. In Ribbon view, on the Home tab, in the Clipboard group, click Copy.

   - Or -

   In Classic view, click the Paste button on the Database Manager's toolbar.

Duplicating Blocks

To duplicate blocks:

1. Select the blocks you want to duplicate.
2. In the Database Manager, in Ribbon view, on the Home tab, in the Blocks group, click Duplicate.

   - Or -

   In Classic view, on the Blocks menu, click Duplicate.

   The Duplicate Blocks dialog box appears.

3. In the New Tagnames column, enter a new name for each block that you are duplicating.
4. Click OK to duplicate the blocks.

Moving Blocks to Another Database

To move a block to another database:

1. Select the block you want to move.
2. In the Database Manager, in Ribbon view, on the Home tab, in the Clipboard group, click Cut.

   - Or -

   In Classic view, on the Database Manager's toolbar, click the Cut button.

   A message box with the following text appears:

   `Delete tag [block] from spreadsheet and database?`
3. Click Yes to cut the block.
4. On the Database menu, click Reload to close the current database and open the destination database. Save your changes when prompted.
5. Click the Paste button on the Database Manager's toolbar when the destination database opens.

Managing Databases

Click any of the following links for more information about managing databases:

- Merging Two Databases
- Verifying a Database
- Correcting Verification Errors
- Displaying a Database Summary
- Importing a Database
- Exporting a Database
- Changing the Scanning Order of a Database's Blocks
- Placing a Block On or Off Scan
- Saving or Reloading a Database

Merging Two Databases

To merge two databases:

1. In the Database Manager, export each database.
2. Examine each export file as follows:
    a. Verify that each block in each database has a unique name.
    b. If two blocks have the same name, change one. Remember to also change the text in the Next field of the previous block so that the chain remains intact.
3. Import one of the databases you want to merge into an empty database.
4. Import the other database.

Verifying a Database

To verify a database:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Diagnostics group, click Verify.

    - Or -

    In Classic view, on the Database Menu, click Verify.

    If Database Manager detects no errors, the following text appears:

    ```
    Database verified on node: [nodename]. No errors detected.
    ```

2. Click OK to acknowledge the message.
3. If Database Manager detects errors, the Verify Database dialog box appears. Correct the errors listed in the dialog box.

Correcting Verification Errors

To correct verification errors:

1. In the Database Manager,double-click an error you want to correct.
2. Edit the block dialog box that appears.
3. Click Save, and place the block back on scan when prompted.
4. Repeat steps 1 through 3 for each error listed.

Displaying a Database Summary

To display a database summary:

In the Database Manager, in Ribbon view, on the Home tab, in the Diagnostics group, click Summary.

- Or -

In Classic view, on the Database menu, click Summary.

The Database Summary for Node dialog box appears.

The Database Summary lists the database blocks by block type. By scrolling through the list box, you can see how many blocks are used and allocated for each block type.

- **Database**- displays the name of the database.
- **Size**- indicates the number of bytes actually in use by the database.
- **SN**- displays the serial number of the database generated anytime a block is added to or deleted from the database. Allows you to determine if the database has been changed (by adding or deleting a database block) since you last saved it. To do this, record the serial number when you finish making changes to the database. You can later compare that number with the number displayed in the Database Summary dialog box.
- **I/O Count**- displays the number of allocated blocks that use I/O. The block types are AA, AI, AO, AR, BB, DA, DC, DI, DO, DR, MDI, and TX.
- **Type**- displays the type of block.
- **Used**- lists the number of blocks that exists for each block type.
- **Allocated**- lists the number of blocks allocated per block type. Each SCADA node automatically pre-allocates a specific number of blocks for each block type to make efficient use of memory and improve performance. The number of block allocated equals the number of blocks of one type that fits in four kilobytes of memory. Since blocks vary in size according to their type, the exact number of blocks varies for each block type.

Importing a Database

To import a database:

IMPORTANT: Be aware that before you perform a large import, you should adjust the spreadsheet refresh rate to 20 or more seconds. If you leave the refresh rate at a low number, such as the default of 5 seconds, and you try to import a large amount of tags, the database may appear unresponsive. To adjust the refresh rate, in Classic view, on the Tools menu, click Options, or in Ribbon view, on the Home tab, in the Settings group, click Options, and then edit the value for the Spreadsheet Auto Refresh field, if it's enabled. After this is done, you can import the database.

1. In the Database Manager, in Ribbon view, on the Home tab, in the Process Database group, click Import.

   - Or -

   In Classic view, on the Database Menu, click Import.

   The following text appears:

   ```
   SAC will be stopped while blocks are being imported and then restarted.
   ```

2. Select OK to acknowledge the message.
3. Select the file you want to import.

   NOTES:

   - If you are using GE Historian as your Historian and you import and open a database on a machine that does not have GE Historian 3.1 or above installed, fields added for Historian collection are disabled. Additionally, the values for Historian fields are retained.
   - If you enabled Automatically Configure Tags for Collection in Historian on the Historian tab of the User Preferences dialog box, then:
     - All imported tags will be added to the default collector and collection by GE Historian are enabled.
     - If you have an existing database and import a new database and both databases contain a tag with the same name, the existing database tag are overwritten by the new database tag.
     - If you have an existing database and those tags are not enabled for collection in Historian, at reload time the tags are not enabled for collection. In other words, this setting does not override Historian's settings.

Exporting a Database

To export a database:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Process Database group, click Export.

   - Or -

   In Classic view, on the Database menu, click Export.

   The Export Database Blocks... dialog box appears.
2. Select the path and file type you want to use.
3. In the File Name field, enter the file name.

Changing the Scanning order of a Database's Blocks

To change the scanning order of a database's blocks:

1. Export the database.
2. Edit the export file.
3. In the Database Manager, in Ribbon view, on the Home tab, in the Process Database group, click Load Empty.

   - Or -

   In Classic view, click the New button on the Database Manager's toolbar.
4. Import the edited export file.

Placing a Block On or Off Scan

To place a block on or off scan when prompted:

- Click Yes to place the block on scan.

  WARNING: Use caution when placing a block on scan. Placing a block on scan may cause data to be written to the hardware.

- Click No to place the block off scan.

To automatically place blocks on scan without being prompted:

1. In the Database Manager, select the Do Not Prompt Next Time check box.
2. Click Yes to place this block on scan and to automatically place all blocks on scan that you modify in the future.

   TIP: You can also set the on/off scan setting for the database using preferences. For steps, refer to the Setting Database Manager Preferences section.

Saving or Reloading a Database

Select the procedure you want to perform:

- Reload a database.
- Save a database under a new database name.

IMPORTANT: When you reload a database, all I/O points are reset to the appropriate starting values. Do not use this function during an active production cycle.

Working with the Spreadsheet

Click the appropriate link below for more information about working with the spreadsheet:

- Setting Database Manager Preferences
- Locating Data
- Refreshing the Spreadsheet
- Setting Spreadsheet Properties and Appearance

Setting Database Manager Preferences

To set Database Manager preferences:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Options.

   - Or -

   In Classic view, on the View menu, click Options.

   The Options Dialog Box appears.
2. Select the General Options preferences you want to enable.
3. Select the View Options preferences you want to enable.
4. Select the Edit Options preferences you want to enable.

Locating Data

Click the appropriate link below for more information about locating data:

- Finding Data in a Spreadsheet
- Finding and Replacing Data in a Spreadsheet
- Going to Specific Locations in the Spreadsheet

Overview: Finding and Replacing Data

The Database Manager lets you find data and replace data within a spreadsheet. For steps, refer to the following sections:

- Finding Data in a Spreadsheet
- Finding and Replacing Data in a Spreadsheet

Finding Data in a Spreadsheet

To find data in a spreadsheet:

1. Select the column you want to search in.
2. In the Database Manager, in Ribbon view, on the Home tab, in the Edit group, click Find.

   - Or -

   In Classic view, on the Database Manager's toolbar, click Find.

   The Find dialog box appears.
3. In the Find What field, enter the text you want to locate.
4. Select the Match Case check box to do a case sensitive search. Otherwise, clear it.

5. Select the Match Whole Words Only check box to locate only whole words that match the search string. Clear the check box to locate partial words.
6. Click Find Next.
7. Repeat step 6 to locate subsequent occurrences of the specified text.

Finding and Replacing Data in a Spreadsheet

To find and replace data in a spreadsheet:

1. Select the column or cell you want to search in.
2. In the Database Manager, in Ribbon view, on the Home tab, in the Edit group, click Replace.

   - Or -

   In Classic view, on the Edit menu, click Replace.

   The Replace dialog box appears.
3. In the Find What field, enter the text you want replaced.
4. In the Replace With field, enter the replacement string.
5. To do a case sensitive search, select the Match Case check box. Otherwise, clear it.
6. To locate only whole words that match the search string, select the Match Whole Words Only check box. Clear the check box to locate partial words.
7. To replace text in the current selection, click the Selection option button. Or, to replace text in the selected column, click the Entire Column option button.
8. Click Find Next to locate the first occurrence of the search string in the selected column.
9. Click Replace to replace the text.
10. Repeat steps 7 and 8 to locate and replace subsequent occurrences of the search string.

Going to Specific Locations in the Spreadsheet

You can go directly to a specific row, column, or block in a database.

To go to a row:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Edit group, click Go to.

   - Or -

   In Classic view, on the Edit menu, click Go To.

   The Go To dialog box appears.
2. From the Go to What list box, select Row.
3. Enter the row number you want to display.

To go to a column:

1. In Ribbon view, on the Home tab, in the Edit group, click Go to.

   - Or -

   In Classic view, on the Edit menu, click Go To.

   The Go To dialog box appears.
2. From the Go to What list box, select Column.
3. Double-click the column you want to display from the Select any column list box.

To go to a specific block:

1. In Ribbon view, on the Home tab, in the Edit group, click Go to.

   - Or -

   In Classic view, on the Edit menu, click Go To.

   The Go To dialog box appears.
2. From the Go to What list box, select Tag.
3. Click the browse (...) button and double-click the block you want to display.

Refreshing the Spreadsheet

Click the appropriate link below for more information about refreshing the spreadsheet:

- Automatically Updating the Spreadsheet Data
- Pausing and Resuming Automatic Spreadsheet Updates
- Manually Refreshing the Spreadsheet

Updating the Spreadsheet Data

To automatically update spreadsheet data:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Options.

   - Or -

   In Classic view, on the View menu, click Options.

   The Options Dialog Box appears.
2. From the View Options area, select Enable Spreadsheet Auto Refresh.
3. In the Enter refresh period field, type in the refresh rate you want.

   IMPORTANT: Be aware that for a large database, you should increase the refresh rate to 20 or more seconds. Do not use the default of 5 seconds for large databases. If you leave the refresh rate at low number, such as the default of 5 seconds, and you try to import a large amount tags, the database may appear unresponsive.

Pausing and Resuming Automatic Spreadsheet Updates

To pause and resume automatic spreadsheet updates:

1. In the Database Manager, in Ribbon view, on the View tab, in the SpreadSheet Settings group, click Pause.

   - Or -

   In Classic view, on the Database Manager's toolbar, click Pause.
2. To resume updating the spreadsheet:

   In Ribbon view, on the View tab, in the SpreadSheet Settings group, click Refresh.

   - Or -

   In Classic view, on the Database Manager's toolbar, click Refresh.

   The spreadsheet resumes updating.

Manually Refreshing the Spreadsheet

To manually refresh the spreadsheet:

In the Database Manager, in Ribbon view, on the View tab, in the SpreadSheet Settings group, click Refresh.

- Or -

In Classic view, on the Database Manager's toolbar, click the Refresh button.

Setting Spreadsheet Properties and Appearance

Click the appropriate link below for more information about setting spreadsheet properties and appearance:

- Setting Spreadsheet Colors
- Setting Spreadsheet Font Properties
- Locking or Unlocking Columns
- Working with Spreadsheet Column Properties
- Sorting the Database
- Working with Queries

Locking or Unlocking Columns from Scrolling Left or Right

To lock or unlock a column from scrolling left or right:

1. Select the column you want to lock or unlock.
2. In the Database Manager, in Ribbon view, on the View tab, in the SpreadSheet Settings group, click Freeze Column.

   - Or -

   In Classic view, on the View menu, click Freeze Column.

Working with Spreadsheet Column Properties

Click the appropriate link below for more information about working with spreadsheet column properties:

- Adding Columns to a Spreadsheet
- Loading Column Format Files
- Saving Column Format Files
- Modifying Column Headings
- Modifying Column Widths
- Removing Columns to a Spreadsheet
- Removing All Columns from a Spreadsheet
- Arranging Columns in a Spreadsheet
- Overriding the Default Column Layout
- Restoring the Default Column Layout

Adding Columns to a Spreadsheet

To add a column to a spreadsheet:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties dialog box appears.
2. Click the Column tab, and then double-click the column you want to add from the Available Columns list box.

Loading Column Format Files

To load a format file:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Column tab, and then click the Load button.
3. Enter the name of the format file you want to open.

To save a column format file:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Column tab, and then click the Save button.
3. Enter the name of the format file you want to create.

Modifying Column Headings

To modify a column heading:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Column tab.
3. From the Display Columns list box, select a column.
4. In the Column Name field, enter the heading you want for the column.

Modifying Column Widths

To modify a column width:

1. In the Database Manager, click and drag the right edge of the column heading.
2. Release the mouse when the column is the correct size.

Removing Columns to a Spreadsheet

To remove a column from a spreadsheet:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties dialog box appears.
2. Click the Column tab, and then double-click the column you want to remove from the Display Columns list box.

   NOTE: The Tag Name column cannot be removed from the spreadsheet.

Removing All Columns from a Spreadsheet

To remove all columns from a spreadsheet:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties dialog box appears.
2. Click the Column tab, and click Clear.

   NOTE: The Tag Name column cannot be removed from the spreadsheet.

Arranging Columns in a Spreadsheet

To arrange the columns in a spreadsheet:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties dialog box appears.

2. Click the Column tab.
3. From the Display Columns list box, select the column you want to move.
4. Click the up arrow button to move the column left in the spreadsheet. Click the down arrow button to move the column right in the spreadsheet.

Overriding the Default Column Layout

To override the default column layout:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Column tab, and then create the layout you want as the new default.
3. Save the layout to a file.
4. Click OK to apply the new layout to the database.

Restoring the Default Column Layout

To restore the default column layout:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties dialog box appears.
2. Click the Column tab, and then click the Load button.
3. Double-click the DEFAULT.FMT file.
4. Click OK to apply the default layout to the database.

Sorting the Database

Click the appropriate link below for more information about sorting the database:

- Loading a Sort Order
- Saving a Sort Order
- Adding a Column to the Sort Order

- Removing a Column from the Sort Order
- Sorting a Column in Ascending or Descending Order
- Arranging a Column in the Sort Order
- Disabling Sorting
- Overriding the Default Sort Order
- Restoring the Default Sort Order

Loading a Sort Order

To load a sort order:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Sort tab, and then click the Load button.
3. Enter the name of the sort order file you want to open.

Saving a Sort Order

To save a sort order:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Sort tab, and then click the Save button.
3. Enter the name of the sort order file you want to create.

Adding a Column to the Sort Order

To add a column to the sort order:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

In Classic view, on the View menu, click Properties.

The Properties dialog box appears.

2. Click the Sort tab, and then double-click the column you want to add from the Display Columns list box.

Removing a Column from the Sort Order

To remove a column from the sort order:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties dialog box appears.

2. Click the Sort tab, and then double-click the column you want to remove from the Sort Order List box.

Sorting a Column in Ascending or Descending Order

To sort a column in ascending order or descending order:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.

2. Click the Sort tab, and select the column you want to sort from the Sort Order list box.
3. Click the Ascending button to sort a column in ascending order. Click the Descending button to sort a column in descending order.

Arranging a Column in the Sort Order

To arrange the columns in the sort order:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

The Properties dialog box appears.

2. Click the Sort tab, and then select the column you want to move from the Sort Order list box.
3. To move the column up in the list box, select the up arrow button. To move the column down, select the down arrow button.

Disabling Sorting

To disable sorting:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the view Menu, click Properties.

   The Properties dialog box appears.
2. Click the Sort tab, and remove all the columns from the Sort Order list box.
3. Click the Save button and enter the name DEFAULT.SRT when prompted for a file name.

Overriding the Default Sort Order

To override the default sort order:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Sort tab, and then define the sort order you want to use as the new default.
3. Save the sort order to a file.
4. Click OK to apply the new sort order to the database.

Restoring the Default Sort Order

To restore the default sort order:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

The Properties dialog box appears.

2. Click the Sort tab, and then click the Load button.
3. Double-click the DEFAULT.SRT file.
4. Click OK to apply the default query to the database.

Working with Queries

Click the appropriate link below for more information about working with queries:

- Creating a Query
- Loading a Query
- Saving a Query
- Appending a New a Query to an Existing Query
- Overriding the Default Query
- Restoring the Default Query

Creating a Query

To create a query:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties dialog box appears.
2. Click the Query tab, and enter the query you want.

Loading a Query

To load a query:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Query tab, and then click the Load button.
3. Enter the name of the query file you want to open.

Saving a Query

To save a query:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Query tab, and then click the Save button.
3. Enter the name of the query file you want to create.

To append a new query to the existing query:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties dialog box appears.
2. Click the Query tab, and press the right arrow key to position the cursor at the end of the field.
3. Enter the new query you want to append.

Overriding the Default Query

To override the default query:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Query tab, and enter the query you want as the new default.
3. Save the query to a file.
4. Click OK to apply the new query to the database.

Restoring the Default Query

To restore the default query:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties dialog box appears.
2. Click the Query tab, and then click the Load button.
3. Double-click the DEFAULT.QRY file.
4. Click OK to apply the default query to the database.

Setting Spreadsheet Colors

To color a spreadsheet property:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Color tab.
3. Select the property you want to color.
4. Select the color you want to assign to the selected property.

Setting Spreadsheet Font Properties

To set spreadsheet font properties:

1. In the Database Manager, in Ribbon view, on the Home or View tab, in the Settings group, click Properties.

   - Or -

   In Classic view, on the View menu, click Properties.

   The Properties Dialog Box appears.
2. Click the Font tab.
3. Select the font type, style, and size for the text in the spreadsheet.

Customizing the Database Manager

Click the appropriate link below for more information on customizing the Database Manager toolbar and the contents of the Tools menu:

NOTE: The first item in the list applies to Classic view only. Ribbon view includes all options.

- Customizing the Toolbar
- Customizing the Tools Menu

Customizing the Toolbar

Click the appropriate link below for more information about customizing the toolbar:

NOTE: The following list applies to Classic view only. Ribbon view includes all options.

- Adding a Button to the Database Manager's Toolbar
- Removing a Button from the Database Manager's Toolbar
- Arranging Buttons on the Database Manager's Toolbar

Adding a Button to the Database Manager's Toolbar

To add a button to Database Manager's toolbar:

NOTE: The following steps apply to Classic view only. Ribbon view includes all options.

1. In the Database Manager, in Classic view, on the Tools Menu, click Customize. The Customize dialog box appears.
2. Click the Toolbars tab.
3. Click and drag the button you want to add onto the toolbar.

Removing a Button from the Database Manager's Toolbar

To remove a button on the Database Manager's toolbar:

NOTE: The following steps apply to Classic view only. Ribbon view includes all options.

1. In the Database Manager, in Classic view, on the Tools Menu, click Customize. The Customize dialog box appears.
2. Select the Toolbar Tab.
3. Click and drag the button you want to remove off the toolbar.

Arranging Buttons on the Database Manager's Toolbar

To arrange the buttons on the Database Manager's toolbar:

NOTE: The following steps apply to Classic view only. Ribbon view includes all options.

1. In the Database Manager, in Classic view, on the Tools Menu, click Customize. The Customize dialog box appears.
2. Click and drag the button you want to move to its new location.

Customizing the Tools Menu

Click the appropriate link below for more information about customizing the Tools menu:

- Adding a Menu Item to the Tools menu
- Selecting the Application to Launch from the Database Manager
- Arranging Menu Items on the Tools Menu
- Removing Menu Items from the Tools Menu
- Launching an Application

Adding a Menu Item to the Tools menu

To add a menu item to the Tools menu:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Customize Tools group, click the Customize Dialog Box Launcher.

   - Or -

   In Classic view, on the Tools Menu, click Customize.

   The Customize Dialog Box appears.
2. Click the Tools tab.
3. Select the application you want to launch on the Database Manager.
4. In the Menu Text field, enter the text you want displayed in the Tools menu.
5. Enter any arguments you want to use when the application runs. If you want to prompt the user for arguments, select the Prompt for Arguments check box instead.
6. Select the Place Separator After This Entry check box to add a dividing line between this menu entry and the next menu entry.

To select the application you want to launch:

In the Database Manager, in Ribbon view, on the Home tab, in the Customize Tools group, click Tools, then click the application you want to launch.

- Or -

In Classic view, on the Tools menu, click the application you want to launch.

Arranging Menu Items on the Tools Menu

To arrange menu items on the Tools menu:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Customize Tools group, click the Customize Dialog Box Launcher.

   - Or -

   In Classic view, on the Tools Menu, click Customize.

   The Customize Dialog Box appears.
2. Click the Tools tab.
3. Select the menu entry you want to move.
4. Click the up or down arrow button to move the selected item in the direction you want.

Removing Menu Items from the Tools Menu

To remove a menu item from the Tools menu:

1. In the Database Manager, in Ribbon view, on the Home tab, in the Customize Tools group, click the Customize Dialog Box Launcher.

   - Or -

   In Classic view, on the Tools menu, click Customize.

   The Customize dialog box appears.
2. Click the Tools tab.
3. Select the menu entry you want to delete and click the Delete button.

Launching Applications from the Tools Menu

To launch an application:

In the Database Manager, in Ribbon view, on the Home tab, in the Customize Tools group, click Tools, select an application.

- Or -

In Classic view, on the Tools Menu, click the application.

Database Block Reference

Click one of the blocks listed below to get more information on the individual block.

A

Analog Alarm

Analog Input

Analog Output

Analog Register

B-C

Boolean

Calculation

D

Dead Time

Device Control

Digital Alarm

Digital Input

Digital Output

Digital Register

E-L

Event Action

Extended Trend

Fanout

Histogram

Lead Lag

M-Q

Multi-State Digital

On-Off Control

Pareto

Program

PID

R-S

T-Z

Analog Alarm Block

Purpose

The Analog Alarm (AA) block sends and receives analog data from the I/O driver or OPC server to provide alarm control. Using this block you can suspend alarms and define limits and priorities for each alarm. The block can also wait a specified time interval before issuing an alarm, close a contact when an alarm occurs, and automatically reissue and acknowledge alarms.

Features

The Analog Alarm block:

- Is a primary block.
- Can be used as a stand-alone block.
- Generates alarms when values are outside of defined limits.
- Sends and receives values from an I/O driver or OPC server when placed in Automatic mode.
- Receives values from operator input in the iFIX WorkSpace, from scripts, from Program blocks, or from Easy Database Access programs when operating in Manual mode.
- Can be used in a chain with exception-based or time-based processing.
- Can be configured using Continuous Output that allows blocks to attempt to write the contacts with every scan, even if the value being written in unchanged. Without Continuous Output, the block only attempts to write to the defined contact tag when a value has changed and it needs to be written to the PLC. (In this instance, the write is a one-time attempt, so if it fails, the write will not be retried until the block needs to write a new value.)

NOTE: Because the contact mode of “Never” does not reset the contact, the Continuous Output option is not supported for this contact mode.

- Can be configured using the Suppress COMM Alarm option, which allows you to separate the original alarm condition from the COMM alarm, and return the AA block to the same state as it was prior to a COMM alarm. If you disable the Suppress COMM Alarm option, AA blocks handle one alarm at a time. (As a result, it is possible that acknowledgement of a COMM alarm could cause the ACK bit in the PLC to be written, and the original alarm condition, if already acknowledged, could re-alarm.)
- Can be configured to enable the Event messaging (Suspend mode), which applies suppression behavior to disable alarm processing. When the tag is in suspend mode, the Alarm state is set to OK, the Alarm is an alarm message only and therefore, does not appear in the alarm summary. Alarm processing continues with each alarm state transition recorded in the alarm loggers but does not display in the alarm summary. The alarm state contact (tag) is not processed.
- Can use linear scaling on values received. The following formula is used to determine the linear scale value:

  The equation for a line is Y = mX + b

  Where Y is the scaled output value, X is the raw value from the PLC, m is the slope of the line and b is the y intercept.

  The slope for our linearization is defined by output range divided by the input.

  m = (ScaleHigh - ScaleLow) / (RawHigh - RawLow)

  The y intercept is determined by using the low values and the slope.

  b = ScaleLow - m(RawLow)

  In the analog block this results in the block's current value is equal to the driver value times the slope plus the y intercept.

  X_CV = (IO value)m + b

  The driver value equates to the block current value minus the y intercept divided by the slope.

  IO Value = (X_CV - b) / m

Analog Input Block

Purpose

The Analog Input (AI) block sends and receives analog data from an I/O driver or OPC server every time the Scan, Alarm, and Control (SAC) program scans the block.

Features

The Analog Input block:

- Is a primary block.
- Can be used as a stand-alone block.
- Generates alarms when values are outside of defined limits.

- Sends and receives values from an I/O driver or OPC server when placed in Automatic mode.
- Receives values from operator input in the iFIX WorkSpace, from scripts, from Program blocks, or from Easy Database Access programs when operating in Manual mode.
- Can be used in a chain with exception-based or time-based processing.
- Can use linear scaling on values received. The following formula is used to determine the linear scale value:

    The equation for a line is Y = mX + b

    Where Y is the scaled output value, X is the raw value from the PLC, m is the slope of the line and b is the y intercept.

    The slope for our linearization is defined by output range divided by the input.

    m = (ScaleHigh - ScaleLow) / (RawHigh - RawLow)

    The y intercept is determined by using the low values and the slope.

    b = ScaleLow - m(RawLow)

    In the analog block this results in the block's current value is equal to the driver value times the slope plus the y intercept.

    X_CV = (IO value)m + b

    The driver value equates to the block current value minus the y intercept divided by the slope.

    IO Value = (X_CV - b) / m

Analog Output Block

Purpose

The Analog Output (AO) block sends an analog signal to an I/O driver or OPC server every time it receives a value from an upstream block, an operator, a Program block, a script, or from its Initial Value field.

Features

The Analog Output block:

- Is a primary block.
- Can be used as a stand-alone block.
- Can be used in a chain with exception-based or time-based processing.
- Can read back the current PLC value when iFIX starts or when the database is reloaded. Values are only read back once when the database is initialized.
- Can use linear scaling on values received. The following formula is used to determine the linear scale value:

    The equation for a line is Y = mX + b

Where Y is the scaled output value, X is the raw value from the PLC, m is the slope of the line and b is the y intercept.

The slope for our linearization is defined by output range divided by the input.

m = (ScaleHigh - ScaleLow) / (RawHigh - RawLow)

The y intercept is determined by using the low values and the slope.

b = ScaleLow - m(RawLow)

In the analog block this results in the block's current value is equal to the driver value times the slope plus the y intercept.

X_CV = (IO value)m + b

The driver value equates to the block current value minus the y intercept divided by the slope.

IO Value = (X_CV - b) / m

Analog Register Block

Purpose

The Analog Register (AR) block reads and writes analog values to process hardware. It provides both input and output capacity in a single block using a minimum amount of memory because iFIX only processes the block when a picture that references it is open.

Features

The Analog Register block:

- Is a primary block.
- Is always a stand-alone block.
- Sends and receives values from an I/O driver or OPC server.
- Requires no SAC processing.
- Lowers CPU overhead when compared to an Analog Input block and increases SAC performance.
- Is processed when the picture containing the Analog Register block is displayed in the iFIX WorkSpace, even when SAC is not running. The block is not processed when another picture is displayed or when the operator exits the iFIX WorkSpace.
- Accepts pulse count or word value (register) analog signals, which are then converted to engineering units (EGU) for viewing.
- Accesses up to 1024 Analog points in the same poll record.
- Does not support alarming.
- Can use linear scaling on values received. The following formula is used to determine the linear scale value:

  The equation for a line is Y = mX + b

Where Y is the scaled output value, X is the raw value from the PLC, m is the slope of the line and b is the y intercept.

The slope for our linearization is defined by output range divided by the input.

m = (ScaleHigh - ScaleLow) / (RawHigh - RawLow)

The y intercept is determined by using the low values and the slope.

b = ScaleLow - m(RawLow)

In the analog block this results in the block's current value is equal to the driver value times the slope plus the y intercept.

X_CV = (IO value)m + b

The driver value equates to the block current value minus the y intercept divided by the slope.

IO Value = (X_CV - b) / m

Boolean Block

Purpose

The Boolean (BL) block calculates a single true/false output from multiple inputs.

Features

The Boolean block:

- Is a primary block.
- Can be used as a stand-alone block.
- Takes up to eight input values and calculates a single output value.
- Can use alarm states as inputs.
- Can be used in a chain with time-based or exception-based processing.

Calculation Block

Purpose

The Calculation (CA) block performs simple mathematical calculations on the value passed by the upstream block and up to seven other constants or block values.

NOTE: The precision of calculations is fifteen digits. Round-off errors can occur in the sixteenth digit.

Features

The Calculation block:

- Is a secondary block.
- Accepts the output values and fields of other blocks.
- Accepts floating point, integer, or exponential constants.
- Can be used in a chain with time-based or exception-based processing. Note that if any of the inputs (from B - H) are exception-based, the Calculation block will not trigger when any of these change.

Dead Time Block

Purpose

The Dead Time (DT) block can delay the transfer of an input value to the next block in the chain.

Features

The Dead Time block:

- Is an optional control block.
- Is a secondary block.
- Sends values on to the next block based on first-in, first-out (FIFO).

Device Control Block

Purpose

The Device Control (DC) block coordinates the opening and closing of digital devices on the plant floor based upon certain user-defined conditions. This block allows for the timed operation of a device by confirming its status with feedback signals.

Features

The Device Control block:

- Is a primary block.
- Is an optional batch block.
- Can monitor up to 16 digital-input points and can output up to 8 digital-output points.
- Allows two feedback signals (confirm Open and confirm Close) for each output.
- Can be placed on scan by a RUN or CALL command in the Program block or through a Data link.
- Executes all commands without interruption in Automatic mode.
- Suspends the execution of all commands in Manual mode.

Digital Alarm Block

Purpose

The Digital Alarm (DA) block sends and receives digital data (1 or 0) from an I/O driver or OPC server to provide alarm control. Using this block, you can suspend alarms and define an alarm condition and an alarm priority. The block can also wait a specified time interval before issuing an alarm, close a contact when an alarm occurs, and automatically reissue and acknowledge alarms.

Features

The Digital Alarm block:

- Is a primary block.
- Can be used as a stand-alone block.
- Generates alarms when values are outside of defined limits.
- Sends and receives values from an I/O driver or OPC server when placed in Automatic mode.
- Receives values from operator input in the iFIX WorkSpace, from scripts, from Program blocks, or from Easy Database Access programs when operating in Manual mode.
- Can be used in a chain with exception-based or time-based processing.
- Can be configured using Continuous Output that allows blocks to attempt to write the contacts with every scan, even if the value being written in unchanged. Without Continuous Output, the block only attempts to write to the defined contact tag when a value has changed and it needs to be written to the PLC. (In this case, the write is a one-time attempt, so if it fails, the write will not be retried until the block needs to write a new value.)

  NOTE: Because the contact mode of "Never" does not reset the contact, the Continuous Output option is not supported for this contact mode.
- Can be configured using the Suppress COMM Alarm option, which allows you to separate the original alarm condition from the COMM alarm, and return the DA block to the same state as it was prior to a COMM alarm. If you disable the Suppress COMM Alarm option, DA blocks handle one alarm at a time. (As a result, it is possible that acknowledgement of a COMM alarm could cause the ACK bit in the PLC to be written, and the original alarm condition, if already acknowledged, could re-alarm.)
- Can be configured to enable the Event messaging (Suspend mode), which applies suppression behavior to disable alarm processing but shows an alarm message. When the tag is in suspend mode, the Alarm state is set to OK. Since the Alarm is an alarm message only, it does not appear in the alarm summary. Alarm processing continues with each alarm state transition recorded in the alarm loggers; however, this does not display in the alarm summary. The alarm state contact (tag) is not processed.

Digital Input Block

Purpose

The Digital Input (DI) block sends and receives digital data (1 or 0) from an I/O driver or OPC server every time the Scan, Alarm, and Control (SAC) program scans the block.

Features

The Digital Input block:

- Is a primary block.
- Can be used as a stand-alone block.
- Generates alarms when values are outside of defined limits.
- Sends and receives values from an I/O driver or OPC server when placed in Automatic mode.
- Receives values from an operator input in the iFIX WorkSpace, from scripts, from Program blocks, or from Easy Database Access programs when operating in Manual mode.
- Can be used in a chain with exception-based or time-based processing.

Digital Output Block

Purpose

The Digital Output (DO) block sends a digital value (1 or 0) to an I/O driver or OPC server every time it receives a value from an upstream block, an operator, a Program block, a script, or from its Initial Value field.

Because iFIX processes Digital Output blocks whenever a new value is sent to the hardware, they generally operate as though they were latched. If you configure a Digital Output block as a stand alone block, it outputs a digital value each time the value changes.

Features

The Digital Output block:

- Is a primary block.
- Can be used as a stand-alone block.
- Can be used in a chain with exception-based or time-based processing.
- Can read back the current PLC value when iFIX starts or when the database is reloaded. Values are only read back when the database is initialized.
- Can receive values from a Program block or a script.
- Can be configured using the "Write if Different" output option to prevent a write by the DO block if the value in the driver is the same as the value that is to be written. The DO block will read the bit from the driver and if different, execute the write. If the values are the same, no value is written on this scan.

Digital Register Block

Purpose

The Digital Register (DR) block reads and writes digital values to process hardware. It provides both input and output capacity in a single block using a minimum amount of memory because iFIX only processes the block when a picture that references it is open.

Features

The Digital Register block:

- Is a primary block.
- Is always a stand-alone block.
- Sends and receives values from an I/O driver or OPC server.
- Requires no SAC processing.
- Lowers CPU overhead when compared to an Digital Input block and increases SAC performance.
- Is processed when the picture containing the Digital Register block is displayed in the iFIX WorkSpace, even when SAC is not running. The block is not processed when another picture is displayed or when the operator exits the iFIX WorkSpace.
- Accepts pulse or digital signals.
- Accesses up to 1024 digital I/O points in the same poll record.
- Does not support alarming.

Event Action Block

Purpose

The Event Action (EV) block tests the value or alarm condition of the previous block using IF-THEN-ELSE logic. Based upon the outcome of the test expression, the block can then either open or close a digital point or turn a block on or off scan.

Features

The Event Action block:

- Is a secondary block.
- Has undefined default values so that if a field is left blank, no action takes place.
- Tests up to two conditions consecutively.

Extended Trend Block

Purpose

The Extended Trend (ETR) block collects up to 600 values from an upstream block. By using this block, you can trend up to 10 minutes worth of data (assuming a one second scan time) with one block instead of chaining multiple Trend blocks together. In addition, you can store several hours, or even days of real-time data, by combining different scan rates in conjunction with the Average Compress field.

The upstream primary block in the chain determines Extended Trend block's scan time. When the block receives a value, it stores the data and passes it to the next downstream block immediately. You can display data collected by the block using a chart in the iFIX WorkSpace.

Note that the process database also provides a Trend block. This block trends up to 80 values. If you need to trend more than 80 values, use the Extended Trend block.

Features

The Extended Trend block:

- Is a secondary block.
- Stores up to 600 values from an upstream block in a First In, First Out (FIFO) queue.
- Averages groups of data (optional) and stores the averages for trending.
- Displays values in the iFIX WorkSpace through a chart.
- Uses data in conjunction with Easy Database Access programs.

Fanout Block

Purpose

The Fanout (FN) block sends the value it receives to the Next Block and up to four additional blocks. The block listed as a Next Block receives the value immediately. The additional destination blocks receive the value the next time iFIX scans those blocks. If the destination block is in Manual mode, the update is instantaneous.

Features

The Fanout block:

- Is a secondary block.
- Sends values to blocks that are in the same database.
- Requires that the target primary blocks be in Manual mode to receive values.
- Can only send values to a Trend block that is in the Next Block field.
- Does not place blocks on scan by sending its values.
- Does not generate alarms.
- Can be used in a chain with exception-based or time-based processing.

Histogram Block

Purpose

The Histogram (HS) block records how frequently a value occurs during a specified period.

Features

The Histogram block:

- Is an optional statistical process block.
- Is a secondary block.
- Receives values from an upstream block.

Display Considerations

The Histogram block displays only previously collected values. The Group field determines the number of values the block collects before it displays them. For example, if the upstream block's scan rate is 5 seconds and you specify a Group value of 10, the chart only reflects the values collected during the last 50 seconds.

Meanwhile, the Histogram block is collecting another set of values, which it will display at the end of the next 50-second, scan interval. Note that if the upstream block is taken off scan, the histogram does not register the frequency-of-occurrence data.

Lead Lag Block

Purpose

The Lead Lag (LL) block allows you to simulate process dynamics by combining the advantages of lead and lag compensation strategies.

TIP: We suggest you use this block only if you are thoroughly familiar with lead lag theory. If you simply need a time delay, consider using the Dead Time block.

The Lead Lag formula is:

Output=C3[C1(Input-Prior Output)+(Input*Scan time)+C2(Prior Output)]

where: C1 = Lead Time

C2 = Lag Time

$$C3 = \frac{K}{C2 + \text{Scan Time}}$$

C1, C2, and the scan time (of the primary block) are in seconds. K is the constant defined in the block's Constant field.

Features

The Lead Lag block:

- Is an optional control block.
- Is a secondary block.
- Lets the lead dominate if the lead time is greater than the lag time.
- Lets the lag dominate if the lag time is greater than the lead time.

NOTE: Lead compensation tends to improve the rise time and overshoot of the system, but increases the dead band. Lag compensation improves the steady-state response, but results in a longer rise time since the dead band decreases.

Multistate Digital Input Block

Purpose

The Multistate Digital Input (MDI) block provides a means of monitoring the state of one, two, or three related digital inputs. The block produces a raw input value (0 - 7) based on digital values it receives from an I/O driver or OPC server every time the Scan, Alarm, and Control (SAC) program scans the block.

Features

The Multistate Digital Input block:

- Is a primary block.
- Can be used as a stand-alone block.
- Provides more detailed information about a device than a Digital Input block.
- Generates alarms when values are outside of defined limits.
- Receives values from up to three driver I/O addresses or OPC servers.
- Receives values from Program blocks or from Easy Database Access programs.
- Can be used in a chain with exception-based or time-based processing.

On-Off Control Block

Purpose

The On-Off Control (BB) block opens and closes up to two digital outputs based upon an incoming analog value or an operator input.

Features

The On-Off Control block:

- Is an optional control block.
- Is a secondary block.
- Must receive input from an upstream Analog Input or Analog Alarm block.
- Controls one or two digital outputs automatically, when operated in Automatic mode.
- Allows an operator to open and close the high and low contacts from the iFIX WorkSpace, when operated in Manual mode.
- Can be used in a chain with exception-based or time-based processing.

Pareto Block

Purpose

The Pareto (PA) block can accept up to eight inputs and calculate percentages for them.

Features

The Pareto block:

- Is an optional statistical process control block.
- Is a primary block.
- Is a stand-alone block.
- Accepts up to eight inputs from blocks, such as Analog Input and Totalizer blocks, or through operator entries.
- Continually calculates the percentage of the total inputs.
- Maintains two sets of values: one sorted in ascending or descending order; the other unsorted. Unsorted values remain in their order of entry on the Pareto block dialog box.
- Can be used in a chain with exception-based or time-based processing.

PID Block

Purpose

The PID block maintains balance in a closed loop by changing the controlled variable (an analog output) in response to deviations from a user-defined set point. The difference between the actual value (an analog input) and the set point value is the error, or deviation.

In response to errors, the PID block calculates an appropriate control output signal, which attempts to reduce the error to zero. The adjustment that the PID block makes is a function of the difference between the set point and the measurement, in addition to the values of the proportional band, the reset, and the rate.

Features

The PID block:

- Is an optional control block.
- Is a secondary block.
- Ultimately receives its value from an upstream Analog Input block even though secondary blocks can intervene between the AI and the PID block in the chain.
- Bases its control period on the scan time selected for the upstream Analog Input block.
- Can send output to another control block or to an Analog Output block.
- Can have its set point value changed by:
- The output of a master PID block (cascaded set point).
- Operator entry into a Data link that references a Target Value field.
- A SETTARG Program block command (in the Batch option) or a script.
- A change in the value of an Analog Input block that is specified as the PID block's set point.
- A change in the value of an Analog Input block connected to a Fanout block. The Fanout block would have the PID block's name listed in its Destination field.

  NOTE: When using a Fanout block in this manner, you must append the field F_TV1 to the PID block's name.
- Maintains the balance in the process loop when operating in Automatic mode.
- Suspends updates to the PID algorithm when operating in Manual mode. You can change block parameters, such as the Set Point, Tuning Parameters, and Engineering Units Output from the keyboard in Manual mode.

Program Block

Purpose

The Program (PG) block provides a powerful means of running short programs to increase the degree of automation in your process or to assist in batch control. For a list of the supported commands that you can use in programming statements within this block, refer to the Program Block Commands section.

Features

The Program block:

- Is a Batch block.
- Works in Automatic mode by executing all programming commands without interruption.
- Works in Manual mode by suspending the execution of programming commands until the block returns to Automatic mode. When returned to Automatic mode, the Program block continues executing commands where it left off.

- Cannot execute time-related commands, such as WAITFOR, CALL, MAXWAIT, WAITSTAT, SETDEBUG, and DELAY, when the scan time is either 0 or exception-based.
- Triggers an immediate scan on manual inputs. For example, if AI1 is in manual mode and the Program block contains the command SETOUT AI1 50, an immediate scan of AI1 occurs when the Program block runs.

Ramp Block

Purpose

The Ramp (RM) block decreases or increases a target output value. The block provides up to three stages for ramping values. Each ramp stage lets you specify a target value and a ramp rate. The first two stages also provide a hold time. At each scan cycle, the Ramp block sends its output value to the block specified in the Next Block field.

Features

The Ramp block:

- Is a primary block.
- Is a control block.
- Can be used as a stand-alone block.
- Can have a ramp rate manually changed in the iFIX WorkSpace through a Data link.
- Can have a target value manually changed in the iFIX WorkSpace through a Data link or by the Program block's SETTARG command.
- Can have a hold time manually changed in the iFIX WorkSpace through a Data link or by the Program block's SETTIME command.
- Can send its value to any secondary block.
- Operates in Automatic mode by initializing its current value based on the Low Limit value. On a transition to Automatic mode, the Ramp block begins the ramping process from where it last left off, using either the value it had reached when it was placed in Manual mode, or the latest values from the WorkSpace if the operator entered values while the block was in Manual mode.
- Operates in Manual mode by initializing its current value from either a manual entry or the Low Limit value. On a transition to Manual, iFIX suspends ramping until the block is returned to Automatic mode. The last current value of the block is output until the block is switched back to Automatic mode.

Ratio Bias Block

Purpose

The Ratio Bias (RB) block lets you change an incoming signal by adding a constant (bias) and/or by multiplying by a constant (ratio). The block calculates the constant by subtracting an offset from the signal.

The following equation illustrates this method:

Output = Ratio (Input - Offset) + Bias

NOTE: This is a variation of y = mx + b.

Features

The Ratio Bias block:

- Is a control block.
- Is a secondary block.
- Can be used in a chain with exception-based or time-based processing.

Signal Select Block

Purpose

The Signal Select (SS) block provides a means of sampling up to six inputs, manipulating the inputs according to a user-selected mode, and sending the result to the next block.

Features

The Signal Select block:

- Is a secondary block.
- Supports changing the Selected Mode from a Data link, Program block, or Easy Database Access program.
- Accepts multiple inputs and generates one output.

SQL Data Block

Purpose

The SQL Data (SQD) block identifies the data to read or write when a SQL Trigger block executes. The SQL Data block transfers data between the iFIX process database and your relational database.

Features

The SQL Data block:

- Is a secondary block.
- Only follows an SQL Trigger block.
- Identifies up to 20 block and field name pairs.
- Chains to other SQL Data blocks.
- Determines the direction of data transfer.

SQL Trigger Block

Purpose

The SQL Trigger (SQT) block lets iFIX execute SQL commands.

Features

The SQL Trigger block:

- Is a primary database block.
- Runs as a stand alone block, but is usually followed by at least one SQL Data block.
- Determines which SQL command in the SQL Library Table to use in handling process data.
- Determines when to execute the SQL command.
- Defines the selection mode.

Statistical Control Block

Purpose

The Statistical Control (SC) block lets you adjust a value from another block by calculating the average offset and the rate of deviation from the average XBARBAR.

Features

The Statistical Control block:

- Is a statistical block.
- Is a secondary block that can only be preceded by a Statistical Data block.
- Uses an approximate curve to determine slope and deviation values.
- Only calculates an adjustment value if the upstream Statistical Data block generates an alarm; the Statistical Control block bases its adjustment on the alarm it receives.
- Is disabled if the alarms on the Statistical Data block are disabled.

- Operates in Automatic mode by automatically passing the adjustment value to the block specified in the Add To field.
- Operates in Manual mode by calculating the adjustment value, but not passing it to another block.
- Passes its adjustment to other blocks such as the Analog Output, PID, and Ramp blocks.

Statistical Data Block

Purpose

The Statistical Data (SD) block collects and performs statistical calculations on data.

Features

The Statistical Data block:

- Is a statistical block.
- Can be used as a stand-alone block.
- Can only be followed by a Statistical Control block, if appropriate.
- Receives data from Analog Input, Analog Output, Analog Alarm, and Calculation blocks through the Input field, not from a previous block's Next Block field.
- Supports from 12 to 50 groups and from 1 to 25 observations per group.
- Performs alarming and charting on control and warning limits.
- Provides out of process control alarms.
- Operates in Automatic mode by accepting automatic updates.
- Operates in Manual mode by accepting manual updates from operators or from Easy Database Access programs.
- Can be used in a chain with exception-based processing if you do not enter a time in the Wait Time field.

Text Block

Purpose

The Text (TX) block reads and writes text from your process hardware or an OPC server. When the block receives text, it sends the data to all enabled alarm destinations assigned to the block's alarm areas.

Features

The Text block:

- Is a primary block.
- Reads up to 80 characters.
- Allows operators to write up to 80 characters from the iFIX WorkSpace.
- Displays a null-terminated message through a Data link referencing the A_CV field.
- Operates in Automatic mode by reading or writing its current value.
- Operates in Manual mode by disabling its processing.
- Supports the SIM driver.

  IMPORTANT: You can only use the Text block with drivers that support it. Check with your local GE distributor for the availability of TX-compatible I/O drivers.

Timer Block

Purpose

The Timer (TM) block functions as a time counter by incrementing or decrementing its value.

Features

The Timer block:

- Is a secondary block.
- Passes the value (0 or 1) from its upstream block to the downstream block.
- Can be chained from a Digital Input block, a Digital Alarm block, or a Boolean block. The Timer block can also be chained from a Digital Output block but only if the Digital Output block is part of an chain that starts with a scanned block.
- Cannot be chained from an AR or DR block, as these blocks are not processed by SAC.
- Starts counting from a preset value or zero.
- Increments its value up to 365 days or until reset.
- Decrements its value to a target value or to zero.
- Triggers an alarm upon reaching a target value.
- Can suspend counting using a digital block.
- Resets when the digital upstream block changes from zero to one.

Totalizer Block

Purpose

The Totalizer (TT) block maintains a floating-point total for values passed to it from upstream blocks.

Features

The Totalizer block:

- Is a secondary block.
- Displays values in the iFIX WorkSpace and passes values to downstream blocks with up to 15 digits of precision.
- Can be reset by using a SETOUT command from the Program block, a PUT operation from a Easy Database Access program, reloading the process database, or restarting the computer.
- Can be used in a chain with exception-based or time-based processing.
- Cannot be chained from an AR or DR block, as these blocks are not processed by SAC.

Trend Block

Purpose

The Trend (TR) block can collects up to 80 values over a period of time. You can trend these values by connecting the block to a chart in the iFIX WorkSpace.

The upstream primary block in the chain determines Trend block's scan time. When the block receives a value, it stores the data and passes it with negligible dead time (transportation delay) to the next down-stream block immediately.

Features

The Trend block:

- Is a secondary block.
- Stores up to 80 values from an upstream block in the First In, First Out (FIFO) queue.
- Can be chained to other Trend blocks to trend more than 80 values.
- Averages groups of data and stores the averages for trending.
- Displays its data in a picture through a chart.
- Uses data in conjunction with Easy Database Access programs.

Database Block Field Reference

Click one of the blocks listed below to get a list of fields for each block.

A

Analog Alarm

Analog Input

Analog Output

Analog Register

B-C

Boolean

Calculation

D

Dead Time

Device Control

Digital Alarm

Digital Input

Digital Output

Digital Register

E-L

Event Action

Extended Trend

Fanout

Histogram

Lead Lag

M-Q

Multistate Digital Input

On-Off Control

Pareto

PID

Program

R-S

Ramp

Ratio Bias

Signal Select

SQL Data

SQL Trigger

Statistical Control

Statistical Data

T-Z

Text

Timer

Totalizer

Trend

Analog Alarm Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_AACK	A block and field to use for alarm acknowledgment.	Block.field
A_ADI	The blocks alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the blocks alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSHELFREMTIME F_ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.

A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_ALM_ SUSPENDMODE F_ALM_SUSPENDMODE	Configures Event messaging (Suspend mode), which applies to the process alarm limit as an event.	Enable: Yes (1), or Disable: No (0).
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_ASUSP	A block and field that controls whether the Analog Alarm block processes alarms.	Block.field
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CCDEV	The digital block to close when deviation alarms occur.	FIX32.node.block.field
A_CCHH	The digital block to close when High High alarms occur.	FIX32.node.block.field
A_CCHI	The digital block to close when High alarms occur.	FIX32.node.block.field
A_CCLL	The digital block to close when Low Low alarms occur.	FIX32.node.block.field
A_CCLO	The digital block to close when Low alarms occur.	FIX32.node.block.field
A_CCOTH	The digital block to close when other alarms occur.	FIX32.node.block.field
A_CCROC	The digital block to close when Rate of Change alarms occur.	FIX32.node.block.field
A_CHALM	The chains most severe alarm.	N/A. This is a display only field.
A_COMM_SURPRESS F_COMM_SURPRESS	Sets whether COMM alarms are suppressed for this block. When selected, this option separates the original alarm condition from the COMM alarm, and returns the block to the same state as it was prior to a COMM alarm. For example, if prior to the COMM alarm, the AA block was	Enable (1) or Disable (0).

	an active alarm but already acknowledged, that is the state it should return to after communication is restored. If disabled, AA blocks handle one alarm at a time. As a result, it is possible that acknowledgement of a COMM alarm could cause the ACK bit in the PLC to be written, and the original alarm condition, if already acknowledged, could re-alarm.	
A_CTK_PERSIST F_CTK_PERSIST	Sets whether blocks allow write attempts to the contact(s) with every scan, even if the value being written is unchanged. When disabled, the AA block only attempts to write to the defined contact tag when a value has changed and it needs to be written to the PLC. The write is a one-time attempt, so if it fails, the write will not be retried until the block needs to write a new value. **NOTE:** There are four modes for the contacts - “Acknowledge”, “Return”, “All Clear”, and “Never” - that control when the contact is cleared. Since the contact mode of “Never” does not reset the contact, the Continuous Output option is not supported for this contact mode.	Enable (1) or Disable (0).
A_CUALM	The blocks current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The blocks current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DBAND F_DBAND	The maximum fluctuation the block accepts without re-issuing an alarm.	A numeric value within the EGU range.
A_DESC	The text in the blocks Description field.	Up to 256 characters.
A_DEV E_DEV F_DEV	The blocks deviation alarm limit.	A numeric value within the EGU range.
A_DTDEV	The length of time to wait before generating deviation alarms.	Any time from 00:00:00:00 to

		03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_DTHH	The length of time to wait before generating High High alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_DTHI	The length of time to wait before generating High alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_DTLL	The length of time to wait before generating Low Low alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_DTLO	The length of time to wait before generating Low alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_DTOTH	The length of time to wait before generating other alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_DTROC	The length of time to wait before generating rate of change alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_DVALM	The current alarm status for deviation alarms.	N/A. This is a display only field.
A_DVPRI	The alarm priority of deviation alarms.	Low, Medium, or High.
A_EGUDESC	The blocks engineering units label.	Up to 33 characters.
A_EHI E_EHI F_EHI	The blocks high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO E_ELO F_ELO	The blocks low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.

A_ENAB F_ENAB	The blocks alarm status.	Enable: Yes (1), or Disable: No (0).
A_EOUT	Yes, if the block writes data to the process hardware, or No, if the block does not.	Yes or No.
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the blocks engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HHALM	The current alarm status for High High alarms.	N/A. This is a display only field.
A_HHPRI	The alarm priority of High High alarms.	Low, Medium, or High.
A_HI E_HI F_HI	The blocks High alarm limit.	A numeric value within the EGU range.
A_HIHI E_HIHI F_HIHI	The blocks High High alarm limit.	A numeric value within the EGU range.
A_HIALM	The current alarm status for High alarms.	N/A. This is a display only field.
A_HIPRI	The alarm priority of High alarms.	Low, Medium, or High.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE	The type of Collector deadband set-	Absolute (0) or Per-

F_HIST_COMPTYPE	ting.	centage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_ OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_ HIST_OFFSET * 1000 **NOTE:** The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The block's collection offset time.The value of this field must be less than or equal to the value of the A_HIST_ INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000 **NOTE:** The values for the A_HIST_ INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_IOAD	The blocks I/O address.	Depends on your driver. Refer to your driver manual for more information.
A_IODV	The name of the blocks I/O driver.	Depends on your driver. Refer to your driver manual for more inform-

		ation.
A_IOHT	The I/O drivers hardware options.	Depends on your driver. Refer to your driver manual for more information.
A_IOSC	The type of signal conditioning used by the block.	Depends on your driver. Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off
A_LAALM	The blocks most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_LLALM	The current alarm status for Low Low alarms.	N/A. This is a display only field.
A_LLPRI	The alarm priority of Low Low alarms.	Low, Medium, or High.
A_LO E_LO F_LO	The blocks Low alarm limit.	A numeric value within the EGU range.
A_LOALM	The current alarm status for Low alarms.	N/A. This is a display only field.
A_LOLO E_LOLO F_LOLO	The blocks Low Low alarm limit.	A numeric value within the EGU range.
A_LOPRI	The alarm priority of Low alarms.	Low, Medium, or High.
A_MDEDV	When to open the deviation alarms contact.	Acknowledge, Return, All Clear, or Never.
A_MDEHH	When to open the High High alarms contact.	Acknowledge, Return, All Clear, or Never.
A_MDEHI	When to open the High alarms contact.	Acknowledge, Return, All Clear, or Never.
A_MDELL	When to open the Low Low alarms contact.	Acknowledge, Return, All Clear, or Never.
A_MDELO	When to open the Low alarms contact.	Acknowledge, Return, All Clear, or Never.
A_MDEOT	When to open the other alarms contact.	Acknowledge, Return, All Clear, or Never.
A_MDERC	When to open the contact for Rate of Change alarms.	Acknowledge, Return, All Clear, or Never.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.

A_NAME	The blocks type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_OTALM	The current alarm status for other alarms.	N/A. This is a display only field.
A_OTPRI	The alarm priority of other alarms.	Low, Medium, or High.
A_PDR_ACCESSTIME F_PDR_ACCESSTIME	Reserved.	N/A.
A_PDR_ARRAYLENGTH F_PDR_ARRAYLENGTH	Reserved.	N/A.
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved.	N/A.
A_PDR_DISABLEOUT F_PDR_DISABLEOUT	Reserved.	N/A.
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved.	N/A.
A_PDR_UPDATERATE F_PDR_UPDATERATE	Reserved.	N/A.
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The blocks alarm priority.	Low, Medium, or High.
A_PRIM	The blocks name.	N/A. This is a display only field.
A_RATDV	The length of time to wait before re-issuing deviation alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_RATHH	The length of time to wait before re-issuing High High alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_RATHI	The length of time to wait before re-	Any time from

	issuing High alarms.	00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_RATLL	The length of time to wait before re-issuing Low Low alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_RATLO	The length of time to wait before re-issuing Low alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_RATOT	The length of time to wait before re-issuing other alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_RATRC	The length of time to wait before re-issuing Rate of Change alarms.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_RCALM	The current alarm status for Rate of Change alarms.	N/A. This is a display only field.
A_RCPRI	The alarm priority for Rate of Change alarms.	Low, Medium, or High.
A_ROC E_ROC F_ROC	The maximum, acceptable change in the blocks value that can occur between scan periods.	A numeric value within the EGU range.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCALE_CLAMP F_SCALE_CLAMP	Whether the data received or sent will be limited to the ranges specified in the following fields: • A_/E_/F_SCALE_HIGH • A_/E_/F_SCALE_LOW • A_/E_/F_SCALE_RAWHIGH • A_/E_/F_SCALE_RAWLOW	Yes (1) or No (0).
A_SCALE_ENABLED F_SCALE_ENABLED	Whether linear scaling is enabled.	Yes (1) or No (0).
A_SCALE_HIGH E_SCALE_HIGH	The high limit of the sent values.	A numeric value.

F_SCALE_HIGH		
A_SCALE_LOW E_SCALE_LOW F_SCALE_LOW	The low limit of the sent values.	A numeric value.
A_SCALE_RAWHIGH E_SCALE_RAWHIGH F_SCALE_RAWHIGH	The high limit of the received values.	A numeric value.
A_SCALE_RAWLOW E_SCALE_RAWLOW F_SCALE_RAWLOW	The low limit of the received values.	A numeric value.
A_SCALE_USEEGU F_SCALE_USEEGU	Whether Engineering Units are used for scaling block output.	Yes (1) or No (0).
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The blocks scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_SMOTH	The smoothing value.	0 to 15.
A_TAG	The blocks name.	N/A. This is a display only field.
A_TARG F_TARG	The blocks optimum value or block and field name followed by: • R if the value is retrieved from a block. • L if the value is local.	Block.field or a numeric value within the EGU range.
A_TRTAG	The blocks deviation alarm limit.	A numeric value within the EGU range.
A_TYP1 through A_TYP7	Text describing each type of alarm the block generates.	Up to 3 characters.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved.	N/A.
A_ALMCHANGE F_ALMCHANGE	Reserved.	N/A.
A_ALMDELETE F_ALMDELETE	Reserved.	N/A.
A_ALMGEN F_ALMGEN	Reserved.	N/A.
A_ALMRESET F_ALMRESET	Reserved.	N/A.
A_ALMUPDATE	Reserved.	N/A.

F_ALMUPDATE		
A_PUBLISH F_PUBLISH	Reserved.	N/A.
A_WRITABLE F_WRITABLE	Reserved.	N/A.

Analog Input Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSHELFREMTIME F_ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display

		only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DBAND E_DBAND F_DBAND	The maximum fluctuation the block accepts without re-issuing an alarm.	A numeric value within the EGU range.
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI E_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO E_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_EOUT	Yes, if the block writes data to the process hardware, or No, if the block does not.	Yes or No.
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIG_COMMENT F_ESIG_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.

A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HI E_HI F_HI	The block's High alarm limit.	A numeric value within the EGU range.
A_HIHI E_HIHI F_HIHI	The block's High High alarm limit.	A numeric value within the EGU range.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block.The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields.	A numeric value, in seconds. Must use whole numbers.

	Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_IOAD	The block's I/O address.	Depends on your driver. Refer to your driver manual for more information.
A_IODV	The name of the block's I/O driver.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT	The I/O driver's hardware options.	Depends on your driver. Refer to your driver manual for more information.
A_IOSC	The type of signal conditioning used by the block.	Depends on your driver. Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_LO E_LO F_LO	The block's Low alarm limit.	A numeric value within the EGU range.
A_LOLO E_LOLO F_LOLO	The block's Low Low alarm limit.	A numeric value within the EGU range.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-	N/A. This is a display only field.

	knowledged alarms.	
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ACCESSTIME F_PDR_ACCESSTIME	Reserved.	N/A.
A_PDR_ARRAYLENGTH F_PDR_ARRAYLENGTH	Reserved.	N/A.
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved.	N/A.
A_PDR_DISABLEOUT F_PDR_DISABLEOUT	Reserved.	N/A.
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved.	N/A.
A_PDR_UPDATERATE F_PDR_UPDATERATE	Reserved.	N/A.
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_ROC E_ROC F_ROC	The maximum acceptable change in the block's value that can occur between scan periods.	A numeric value within the EGU range.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCALE_CLAMP F_SCALE_CLAMP	Whether the data received or sent will be limited to the ranges specified in the following fields: • A_/E_/F_SCALE_HIGH • A_/E_/F_SCALE_LOW • A_/E_/F_SCALE_	Yes (1) or No (0).

	RAWHIGH • A_/E_/F_SCALE_ RAWLOW	
A_SCALE_ENABLED F_SCALE_ENABLED	Whether linear scaling is enabled.	Yes (1) or No (0).
A_SCALE_HIGH E_SCALE_HIGH F_SCALE_HIGH	The high limit of the sent values.	A numeric value.
A_SCALE_LOW E_SCALE_LOW F_SCALE_LOW	The low limit of the sent values.	A numeric value.
A_SCALE_RAWHIGH E_SCALE_RAWHIGH F_SCALE_RAWHIGH	The high limit of the received values.	A numeric value.
A_SCALE_RAWLOW E_SCALE_RAWLOW F_SCALE_RAWLOW	The low limit of the received values.	A numeric value.
A_SCALE_USEEGU F_SCALE_USEEGU	Whether Engineering Units are used for scaling block output.	Yes (1) or No (0).
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_SMOTH	The smoothing value.	0 to 15.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved.	N/A.
A_ALMCHANGE F_ALMCHANGE	Reserved.	N/A.
A_ALMDELETE F_ALMDELETE	Reserved.	N/A.
A_ALMGEN F_ALMGEN	Reserved.	N/A.
A_ALMRESET F_ALMRESET	Reserved.	N/A.
A_ALMUPDATE F_ALMUPDATE	Reserved.	N/A.
A_PUBLISH F_PUBLISH	Reserved.	N/A.

A_WRITABLE F_WRITABLE	Reserved.	N/A.

Analog Output Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Text, up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_COLD	The initial value the block outputs on startup.	A numeric value within the EGU range.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI E_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.

A_ELO E_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	Enable or Disable.
A_HILIM E_HILIM F_HILIM	The highest value that the block can receive from another block or from an operator.	A numeric value within the EGU range.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_	The Collector deadband setting.	A positive numeric value (0 or greater).

DEADBAND		
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	N/A. This is a display only field.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_IOAD	The block's I/O address.	Depends on your driver. Refer to your driver manual for more information.
A_IODV	The name of the block's I/O driver.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT	The I/O driver's hardware options.	Depends on your driver. Refer to your driver manual for more information.

A_IOSC	The type of signal conditioning used by the block.	Depends on your driver. Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	N/A. This is a display only field.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_LOLIM E_LOLIM F_LOLIM	The lowest value that the block can receive from another block or from an operator.	A numeric value within the EGU range.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_	Reserved for future use.	

LATCHDATA F_PDR_ LATCHDATA		
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High
A_PRIM	The block's name.	N/A. This is a display only field.
A_RATE E_RATE F_RATE	The maximum, acceptable change in the block's value that can occur between scan periods. Enter 0 to allow any amount of change.	A numeric value within the EGU range.
A_ROUT	Yes, when the block inverts its current value and outputs it, or No, when the block outputs its current value unchanged.	Yes or No.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCALE_ CLAMP F_SCALE_ CLAMP	Whether the data received or sent will be limited to the ranges specified in the following fields: • A_/E_/F_SCALE_HIGH • A_/E_/F_SCALE_LOW • A_/E_/F_SCALE_RAWHIGH • A_/E_/F_SCALE_RAWLOW	Yes (1) or No (0).
A_SCALE_ ENABLED F_SCALE_ ENABLED	Whether linear scaling is enabled.	Yes (1) or No (0).
A_SCALE_HIGH E_SCALE_HIGH F_SCALE_HIGH	The high limit of the sent values.	A numeric value.
A_SCALE_LOW E_SCALE_LOW F_SCALE_LOW	The low limit of the sent values.	A numeric value.
A_SCALE_ RAWHIGH E_SCALE_ RAWHIGH F_SCALE_ RAWHIGH	The high limit of the received values.	A numeric value.

A_SCALE_RAWLOW E_SCALE_RAWLOW F_SCALE_RAWLOW	The low limit of the received values.	A numeric value.
A_SCALE_USEEGU F_SCALE_USEEGU	Whether Engineering Units are used for scaling block output.	Yes (1) or No (0).
A_SCAN	The on/off scan status of the block.	N/A. This is a display only field.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Analog Register Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for

		backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI E_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO E_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_EOUT	Yes, if the block writes data to the process hardware, or No, if the block does not.	Yes or No.
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.

A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	Enable or Disable.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.

	in seconds.	
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_IOAD	The block's I/O address.	Depends on your driver. Refer to your driver manual for more information.
A_IODV	The name of the block's I/O driver.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT	The I/O driver's hardware options.	Depends on your driver. Refer to your driver manual for more information.
A_IOSC	The type of signal conditioning used by the block.	Depends on your driver. Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area	N/A. This is a write only field.

	database.	
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_NUMS	Whether the starting address is an octal, decimal or hexadecimal value.	Hex, Octal, or Decimal.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_OUT	Yes, if the block writes data to the process hardware or No, if the block does not.	Yes or No.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved.	N/A.
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved.	N/A.
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved.	N/A.
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved.	N/A.
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved.	N/A.
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved.	N/A.
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.

A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCALE_ CLAMP F_SCALE_ CLAMP	Whether the data received or sent will be limited to the ranges specified in the following fields: • A_/E_/F_SCALE_HIGH • A_/E_/F_SCALE_LOW • A_/E_/F_SCALE_RAWHIGH • A_/E_/F_SCALE_RAWLOW	Yes (1) or No (0).
A_SCALE_ ENABLED F_SCALE_ ENABLED	Whether linear scaling is enabled.	Yes (1) or No (0).
A_SCALE_HIGH E_SCALE_HIGH F_SCALE_HIGH	The high limit of the sent values.	A numeric value.
A_SCALE_LOW E_SCALE_LOW F_SCALE_LOW	The low limit of the sent values.	A numeric value.
A_SCALE_ RAWHIGH E_SCALE_ RAWHIGH F_SCALE_ RAWHIGH	The high limit of the received values.	A numeric value.
A_SCALE_ RAWLOW E_SCALE_ RAWLOW F_SCALE_ RAWLOW	The low limit of the received values.	A numeric value.
A_SCALE_ USEEGU F_SCALE_ USEEGU	Whether Engineering Units are used for scaling block output.	Yes (1) or No (0).
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.

A_ALMACK F_ALMACK	Reserved.	N/A.
A_ALMCHANGE F_ALMCHANGE	Reserved.	N/A.
A_ALMDELETE F_ALMDELETE	Reserved.	N/A.
A_ALMGEN F_ALMGEN	Reserved.	N/A.
A_ALMRESET F_ALMRESET	Reserved.	N/A.
A_ALMUPDATE F_ALMUPDATE	Reserved.	N/A.
A_PUBLISH F_PUBLISH	Reserved.	N/A.
A_WRITABLE F_WRITABLE	Reserved.	N/A.

Boolean Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CLOSE	The first seven characters of the	N/A. This field is provided for backward

	block's close label.	compatibility.
A_CLOSEDESC	Text in the block's Close field.	Up to 16 characters.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	Numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_EXP	The block's output value (true or false).	N/A. This is a display only field.
A_GETF1 through A_GETF8	The block's input values.	1 (true), 0 (false), A SIM register with the format, register:bit, a digital block name, or an alarm in the format block-:alarm. If the block is in alarm, the input value is true. Otherwise, it is false.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).

COMPRESS		
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_ HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_ HIST_OFFSET * 1000 NOTE: The values for the A_ HIST_OFFSET and F_HIST_ OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_ HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_ HIST_INTERVAL / 1000 NOTE: The values for the A_ HIST_INTERVAL and F_HIST_ INTERVAL fields are in mil-liseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES F_HIST_	The collection time resolution.	Milliseconds (0) or Seconds (1).

TIMERES		
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_OPEN	The first seven characters of the block's open label.	N/A. This field is provided for backward compatibility.
A_OPENDESC	Text in the block's Open field.	Up to 16 characters.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT	Reserved for future use.	

F_PDR_ DISABLEOUT		
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the upstream block.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TV1 through A_TV8	The block's input values. The field's first character displays: R if the value is retrieved from a block. L if the value is local.	1 (true), 0 (false), A SIM register with the format, register:bit, a digital block name, or an alarm in the format block-:alarm. If the block is in alarm, the input value is true. Otherwise, it is false.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Calculation Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI E_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO E_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB	The block's alarm status.	Enable: Yes (1), or Disable:

F_ENAB		No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_EXP	The block's output value.	N/A. This is a display only field.
A_GET1 through A_GET8	The block's input values.	A numeric constant, a block name, or a block and field name pair.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).

A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an	N/A. This is a display only

	Analog Input block.	field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.

A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TV1 through A_TV7 E_TV1 through E_TV7 F_TV1 through F_TV7	The block's input values. The A_ version of the field displays as its first character: R if the value is retrieved from a block. L if the value is local.	A numeric constant, a block name, or a block and field name pair.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Dead Time Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.

A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).

COMMENT		
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_	The collection offset time. The value of	A numeric value, in seconds.

OFFSET F_HIST_ OFFSET	this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	Must use whole numbers.
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME	Reserved for future use.	

F_PDR_ ACCESSTIME		
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TIME	The block's dead time value.	1.255 seconds.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	

A_ALMGEN F_ALMGEN	Reserved for future use.
A_ALMRESET F_ALMRESET	Reserved for future use.
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.
A_PUBLISH F_PUBLISH	Reserved for future use.
A_WRITABLE F_WRITABLE	Reserved for future use.

Device Control Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_BSTAT	The block's current status. Possible status include debug, delay, off, and wait.	N/A. This is a display only field.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_COLD	The initial value the block outputs on startup.	An eight-character contact pattern.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV	The block's current value.	Numeric value within the

		EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_	The collection interval for this block. The	A float value, in mil-

INTERVAL F_HIST_ INTERVAL	value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	liseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAD1 through A_IAD16	The I/O address for the block's digital inputs.	Depends on your driver. Refer to your driver manual for more information.
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_IODV1	The name of the I/O driver used by the block's input addresses.	Depends on your driver. Refer to your driver manual for more information.
A_IODV2	The name of the I/O driver used by the block's output addresses.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT1	The hardware options for the I/O driver specified in the field A_IODV1.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT2	The hardware options for the I/O driver spe-	Depends on your driver.

	cified in the A_IODV2 field.	Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OAD1 through A_OAD8	The I/O address for the block's outputs.	Depends on your driver. Refer to your driver manual for more information.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA	Reserved for future use.	

F_PDR_ LATCHDATA		
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_STP0 through A_STP11	The command for the specified programming statement.	N/A. This is a display only field.
A_TAG	The block's name.	N/A. This is a display only field.
A_TV1	The current programming statement that is executing.	0 to 11.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Digital Alarm Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_AACK	A block and field name pair to use for alarm acknowledgment.	Block.field
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMCK	The block's alarm condition.	None, Close, Open, or Change of State.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ ALMSHELFREMTIME F_ ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_ALM_ SUSPENDMODE F_ALM_ SUSPENDMODE	Configures Event messaging (Suspend mode), which applies to the process alarm limit as an event.	Enable: Yes (1), or Disable: No (0).
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.

A_ASUSP	A block and field that controls whether the Digital Alarm block processes alarms. **NOTE:** If you use this field, you subsequently cannot use the A_ENAB or F_ENAB field to disable or enable an alarm status. The A_ASUSP field takes precedence over the A_ENAB or F_ENAB fields.	Block.field
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CCALM	The digital block to close when an alarm occurs.	FIX32.node.block.field.
A_CCMOD	When to open the block's contact	Acknowledge, Return, All Clear, or Never.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CLOSE	The first seven characters of the block's close label.	N/A. This field is provided for backward compatibility.
A_CLOSEDESC	Text in the block's Close field.	Up to 16 characters.
A_COMM_ SURPRESS F_COMM_ SURPRESS	Sets whether COMM alarms are suppressed for this block. When selected, this option separates the original alarm condition from the COMM alarm, and returns the block to the same state as it was prior to a COMM alarm. For example, if prior to the COMM alarm, the AA block was an active alarm but already acknowledged, that is the state it should return to after communication is restored. If disabled, AA blocks handle one alarm at a time. As a result, it is possible that acknowledgement of a COMM alarm could cause the ACK bit in the PLC to be written, and the original alarm condition, if already acknowledged, could re-alarm.	Enable (1) or Disable (0).
A_CTK_PERSIST F_CTK_PERSIST	Sets whether blocks allow write attempts to the contact(s) with every scan, even if the value being written is unchanged. When disabled, the AA block only attempts to write to the defined contact tag when a value has changed and it needs to be written to the PLC. The write	Enable (1) or Disable (0).

	is a one-time attempt, so if it fails, the write will not be retried until the block needs to write a new value. **NOTE:** There are four modes for the contacts - “Acknowledge”, “Return”, “All Clear”, and “Never” - that control when the contact is cleared. Since the contact mode of “Never” does not reset the contact, the Continuous Output option is not supported for this contact mode.	
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DELAY	The length of time to wait before generating an alarm.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status. **NOTE:** The A_ASUSP field takes precedence over the A_ENAB or F_ENAB fields. In other words, after you use the A_ASUSP field, you cannot use the A_ENAB or F_ENAB field to disable or enable an alarm status.	Enable: Yes (1), or Disable: No (0).
A_EOUT	Yes, if the block writes data to the process hardware or No, if the block does not.	Yes or No.
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.

A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds(0) or Seconds (1).

A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_INV	Yes, if the block inverts its output value or No, if the block does not invert its output value.	Yes or No.
A_IOAD	The block's I/O address.	Depends on your driver. Refer to your driver manual for more information.
A_IODV	The name of the block's I/O driver.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT	The I/O driver's hardware options.	Depends on your driver. Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_OPEN	The first seven characters of the block's open label.	N/A. This field is provided for backward

		compatibility.
A_OPENDESC	Text in the block's Open field.	Up to 16 characters.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved.	N/A.
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved.	N/A.
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved.	N/A.
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved.	N/A.
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved.	N/A.
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved.	N/A.
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_REALM	The length of time to wait before re-issuing an alarm.	Any time from 00:00:00:00 to 03:00:00:00 (up to 3 days, in the time format of dd:hh:mm:ss).
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK	Reserved.	N/A.

F_ALMACK		
A_ALMCHANGE F_ALMCHANGE	Reserved.	N/A.
A_ALMDELETE F_ALMDELETE	Reserved.	N/A.
A_ALMGEN F_ALMGEN	Reserved.	N/A.
A_ALMRESET F_ALMRESET	Reserved.	N/A.
A_ALMUPDATE F_ALMUPDATE	Reserved.	N/A.
A_PUBLISH F_PUBLISH	Reserved.	N/A.
A_WRITABLE F_WRITABLE	Reserved.	N/A.

Digital Output Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CLOSE	The first seven characters of the block's close label.	N/A. This field is

		provided for backward compatibility.
A_ CLOSEDESC	Text in the block's Close field.	Up to 16 characters.
A_COLD	The initial value the block outputs on startup.	A numeric value within the EGU range.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	Enable or Disable.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_	The type of Collector deadband setting.	Absolute (0) or Per-

COMPTYPE F_HIST_ COMPTYPE		centage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_ OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 **NOTE:** The values for the A_HIST_OFFSET and F_ HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The block's collection offset time.The value of this field must be less than or equal to the value of the A_ HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 **NOTE:** The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	N/A. This is a display only field.
A_INV	Yes, if the block inverts its output value or No, if the block does not invert its output value.	Yes or No.
A_IOAD	The block's I/O address.	Depends on your driver. Refer to your driver manual for more information.

A_IODV	The name of the block's I/O driver.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT	The I/O driver's hardware options.	Depends on your driver. Refer to your driver manual for more information.
A_IOSC	The type of signal conditioning used by the block.	Depends on your driver. Refer to your driver manual for more information.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_OPEN	The first seven characters of the block's open label.	N/A. This field is provided for backward compatibility.
A_OPENDESC	Text in the block's Open field.	Up to 16 characters.
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.

A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_WRITEONDIFF F_WRITEONDIFF	Sets whether writes are prevented by the DO block if the value in the driver is the same as the value that is to be written. When enabled, the DO block will read the bit from the driver and if different, execute the write. If the values are the same, no value is written on this scan.	Yes (1) or No (0).
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Digital Input Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMCK	The block's alarm condition.	None, Close, Open, or Change of State.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ ALMSHELFREMTIME F_ ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CLOSE	The first seven characters of the block's close label.	N/A. This field is provided for backward compatibility.
A_CLOSEDESC	Text in the block's Close field.	Up to 16 characters.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV F_CV	The block's current value.	A numeric value within the EGU range.

A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_EOUT	Yes, if the block writes data to the process hardware or No, if the block does not.	Yes or No.
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	Enable or Disable.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.

	A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_INV	Yes, if the block inverts its output value or No, if the block does not invert its output value.	Yes or No.
A_IOAD	The block's I/O address.	Depends on your driver. Refer to your driver manual for more information.
A_IODV	The name of the block's I/O driver.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT	The I/O driver's hardware options.	Depends on your driver. Refer to your driver manual for more information.
A_IOSC	The type of signal conditioning used by the block.	Depends on your driver. Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.

A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_OPEN	The first seven characters of the block's open label.	N/A. This field is provided for backward compatibility.
A_OPENDESC	Text in the block's Open field.	Up to 16 characters.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved.	N/A.
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved.	N/A.
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved.	N/A.
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved.	N/A.
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved.	N/A.
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved.	N/A.

A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved.	N/A.
A_ALMCHANGE F_ALMCHANGE	Reserved.	N/A.
A_ALMDELETE F_ALMDELETE	Reserved.	N/A.
A_ALMGEN F_ALMGEN	Reserved.	N/A.
A_ALMRESET F_ALMRESET	Reserved.	N/A.
A_ALMUPDATE F_ALMUPDATE	Reserved.	N/A.
A_PUBLISH F_PUBLISH	Reserved.	N/A.
A_WRITABLE F_WRITABLE	Reserved.	N/A.

Digital Register Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1	The text entered in the block's alarm exten-	Up to 79 characters.

A_ALMEXT2	sion fields.	
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CLOSE	The first seven characters of the block's close label.	N/A. This field is provided for backward compatibility.
A_CLOSEDESC	Text in the block's Close field.	Up to 16 characters.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_EOUT	Yes, if the block writes data to the process hardware, or No, if the block does not.	Yes or No.
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.

A_EVENT	The initial event messaging status.	Enable or Disable.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_ HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_ OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_ INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000	A numeric value, in seconds. Must use whole numbers.

	NOTE: The values for the A_HIST_ INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_INV	Yes, if the block inverts its output value or No, if the block does not invert its output value.	Yes or No.
A_IOAD	The block's I/O address.	Depends on your driver. Refer to your driver manual for more information.
A_IODV	The name of the block's I/O driver.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT	The I/O driver's hardware options.	Depends on your driver. Refer to your driver manual for more information.
A_IOSC	The type of signal conditioning used by the block.	Depends on your driver. Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Ana-log Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_NUMS	Whether the starting address is an octal, decimal or hexadecimal value.	Octal, Decimal, or Hex.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only

		field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_OPEN	The first seven characters of the block's open label.	N/A. This field is provided for backward compatibility.
A_OPENDESC	Text in the block's Open field.	Up to 16 characters.
A_OUT	Yes, if the block writes data to the process hardware or No, if the block does not.	Yes or No.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based pro-

		cessing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Event Action Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1	The alarm areas assigned to the block.	ALL or an alarm area name.

through A_AREA15		
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_BSTAT	The block's current status. Possible status include debug, delay, off, and wait.	N/A. This is a display only field.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_COND0	The block's first test condition.	Text
A_COND1	The block's second test condition.	Text
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_FAL0	The command to execute if the block's first test condition is false.	RUN block STOP block CLOSE block OPEN block
A_FAL1	The command to execute if the block's second condition is false.	RUN block STOP block CLOSE block OPEN block
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).

A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_ HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_ OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in mil-liseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_ INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000 NOTE: The values for the A_HIST_ INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).

F_HIST_ TIMERES		
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_ NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Ana-log Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	

A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TRU0	The command to execute if the block's first test condition is true.	RUN block STOP block CLOSE block OPEN block
A_TRU1	The command to execute if the block's second test condition is true.	RUN block STOP block CLOSE block OPEN block
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	

A_PUBLISH F_PUBLISH	Reserved for future use.
A_WRITABLE F_WRITABLE	Reserved for future use.

Extended Trend Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_BC	Whether the block clears its data buffers when the block goes on scan.	Yes or No.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed

		3.40282300000000e+38.
A_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_GET1	The name of the block and field being trended.	block.F_field
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_	The Collector deadband setting.	A positive numeric value (0 or

DEADBAND F_HIST_ DEADBAND		greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_INP F_INP	The value of the block and field entered in the A_GET1 field.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.

A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only

		field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TIME	The number of samples the block collects and averages for each of the 600 values it stores.	1 to 255
A_WARM	Yes or No.	N/A. This is a display only field.
T_DATA	The trend chart.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Fanout Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.

A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).

A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_ HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_ OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in mil-liseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_ INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000 NOTE: The values for the A_HIST_ INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).

F_HIST_ TIMERES		
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Ana-log Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	

A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_PUT1 through A_PUT4	The block's four additional destinations.	A block and field name pair.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Histogram Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_AUTOC	Yes, if the block clears the bar graph when the upstream block goes on scan, or No, if the block retains the old values when the upstream block goes on scan.	Yes or No.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.

A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_GROUP	The number of values the block collects before displaying or updating the bar graph.	1 to 1000.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).

A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_INTER	The range of values represented by each column in the bar graph.	A numeric value.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-	N/A. This is a display only field.

	knowledged alarms.	
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through	The security areas assigned to the block.	Up to three security area names.

A_SA3		
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
T_DATA	Frequency distribution chart.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Lead Lag Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.

A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.

A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_ HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_ OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_ HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field.	A numeric value, in seconds. Must use whole numbers.

	A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_K	The scaling factor used to modify the lead lag curve.	-100.00 to 100.00
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_LAG	The block's lag time constant.	0 to 100.00.
A_LEAD	The block's lead time constant.	0 to 100.00.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ACCESSTIME F_PDR_ACCESSTIME	Reserved for future use.	
A_PDR_	Reserved for future use.	

ARRAYLENGTH F_PDR_ ARRAYLENGTH		
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	

A_ALMUPDATE F_ALMUPDATE	Reserved for future use.
A_PUBLISH F_PUBLISH	Reserved for future use.
A_WRITABLE F_WRITABLE	Reserved for future use.

Multistate Digital Input Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_AE0 through A_AE7	Whether the block generates an alarm for the selected values.	Yes or No.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ ALMSHELFREMTIME F_ ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.

A_AREA1 through A_AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CLOSE	The first seven characters of the block's A_TS fields.	N/A. This field is provided for backward compatibility.
A_CLOSEDESC	Text in the block's Close field.	Up to 16 characters.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_DIAD0 through A_DIAD2	The I/O address of each digital input.	Depends on your driver. Refer to your driver manual for more information.
A_DIDV0 through A_DIDV2	The name of the I/O drivers used by each digital input.	Depends on your driver. Refer to your driver manual for more information.
A_DIHT0 through A_DIHT2	The hardware options for each digital input.	Depends on your driver. Refer to your driver manual for more information.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.

A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).

A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_IO0 through A_IO2	Whether the block receives data from each digital input.	Yes or No.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_OPEN	The first seven characters of the block's A_TS fields.	N/A. This field is provided for backward compatibility.
A_OPENDESC	Text in the block's Open field.	Up to 16 characters.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved for future use.	

A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_REALM	Whether the block re-issues an alarm when it changes alarm states.	Yes or No.
A_RV	The block's raw value. This value determines the block's current alarm state.	0 to 7.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TS0 through A_TS7	The descriptive labels for the block's alarm states.	Up to nine characters.
A_WARM	Yes or No.	N/A. This is a display only field.
F_CV0 through F_CV2	The value of each digital input.	0 or 1.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN	Reserved for future use.	

F_ALMGEN	
A_ALMRESET F_ALMRESET	Reserved for future use.
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.
A_PUBLISH F_PUBLISH	Reserved for future use.
A_WRITABLE F_WRITABLE	Reserved for future use.

On-Off Control Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_C1ENA	Yes, if the high contact is enabled or No, if the high contact is disabled.	Yes or No.
A_C2ENA	Yes, if the low contact is enabled or No, if the low contact is disabled.	Yes or No.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV	The block's current value.	A numeric value within the EGU range.

A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HI1 F_HI1	The block's high limit for the high contact.	A numeric value within the EGU range. You can write to the A_HI1 field. The F_HI1 field is read-only.
A_HI2 F_HI2	The block's high limit for the low contact.	A numeric value within the EGU range. You can write to the A_HI2 field. The F_HI2 field is read-only.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).

A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_ HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_ OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_ HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000 NOTE: The values for the A_HIST_ INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).

F_HIST_ TIMERES		
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_INV	Yes, if the block inverts its output value or No, if the block does not invert its output value.	Yes or No.
A_IOAD1	The block's I/O address for the high contact.	Depends on your driver. Refer to your driver manual for more information.
A_IOAD2	The block's I/O address for the low contact.	Depends on your driver. Refer to your driver manual for more information.
A_IODV1	The name of the I/O driver for the high contact.	Depends on your driver. Refer to your driver manual for more information.
A_IODV2	The name of the I/O driver for the low contact.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT1	The I/O driver's hardware options for the high contact.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT2	The I/O driver's hardware options for the low contact.	Depends on your driver. Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	N/A. This is a display only field.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_LO1 F_LO1	The block's low limit for the high contact.	A numeric value within the EGU range. You can write to the A_LO1 field. The F_LO1 field is read-only.
A_LO2 F_LO2	The block's low limit for the low contact.	A numeric value within the EGU range. You can write to the A_LO2 field. The F_LO2 field is read-only
A_NALM F_ NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.

A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_ONCE	Yes, if the block only activates the high and low contact fields once or No, if the block activates the high and low contact continually.	Yes or No.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1	The security areas assigned to the block.	Up to three security area

through A_SA3		names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Pareto Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text you enter about the block. By default, these fields are blank.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR	The number of times a block goes in and	N/A. This is a display only

F_ALMOCCUR	out of alarm before it is acknowledged.	field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV1 through A_CV8	The block's current value for its sorted inputs.	A numeric value.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_DSC1 through A_DSC8	The text describing the block's inputs.	Up to 30 characters.
A_EF	The number of decimal points to display for input values.	0 to 6.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_GET1 through A_GET8	The names of the block inputs.	A block name.

A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_	A numeric value, in seconds. Must use whole numbers.

	INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_ID1 through A_ID8	The block's internal identifiers for its inputs.	A to H.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Ana-log Input block.	N/A. This is a display only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PCT1 through A_PCT8	The percentage of occurrences for the block's inputs.	A numeric value.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	

A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_SDSC1 through A_SDSC8	The text describing the block's sorted inputs.	Up to 30 characters.
A_SID1 through A_SID8	The block's internal identifiers for its sorted inputs.	A to H.
A_SORT	The sort criteria.	Ascend, Descend, or None.
A_SPCT1 through A_SPCT8 and F_SPCT1 through F_SPCT8	The percentage of occurrences for the block's sorted inputs.	A numeric value.
A_TAG	The block's name.	N/A. This is a display only field.
A_TV1	The block's current value for its sorted	A numeric value.

through A_TV8	inputs.	
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

PID Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknow-ledged.	N/A. This is a display only field.
A_ ALMSHELFREMTIME F_ ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED	Indicates whether a specified alarm is	N/A. This is a display only

F_ALMSHELVED	shelved (YES/NO).	field.
A_ ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_ALPHA	The amount of derivative filtering applied to the PID algorithm.	0.0 to 0.125
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_BETA	The PID proportional action constant.	0.0 to 1.0.
A_BUMP	The block's transfer option.	Balance, Track, or None.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DBAND	The maximum fluctuation the block accepts without re-issuing an alarm.	A numeric value within the EGU range.
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_DEV	The block's deviation alarm limit.	A numeric value within the EGU range.
A_EHI F_EHI	The block's high input EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The block's low input EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).

A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's input engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_GAMMA	The PID derivative action constant.	0.0 to 1.0.
A_GAP	A deadband value used to compensate for controller error in updating the PID algorithm.	A numeric value.
A_GET1	The block's set point value.	block.field or a numeric value.
A_GET2	The block's feedback tag.	block.field
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine	A float value, in mil-liseconds. Values must be entered in increments of 100. Minimum value: 100 ms.

	if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IEGUDESC	The block's input engineering units label.	Up to 33 characters.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_INPUT F_INPUT	The current value of the input into the PID block.	A numeric value.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the	N/A. This is a display only

	chain.	field.
A_OEGUDESC	The block's output engineering units label.	Up to 33 characters.
A_OEHI F_OEHI	The block's high output EGU limit.	A numeric value.
A_OELO F_OELO	The block's low output EGU limit.	A numeric value.
A_OETAG	The first four characters of the block's output engineering units label.	N/A. This field is provided for backward compatibility.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PBAND F_PBAND	The block's proportional band value.	1.00 to 900.00.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for internal use.	N/A.
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for internal use.	N/A.
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved for internal use.	N/A.
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for internal use.	N/A.
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved for internal use.	N/A.
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for internal use.	N/A.
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_RATE	The block's derivative time constant.	1 to 20 minutes.

F_RATE		
A_RESET F_RESET	An integral time constant.	0.000 to 99.000 minutes.
A_ROUT	Yes, if the block inverts its output or No, if the block does not invert its output.	Yes or No.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_SPHI	The highest value an operator can enter for a set point.	A numeric value.
A_SPLO	The lowest value an operator can enter for a set point.	A numeric value.
A_TAG	The block's name.	N/A. This is a display only field.
A_TV1 F_TV1	The block's current set point value.	A numeric value.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for internal use.	N/A.
A_ALMCHANGE F_ALMCHANGE	Reserved for internal use.	N/A.
A_ALMDELETE F_ALMDELETE	Reserved for internal use.	N/A.
A_ALMGEN F_ALMGEN	Reserved for internal use.	N/A.
A_ALMRESET F_ALMRESET	Reserved for internal use.	N/A.
A_ALMUPDATE F_ALMUPDATE	Reserved for internal use.	N/A.
A_PUBLISH F_PUBLISH	Reserved for internal use.	N/A.
A_WRITABLE F_WRITABLE	Reserved for internal use.	N/A.

Program Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_ ALMSHELFREMTIME F_ ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_BSTAT	The block's status.	Debug, Delay, Off, Wait, or Run.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).

A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ESIGACK F_ESIGACK	The initial event messaging status.	N/A. This is a display only field.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.

	OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000 NOTE: The values for the A_HIST_ INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unac-knowledged alarm. If no unac-knowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unac-knowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.

A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_STP0 through A_STP19	The block command for the specified step.	Text.
A_TAG	The block's name.	N/A. This is a display only field.
A_TV1	The step that the block is executing.	0 to 19.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	

A_ALMCHANGE F_ALMCHANGE	Reserved for future use.
A_ALMDELETE F_ALMDELETE	Reserved for future use.
A_ALMGEN F_ALMGEN	Reserved for future use.
A_ALMRESET F_ALMRESET	Reserved for future use.
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.
A_PUBLISH F_PUBLISH	Reserved for future use.
A_WRITABLE F_WRITABLE	Reserved for future use.

Ramp Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CSTEP	The current ramp stage being executed.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only

		field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_GET1 through A_GET3	The source of block's target values.	A block name or a numeric value within the EGU range.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_	Sets whether or not compression is used	Enable (1) or Disable (0).

COMPRESS F_HIST_ COMPRESS	by the Collector.	
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES F_HIST_	The collection time resolution.	Milliseconds (0) or Seconds (1).

TIMERES		
A_HOLD1 through A_HOLD2	The block's hold times.	A numeric value specified in hours.
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_	Reserved for future use.	

DISABLEOUT		
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_RATE1 through A_RATE3	The block's ramp rates.	A numeric value specified in hours.
A_RHT	The remaining hold time.	A numeric value.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TV1 through A_TV3 and F_TV1 through F_TV3	The block's target values.	A numeric value.
A_TVHI	The largest target value an operator can enter.	An alphanumeric value.
A_TVLO	The lowest target value an operator can enter.	An alphanumeric value.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE	Reserved for future use.	

F_ALMDELETE	
A_ALMGEN F_ALMGEN	Reserved for future use.
A_ALMRESET F_ALMRESET	Reserved for future use.
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.
A_PUBLISH F_PUBLISH	Reserved for future use.
A_WRITABLE F_WRITABLE	Reserved for future use.

Ratio Bias Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.

A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_GET1	The source of block's bias value.	block.field or a numeric value within the EGU range.
A_GET2	The source of the block's offset.	block.field or a numeric value within the EGU range.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).

A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.

A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	N/A. This is a write only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_	Reserved for future use.	

UPDATERATE F_PDR_ UPDATERATE		
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_RATIO	The block's ratio value.	A numeric value.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TV1 F_TV1	The block's bias value.	A numeric value.
A_TV2 F_TV2	The block's offset.	A numeric value.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Signal Select Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.

A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	Enable or Disable.
A_GET1 through A_GET5	The input value or the block and field specified for Inputs 2 through 6.	block.field or numeric value within the EGU range.
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.

	field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only

		field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_SEL	The block's Selected Mode.	Avg, Good, Hi, Lo, Sum, Input 1 through Input 6.
A_TAG	The block's name.	N/A. This is a display only field.

A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

SQL Data Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only

		field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_DIR01 through A_DIR20	Whether the block reads (In) or writes (Out) to the relational database for the each block and field pair.	In or Out.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).

F_HIST_ DEADBAND		
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_ HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_ OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in mil-liseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_ INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000 NOTE: The values for the A_HIST_ INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-	N/A. This is a display only field.

	knowledged alarms.	
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_RST01 through	The reset values of each block and field pair.	None, Blank, or Zero.

A_RST20		
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TF01 through A_TF20	The block and field name pairs to which the SQL Data block reads and writes.	block.A_field
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

SQL Trigger Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1	The text entered in the block's alarm extension fields.	Up to 79 characters.

A_ALMEXT2		
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ ALMSHELFREMTIME F_ ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_BACK	Whether the block backs up process data if it detects a problem with the relational database.	Enable or Disable.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CMDTP	Whether the block executes SQL commands or stored procedures.	SQL or PROC.
A_COLS	The number of columns to select when a SELECT command executes.	A numeric value.
A_CONTG	The block and field used by your process hardware to verify the SQL Trigger block ran.	block.F_field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
F_CUALM	Float value of A_CUALM.	0 indicates alarm is OK or OFF.
A_CV	The block's transaction sequence.	0 to 255.
F_CV	The state of an executed procedure or command. Also specifies if the error is SQLST, DBERR,	N/A. This is a display only field.

	CUALM or a combination of these three states. The value displayed in this field is derived from a combination of these three states.	
A_DBERR	A number to indicate if the last SQL command executed successfully. Zero indicates no error. A non-zero number indicates the specific command that failed.	N/A. This is a display only field.
F_DBERR	Float value of A_DBERR	0 indicates no error.
A_DBID	The name of the relational database accessed by the block.	Text.
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVDT1	The block's event start date.	1-31, ALL, NONE, or SUN-SAT.
A_EVDT2	The block's event end date.	1-31, ALL, NONE, or SUN-SAT.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_EVPD	The trigger time. When this time elapses, the block triggers.	00:00:00-23:59:59 or a blank entry.
A_EVTAG	The block and field that triggers the SQL Trigger block.	block.F_field.
A_EVTM1	The block's event start time.	00:00:00-23:59:59 or a blank entry.
A_EVTM2	The block's event end time.	00:00:00-23:59:59 or a blank entry.
A_EVTYP	The event that triggers the block.	COV (change of value), HTL (High to Low), or LTH (Low to High)

A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input	N/A. This is a display

	block.	only field.
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PDTMR	The length of time remaining before the block triggers.	N/A. This is a display only field.
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_ROWS	The number of rows to retrieve when a SELECT command executes.	A numeric value.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based

		processing, 0 for one shot processing, or time:phase for time-based processing.
A_SEQ	The block's transaction sequence. iFIX uses the number to identify each block.	N/A. This is a display only field.
A_SQL	The SQL command to execute.	Text.
A_SQLST	A five-character value that indicates an error returned by the database engine due to the SQL statement failure at the database engine level. The field is blanked out when the block triggers.	N/A. This is a display only field. 00000 = no error. 07001 = wrong number parameter. IM001 = memory error. S1001 = driver does not support this function.
F_SQLST	Float value of A_SQLST.	0 if A_SQLST is 00000 1 if A_SQLST is "" (indicates executing) 2 if A_SQLST is any alphanumeric string.
A_STATE	The block's state.	N/A. This is a display only field.
A_TAG	The block's name.	N/A. This is a display only field.
A_TMODE	The block's selection mode.	SINGLE, MULTIPLE, or ARRAY.
A_TRIP	Whether the block is running.	0 (not running) or 1 (running).
A_WARM	Yes or No.	N/A. This is a display only field.
A_XTIME	The time of the last transaction.	N/A. This is a display only field.
A_XDATE	The date of the last transaction.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	

A_PUBLISH F_PUBLISH	Reserved for future use.
A_WRITABLE F_WRITABLE	Reserved for future use.

Statistical Data Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_A1R	Whether an alarm occurred for the N Point Alarm on RBAR value.	Yes or No.
A_A1X	Whether an alarm occurred for the N Point Control Limit Alarm on XBAR value.	Yes or No.
A_A3X	Whether an alarm occurred for the N Point Warning Limit Alarm on XBAR value.	Yes or No.
A_ADI	The blocks alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the blocks alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ ALMSHELFREMTIME F_ ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.

F_IALMSHLVENAB		
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_ASD	Whether an alarm occurred for the N Point Alarm on SBAR value.	Yes or No.
A_ASP	Whether an alarm occurred for the N Point Specification Limit on XBAR alarm.	Yes or No.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_AUTOX	Whether the block recalculates XBARBAR, RBAR, and SBAR values after startup.	STARTUP, ALWAYS, or NEVER.
A_CGRP	The current number of group collected.	12 to 50.
A_CHALM	The chains most severe alarm.	N/A. This is a display only field.
A_COBS	The current number of observations.	1 to 25.
A_CPK F_CPK	The blocks process capability index.	N/A. This is a display only field.
A_CRITX	The value of the N Point Critical Runs on XBAR alarm.	A numeric value.
A_CRX	Whether an alarm occurred for the N Point Critical Runs on XBAR alarm.	Yes or No.
A_CTLR	The value of the N Point Alarm on RBAR limit.	A numeric value.
A_CTLS	The value of the N Point Alarm on SBAR limit.	A numeric value.
A_CTLX	The value of the N Control Limit Alarm on XBAR limit.	A numeric value.
A_CUALM	The blocks current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The blocks current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the blocks Description field.	Up to 256 characters.
A_EA1R	Whether the N Point Alarm on RBAR limit is enabled.	Yes or No.
A_EA1X	Whether the N Point Control Limit Alarm on XBAR limit is enabled.	Yes or No.
A_EA3X	Whether the N Point Warning Limit	Yes or No.

	Alarm on XBAR limit is enabled.	
A_EASD	Whether the N Point Alarm on SBAR limit is enabled.	Yes or No.
A_EASP	Whether the N Point Specification Limit Alarm on XBAR limit is enabled.	Yes or No.
A_ECRX	Whether the N Point Critical Runs on XBAR alarm is enabled.	Yes or No.
A_EGUDESC	The blocks engineering units label.	Up to 33 characters.
A_EHI F_EHI	The blocks high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The blocks low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELRX	Whether the Length of Runs Alarm is enabled.	Yes or No.
A_ENAB F_ENAB	The blocks alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the blocks engineering units label.	N/A. This field is provided for backward compatibility.
A_ETRX	Whether the Trend of Run Alarm is enabled.	Yes or No.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_FCOMP	The forced computation of the control	DONE

	limits.	
A_GET1	The name of the block that the Statistical Data uses as its input.	A block name.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 **NOTE:** The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The block's collection offset time.The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 **NOTE:** The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.

A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The blocks most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_LCALC	Whether the block recalculates control limit (XBAR, R, and S) values after startup.	STARTUP, ALWAYS, or NEVER.
A_LCLR F_LCLR	The R value lower control limit.	A numeric value.
A_LCLS F_LCLS	The S value lower control limit.	A numeric value.
A_LCLX F_LCLX	The X value lower control limit.	A numeric value.
A_LRX	Whether an alarm occurred for the Length of Runs Alarm.	Yes or No.
A_LSLX F_LSLX	The blocks lower specification limit.	A numeric value.
A_LWLX F_LWLX	The blocks lower warning limit.	A numeric value.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The blocks type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_NGRP	The total number of groups to collect before calculating limits.	1 to 25.
A_NOBS	The total number of observations per group.	12 to 520.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.

A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The blocks alarm priority.	Low, Medium, or High.
A_PRIM	The blocks name.	N/A. This is a display only field.
A_R F_R	The previous groups R value.	A numeric value.
A_RBAR F_RBAR	The blocks RBAR value.	A numeric value.
A_RUNX	The value of the Length of Runs Alarm.	A numeric value.
A_S F_S	The previous groups S value.	A numeric value.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SBAR F_SBAR	The average standard deviation.	A numeric value.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The blocks scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_SDEV F_SDEV	The standard deviation.	A numeric value.
A_SPECX	The value of the N Point Specification Limit Alarm on XBAR limit.	A numeric value.
A_SQ	The name of a digital block that controls when to sample input values.	A block name.
A_TAG	The blocks name.	N/A. This is a display only field.
A_TRNDX	The value of the Trend of Runs Alarm.	A numeric value.
A_TRX	Whether an alarm occurred for the Trend of Runs Alarm.	Yes or No.
A_UCLR F_UCLR	The R value upper control limit.	A numeric value.
A_UCLS F_UCLS	The S value upper control limit.	A numeric value.
A_UCLX F_UCLX	The X value upper control limit.	A numeric value.
A_USLX F_USLX	The blocks upper specification limit.	A numeric value.
A_UWLX F_UWLX	The blocks upper warning limit.	A numeric value.
A_WAIT	The time that the block waits between	0 to 32767 seconds.

	collecting data between groups.	
A_WARM	Yes or No.	N/A. This is a display only field.
A_WARNX	The value of the N Point Warning Limit Alarm on XBAR limit.	A numeric value.
A_XBAR F_XBAR	The previous groups XBAR value.	A numeric value.
A_XBB F_XBB	The XBARBAR value.	A numeric value.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Statistical Control Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALM	Whether the block suppresses alarms.	Yes or No.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.

A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CDLAY	The time left until the next adjustment.	1 to 32767 seconds.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_DEV	The block's deviation constant.	A floating-point value.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).

A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.

A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Ana-log Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_	Reserved for future use.	

UPDATERATE F_PDR_ UPDATERATE		
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_PUT1	The name of the block that receives the Statistical Control block's adjustment.	A block name.
A_RCALC	Whether the upstream Statistical Data block recalculates the upper and lower limits after an adjusting a value and the delay time elapses.	Yes or No.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_SENT F_SENT	The adjustment sent to the block specified in the A_PUT1 field.	N/A. This is a display only field.
A_SHOW	Whether the block calculates an adjustment on every scan.	Yes or No.
A_SLOPE	The block's slope constant.	A floating-point value.
A_TAG	The block's name.	N/A. This is a display only field.
A_TIME		
A_TRACK	Whether the block sends a message to its alarm destination every time it adjusts a value.	Yes or No.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	

A_ALMUPDATE F_ALMUPDATE	Reserved for future use.
A_PUBLISH F_PUBLISH	Reserved for future use.
A_WRITABLE F_WRITABLE	Reserved for future use.

Text Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ ALMSHELFREMTIME F_ ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO	The current automatic/manual status of	Automatic (1) or Manual

F_AUTO	the block.	(0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIG_COMMENT F_ESIG_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	Enable or Disable.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields.	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.

	Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_OFFSET * 1000 NOTE: The values for the A_HIST_OFFSET and F_HIST_OFFSET fields are in seconds.	
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_INTERVAL / 1000 NOTE: The values for the A_HIST_INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_IOAD	The block's I/O address.	Depends on your driver. Refer to your driver manual for more information.
A_IODV	The name of the block's I/O driver.	Depends on your driver. Refer to your driver manual for more information.
A_IOHT	The I/O driver's hardware options.	Depends on your driver. Refer to your driver manual for more information.
A_IOSC	The type of signal conditioning used by the block.	Depends on your driver. Refer to your driver manual for more information.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.

A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_LEN	The maximum length of text that the block reads and writes.	1 to 80.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_NTFY	Whether the block's event messaging status.	Enable or Disable.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	

A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Timer Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.

A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ ALMSHELFREMTIME F_ ALMSHELFREMTIME	The remaining time left for a shelved alarm.	N/A. This is a display only field.
A_ALMSHELVED F_ALMSHELVED	Indicates whether a specified alarm is shelved (YES/NO).	N/A. This is a display only field.
A_ ALMSHELVEPOLICY	The name of alarm shelving policy.	N/A. This is a display only field.
A_ALMSHLVENAB F_ALMSHLVENAB	Defines whether alarm shelving is enabled (YES/NO) for a block.	N/A. This is a display only field.
A_IALMSHLVENAB F_IALMSHLVENAB	The initial alarm shelving status (ENABLE/DISABLE) for a block.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CCALM	The name of the digital block that closes when the Timer block reaches its target value.	The name of a digital block.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_COND	When iFIX processes the next block in the Timer block's chain.	Always or Time.
A_CS	Whether the Timer block saves its last value when loading the process database.	Yes or No.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).

A_DESC	The text in the block's Description field.	Up to 256 characters.
A_DIRN	Whether the block decrements (down) or increments (up) its value.	Up or Down.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_COLLECT F_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_COMPRESS F_HIST_COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_COMPTIME F_HIST_COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_COMPTYPE F_HIST_COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_DEADBAND F_HIST_DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_INTERVAL F_HIST_INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_	A float value, in milliseconds. Values must be entered in increments of 100. Minimum value: 100 ms.

	OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	
A_HIST_OFFSET F_HIST_OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000 NOTE: The values for the A_HIST_ INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_TIMERES F_HIST_TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_HOLD	The name of the digital block used to suspend the Timer block's counting temporarily.	block.F_CV
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_MODE	When to open the digital block displayed in the A_CCALM field.	Acknowledge, Return, All Clear, or Never.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC	N/A. This is a display only

	server.	field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_DEADBAND F_PDR_DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_LATCHDATA F_PDR_LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_PV F_PV	The block's initial value. For A_ fields, this value appears in the format ddd:h-h:mm:ss. For F_ fields, the value is the total number of seconds.	N/A. This is a display only field.
A_RESET	The name of the block used to reset the Timer block.	The name of a Digital Input, Digital Alarm, Digital Output, or Boolean block.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based pro-

		cessing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TV F_TV1	The block's target value. For A_ fields, the value appears in the format ddd:hh:mm:ss. For F_ fields, the value is the total number of seconds.	N/A. This is a display only field.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Totalizer Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

The field...	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR	The number of times a block goes in and	N/A. This is a display only

F_ALMOCCUR	out of alarm before it is acknowledged.	field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV L_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EF	Number of decimal places to display in the WorkSpace.	0 to 15.
A_EGUDESC	The engineering units label.	Up to 33 characters.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).
A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_COMMENT F_ESIGREQ_COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_HIST_COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).

F_HIST_ COLLECT		
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_ INTERVAL	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_ HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_ OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	A float value, in mil-liseconds. Values must be entered in increments of 100. Minimum value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_HIST_ INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000 NOTE: The values for the A_HIST_ INTERVAL and	A numeric value, in seconds. Must use whole numbers.
A_HIST_	The collection time resolution.	Milliseconds (0) or Seconds

TIMERES F_HIST_ TIMERES		(1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unacknowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	
A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	

A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TIME	The time used by the Totalizer block to adjust its total.	A time in HH:MM:SS format.
A_WARM	Yes or No.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Trend Block Fields

The following table lists the fields available for this block, what each field displays, as well as the valid entries for each field in the list.

Name	Displays...	Valid Entry
A_ADI	The block's alarm areas.	N/A. This field is provided for backward compatibility.
A_ALMEXT1 A_ALMEXT2	The text entered in the block's alarm extension fields.	Up to 79 characters.
A_ALMINTIME	The time and date at which the block generated the alarm.	N/A. This is a display only field.
A_ ALMLASTTIME	The time and date at which the block last generated an alarm.	N/A. This is a display only field.
A_ALMOCCUR F_ALMOCCUR	The number of times a block goes in and out of alarm before it is acknowledged.	N/A. This is a display only field.
A_ALMSN	The serial number of the alarm area database.	N/A. This is a display only field.
A_AREA1 through A_ AREA15	The alarm areas assigned to the block.	ALL or an alarm area name.
A_AUTO F_AUTO	The current automatic/manual status of the block.	Automatic (1) or Manual (0).
A_BC	Whether the block clears its data buffers when the block goes on scan.	Yes or No.
A_CHALM	The chain's most severe alarm.	N/A. This is a display only field.
A_CUALM	The block's current alarm.	N/A. This is a display only field.
A_CV E_CV F_CV	The block's current value.	A numeric value within the EGU range.
A_DALM F_DALM	Whether to delete alarm from summary queue after acknowledgment.	0 (false) or 1 (true).
A_DESC	The text in the block's Description field.	Up to 256 characters.
A_EGUDESC	The block's engineering units label.	Up to 33 characters.
A_EHI F_EHI	The block's high EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ELO F_ELO	The block's low EGU limit.	A numeric value. The range between the low and high values value cannot exceed 3.40282300000000e+38.
A_ENAB F_ENAB	The block's alarm status.	Enable: Yes (1), or Disable: No (0).

A_ESIGACK F_ESIGACK	Whether operators are allowed to acknowledge alarms for this tag without entering a signature, even if this tag requires electronic signatures for data entry.	Yes or No.
A_ESIGCONT F_ESIGCONT	If allow continuous use is enabled for this tag.	Yes or No.
A_ESIGREQ_ COMMENT F_ESIGREQ_ COMMENT	A comment is required when using an electronic signature.	Enable: Yes (1), or Disable: No (0).
A_ESIGTRAP F_ESIGTRAP	Whether unsigned writes are accepted or rejected by this tag or accepted and logged.	ACCEPT, LOG, REJECT.
A_ESIGTYPE F_ESIGTYPE	The signing requirements for this tag.	None, PERFONLY, or PERFVERI.
A_ETAG	The first four characters of the block's engineering units label.	N/A. This field is provided for backward compatibility.
A_EVENT	The initial event messaging status.	N/A. This is a display only field.
A_GET1	The name of the block and field that the block trends.	block.F_field
A_HIST_ COLLECT F_HIST_ COLLECT	Sets whether or not this block is under collection.	Yes (1) or No (0).
A_HIST_ COMPRESS F_HIST_ COMPRESS	Sets whether or not compression is used by the Collector.	Enable (1) or Disable (0).
A_HIST_ COMPTIME F_HIST_ COMPTIME	The Collector compression time out.	A positive numeric value (0 or greater), in milliseconds.
A_HIST_ COMPTYPE F_HIST_ COMPTYPE	The type of Collector deadband setting.	Absolute (0) or Percentage (1).
A_HIST_ DEADBAND F_HIST_ DEADBAND	The Collector deadband setting.	A positive numeric value (0 or greater).
A_HIST_DESC	The GE Historian description.	String; maximum of 128 characters.
A_HIST_ INTERVAL F_HIST_	The collection interval for this block. The value of this field must be greater than the value of the A_HIST_OFFSET and F_	A float value, in milliseconds. Values must be entered in increments of 100. Minimum

INTERVAL	HIST_OFFSET fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_INTERVAL > A_/F_HIST_ OFFSET * 1000 NOTE: The values for the A_HIST_ OFFSET and F_HIST_OFFSET fields are in seconds.	value: 100 ms.
A_HIST_ OFFSET F_HIST_ OFFSET	The collection offset time. The value of this field must be less than or equal to the value of the A_HIST_INTERVAL and F_ HIST_INTERVAL fields. Use the following formula to determine if the entered value is acceptable for this field. A_/F_HIST_OFFSET ≤ A_/F_HIST_ INTERVAL / 1000 NOTE: The values for the A_HIST_ INTERVAL and F_HIST_INTERVAL fields are in milliseconds.	A numeric value, in seconds. Must use whole numbers.
A_HIST_ TIMERES F_HIST_ TIMERES	The collection time resolution.	Milliseconds (0) or Seconds (1).
A_IAM	The initial Automatic/Manual status of the block.	Automatic or Manual.
A_IENAB	The initial alarm status.	N/A. This is a display only field.
A_INP F_INP	The value of the block and field entered in the A_GET1 field.	N/A. This is a display only field.
A_ISCAN	The initial scan status (on or off) of the block.	On or Off.
A_LAALM	The block's most severe unacknowledged alarm. If no unacknowledged alarm exists, the current alarm is displayed.	N/A. This is a display only field.
A_NALM F_NALM	Yes or 1, if the block has unacknowledged alarms or No or 0, if the block has no unac-knowledged alarms.	N/A. This is a display only field.
A_NAME	The block's type, for example AI for an Analog Input block.	N/A. This is a display only field.
A_NAREA	Enters a new alarm area in the alarm area database.	

A_NEXT	The name of the next block in the chain.	N/A. This is a display only field.
A_OPCLIMIT	The hardware options of the OPC server.	N/A. This is a display only field.
A_OPCQLTY	The quality status of the OPC server.	N/A. This is a display only field.
A_ OPCSUBSTAT	The quality substatus of the OPC server.	N/A. This is a display only field.
A_OPCTIME	The time and date from the OPC server.	N/A. This is a display only field.
A_PDR_ ACCESSTIME F_PDR_ ACCESSTIME	Reserved for future use.	
A_PDR_ ARRAYLENGTH F_PDR_ ARRAYLENGTH	Reserved for future use.	
A_PDR_ DEADBAND F_PDR_ DEADBAND	Reserved for future use.	
A_PDR_ DISABLEOUT F_PDR_ DISABLEOUT	Reserved for future use.	
A_PDR_ LATCHDATA F_PDR_ LATCHDATA	Reserved for future use.	
A_PDR_ UPDATERATE F_PDR_ UPDATERATE	Reserved for future use.	
A_PREV	The name of the previous block in the chain.	N/A. This is a display only field.
A_PRI	The block's alarm priority.	Low, Medium, or High.
A_PRIM	The block's name.	N/A. This is a display only field.
A_SA1 through A_SA3	The security areas assigned to the block.	Up to three security area names.
A_SCAN	The on/off scan status of the block.	On or Off.
A_SCANT	The block's scan time and phase.	E for exception-based processing, 0 for one shot processing, or time:phase for

		time-based processing.
A_TAG	The block's name.	N/A. This is a display only field.
A_TIME	The number of samples the block collects and averages for each of the 80 values it stores.	1 to 255.
A_WARM	Yes or No.	N/A. This is a display only field.
T_DATA	The trend chart.	N/A. This is a display only field.
A_ALMACK F_ALMACK	Reserved for future use.	
A_ALMCHANGE F_ALMCHANGE	Reserved for future use.	
A_ALMDELETE F_ALMDELETE	Reserved for future use.	
A_ALMGEN F_ALMGEN	Reserved for future use.	
A_ALMRESET F_ALMRESET	Reserved for future use.	
A_ALMUPDATE F_ALMUPDATE	Reserved for future use.	
A_PUBLISH F_PUBLISH	Reserved for future use.	
A_WRITABLE F_WRITABLE	Reserved for future use.	

Typical Uses of Database Blocks

Click one of the blocks listed below to get more information on the individual block.

A

Analog Alarm

Analog Input

Analog Output

Analog Register

B-C

Boolean

Calculation

D

Dead Time

Device Control

Digital Alarm

Digital Input

Digital Output

Digital Register

E-L

Event Action

Extended Trend

Fanout

Histogram

Lead Lag

M-Q

Multi-State Digital Input

On-Off Control

Pareto

PID

Program

R-S

Ramp

Ratio Bias

Signal Select

SQL Data

SQL Trigger

Statistical Control

Statistical Data

T-Z

Text

Timer

Totalizer

Trend

Analog Alarm Block - Typical Uses

You can use the Analog Alarm block to:

- Read and write analog values at set time intervals from an I/O address, such as a PLC register.
- Perform smoothing, signal conditioning, and alarm-limit checking.
- Define an alarm value and priority for each type of alarm.
- Close a Digital block when an alarm occurs.
- Re-issue an alarm within the time defined in the Re-alarm Time field, as long as the block is still in a valid alarm state OR the Re-alarm Time is not disabled.
- Provide intelligent alarming by suspending alarm processing within this block or multiple blocks based on a process condition.
- Acknowledge alarms from a remote site.
- Enable a block to attempt to write the contacts with every scan, even if the value being written is unchanged.
- Separate the original alarm condition from the COMM alarm, and return the AA block to the same state as it was prior to a COMM alarm.
- Assist in control situations such as direct digital control when chained to a PID or On-Off Control block.
- Pass values to other blocks through the Next Block field.

Analog Input Block - Typical Uses

You can use the Analog Input block to:

- Read and write analog values at set time intervals or by exception from an I/O address, such as a PLC register.
- Perform smoothing, signal conditioning, and alarm-limit checking.
- Assist in control situations such as direct digital control when chained to a PID or On-Off Control block.
- Initiate the processing of other blocks through the Next Block field.

Analog Output Block - Typical Uses

You can use the Analog Output block to:

- Send values to an I/O address.
- Connect to modulated control valves and motor speed controllers.
- Receive values from the operator display and most primary, secondary, and control blocks, including the PID and Ramp blocks.
- Pass values to other blocks through the Next Block field.

Analog Register Block - Typical Uses

You can use the Analog Register block to:

- Read and write to multiple I/O locations as long as those locations share the same engineering unit limits and signal conditioning.
- Reduce system memory requirements when alarming and background monitoring are not necessary.
- Upload and download infrequently-viewed or semi-static values from PLC memory.

Boolean Block - Typical Uses

You can use the Boolean block to:

- Perform binary operations and calculations.
- Calculate compound alarm conditions.
- Monitor multiple I/O points to obtain the status of a large device.
- Create state rings for synchronizing and controlling batch processes.
- Process other blocks through the Next Block field.

Calculation Block – Typical Uses

You can use the Calculation block to:

- Perform complex or multiple equations by chaining one Calculation block to another or to a Fan-out block.
- Verify the validity of manufactured parts by doing a calculation on dimensions. You can use this feature to count faulty parts.
- Find the average reading when a large number of sensors (Analog Input blocks) monitor the same parameter. For example, the Analog Input blocks could measure the steam temperature at various points in a pipe, whose temperature is expected to remain the same.

Dead Time Block – Typical Uses

You can use the Dead Time block to:

- Set a transportation delay between the sensor and the mechanism. For example, it could act as a variable-speed conveyor belt.
- Simulate communication or process delays with the hardware when you are first setting up your system offline.

Device Control Block – Typical Uses

You can use the Device Control block to:

- Monitor a number of digital-input points and open a particular valve when all of the points report that they are in a specified state.
- Specify other control parameters, such as how long the block should wait for a digital-input point to switch from closed to open before continuing with the next programming statement.
- Control a solenoid (digital output) that opens and closes a valve.
- Open and close limit switches that confirm the operation of a valve.

Digital Alarm Block – Typical Uses

You can use the Digital Alarm block to:

- Detect alarm conditions of a digital state (either level or transition).
- Represent items such as limit switches, valves, alarm contacts, or motor auxiliary contacts.
- Assign descriptive labels to digital values through the Open (Labels) and Close (Labels) fields to make them more meaningful to the operator.

- Define the alarm value and priority for the block.
- Close a digital block when an alarm condition occurs.
- Re-issue an alarm within the time defined in the Re-alarm Time field, as long as the block is still in a valid alarm state OR the Re-alarm Time is not disabled.
- Suspend alarm processing within this block or multiple blocks based on a process condition.
- Acknowledge alarms from a remote site.
- Enable a block to attempt to write the contacts with every scan, even if the value being written is unchanged.
- Separate the original alarm condition from the COMM alarm, and return the DA block to the same state as it was prior to a COMM alarm.
- Assist in control situations such as direct digital control when chained to a PID or On-Off Control block.
- Pass values to other blocks through the Next Block field.

Digital Input Block – Typical Uses

You can use the Digital Input block to:

- Provide alarming.
- Represent items such as limit switches, valves, alarm contacts, and motor auxiliary contacts.
- Assign descriptive labels to digital values through the Open (Labels) and Close (Labels) fields to make these values more meaningful to the operator.
- Assist in control situations such as direct digital control when chained to a PID or On-Off Control block.
- Pass values to other blocks through the Next Block field.

Digital Output Block – Typical Uses

You can use the Digital Output block to:

- Establish steady-state conditions using the Initial Value field by automatically sending a value to the hardware the first time SAC processes the block during database initialization.
- Connect to digital devices, such as motor starters, horns, and solenoid valves.
- Assign descriptive labels to digital values through the Open (Labels) and Close (Labels) fields to make them more meaningful to the operator.
- Assist in control situations such as direct digital control when chained to a PID or On-Off Control block.
- Pass values to other blocks through the Next Block field.

- Prevent a write if the value in the driver is the same as the value that is to be written. The DO block will read the bit from the driver and if different, execute the write. If the values are the same, no value is written on this scan.

Digital Register Block - Typical Uses

You can use the Digital Register block to:

- Reduce system memory requirements when alarming and background monitoring are not necessary.
- Read and write to multiple I/O locations in one poll record as long as those points share the same engineering unit range and signal conditioning.
- Control digital input processes such as limit switches, alarm contacts, and motor auxiliary contacts.
- Control digital output processes such as motor starters, annunciators, horns, and solenoid valves.

Event Action Block - Typical Uses

You can use the Event Action block to:

- Send an Open/Close output to a digital block.
- Place a primary block or a chain on or off scan.
- Pass values to other blocks through the Next Block field.

Extended Trend Block - Typical Uses

You can use the Extended Trend block to display real-time analog or digital trends over an extended period of time.

NOTE: If you want to trend data for archival purposes, it is recommended that you use the Historical Collect application.

Fanout Block - Typical Uses

You can use the Fanout block to:

- Send a set point value to the PID block.
- Send a target value to the Ramp block.

- Send an analog value to several different points from one block.
- Process other blocks through the Next Block field.

Histogram Block – Typical Uses

You can use the Histogram block to:

- Receive process information, such as temperatures, when upstream primary blocks are operating in Automatic mode.
- Receive operator information, such as weights, when upstream primary blocks are operating in Manual mode.
- Process other blocks through the Next Block field.

Lead Lag Block – Typical Uses

You can use the Lead Lag block to:

- Implement feed-forward control strategies when combined with a PID block.
- Process other blocks through the Next Block field.

Multistate Block – Typical Uses

You can use the Multistate Digital Input block to:

- Monitor the pending and on/off status of a device.
- Provide alarming.
- Represent items such as motor-operated valves that have contacts at the open and close positions.
- Provide more meaningful descriptions of raw values for operators by assigning labels to these values.
- Pass values to other blocks through the Next Block field.

On-Off Block – Typical Uses

You can use the On-Off Control block to:

- Perform actual control for such items as heaters or pumps.
- Provide special alarm handling.

- Process other blocks through the Next Block field.

Pareto Block - Typical Uses

You can use the Pareto block to record the number and percentage of process or manufacturing defects.

If you only want to track the total of *all* defects, use a Calculation block instead of a Pareto block.

PID Block - Typical Uses

You can use the PID block to:

- Perform Gap Action control in pH control processes.
- Provide feedback control.
- Provide feed-forward control.
- Provide anti-reset windup capability to ensure that the controller output does not get saturated under conditions of windup.
- Execute bumpless transfers by making the set point equal to the measurement (balancing) when an operator switches the block from Manual to Automatic mode.
- Generate alarms on set point deviations.
- Process other blocks through the Next Block field.

Program Block - Typical Uses

You can use the Program block to:

- Set up a master Program block that CALLS other blocks.
- Provide complete startup, shutdown, and sequencing of batch and continuous processes.
- Allow operators to enter sequences of operations and tests in a simple, logical fashion.

Ramp Block - Typical Uses

You can use the Ramp block to:

- Start up ramp and soak (hold) processes that require acceleration control.
- Process start up, including temperature and speed ramping.

Ratio Bios Block – Typical Uses

You can use the Ratio Bias block to:

- Blend elements requiring a specific ratio to define their combination.
- Process other blocks through the Next Block field.

Signal Select Block – Typical Uses

You can use the Signal Select block to:

- Support redundant sensors.
- Monitor and control large devices with multiple analog sensors.
- Perform selective control, in which two PID blocks manipulate the same final control element, such as a valve.
- Process other blocks through the Next Block field.

SQL Data Block – Typical Uses

You can use the SQL Data block to:

- Identify the block and field pairs (data points) from which to read and write data.
- Set the direction of the data transfer. The SQL Data block read or write values between the iFIX process database and your relational database.
- Reset data points when the SQL Data block executes.
- Connects to other SQL Data blocks to form an extended chain.

SQL Trigger Block – Typical Uses

You can use the SQL Trigger block to:

- Start the transfer of process data to a relational database or to blocks in the process database. Data transfer is based upon a time, an event, or a combination of both.
- Confirm the transfer of data.
- Provide operator information in the iFIX WorkSpace. You can display the block's time, date, event triggering parameters, and SQL commands through Data links, allowing operators to change this values as needed.
- Manually trigger the transfer of data from an operator display.

Statistical Control Block – Typical Uses

You can use the Statistical Control block to:

- Perform automatic adjustments to a value from another block if the upstream Statistical Data block generates an alarm. The monitored value can be anything such as a temperature or a pressure.
- Adjust values such as PID set points, Ramp block target values, or Analog Output values to optimize plant operating conditions.

Statistical Data Block – Typical Uses

You can use the Statistical Data block to:

- Measure process values such as density, weight, and size.
- Sample event-triggered values such as weights.
- Sample operator information such as times in Manual mode through a Data link in the iFIX WorkSpace.
- Calculate control limits and XBARBAR, RBAR, and SBAR values at startup after collecting a pre-determined number of groups or based upon a moving average.
- Process other blocks through the Next Block field.

Text Block – Typical Uses

You can use the Text block to:

- Provide operators with messaging capabilities by entering the text string into a Data link.
- Send text (recipes) to a device controller.
- Prompt operators with text messages or alarms generated by your process hardware or OPC server.

Timer Block – Typical Uses

You can use the Timer block to:

- Record the duration of a process.
- Monitor the length of time a digital contact remains opened or closed.
- Track the amount of time a piece of equipment has been in use.

- Count up or down to a specific value and trigger an alarm or close a contact.
- Track time-based batch process steps.

Totalizer Block - Typical Uses

You can use the Totalizer block to:

- Maintain a running total. For example, if you enter 00:00:00 in the block's PER field, the block adds each value it receives to its previous value.
- Act as a counter. For example, if you set the scan time of an upstream Analog block and the Totalizer block's PER field to one, the Totalizer block increments by one each time SAC scans the Analog block.
- Monitor production levels based upon shifts or time periods.
- Process other blocks through the Next Block field.

Trend Block - Typical Uses

You can use the Trend block to:

- Display real-time analog or digital trends.
- Process other blocks through the Next Block field.

  NOTE: It is recommended that you use the Historical Collect application for long-term data storage needs.

Database Block Examples

Click one of the blocks listed below for an example implementation.

A

Analog Alarm

Analog Input

Analog Output

Analog Register

B-C

Boolean

Calculation

D

Dead Time

Device Control

Digital Alarm

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Multistate Digital Input

On-Off Control

Pareto

PID

Program

R-S

Ramp

Ratio Bias

Signal Select

SQL Data

SQL Trigger

T-Z

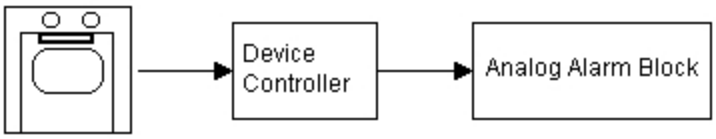
Text

Timer

Trend

Analog Alarm Block Example

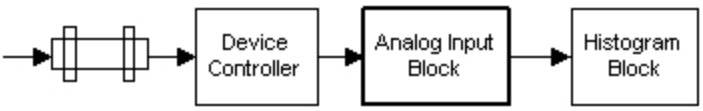
You can use the Analog Alarm block to obtain temperature readings of an oven. When the oven is off and cooling, the operator can suspend alarms. The following figure shows an example of how to use an Analog Alarm block.



When the oven is first turned on, Low Low and Low alarms could be delayed to allow the oven to heat up. High and High High alarms could be reissued until the operator turns down the temperature. If the block remains in a High alarm for more than a predefined time interval, you could assign a Digital Output block as a contact to trigger an alert and notify the operator to reduce the oven temperature. If the block then generated a High High alarm, you could assign a different Digital Output block as a contact to automatically reduce the oven temperature.

Analog Input Block Example

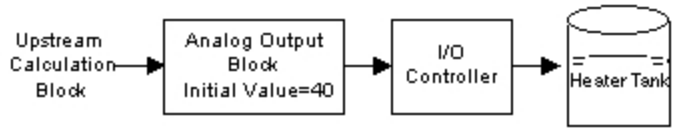
The Analog Input block can receive temperature readings from a rotary kiln that has a specified I/O address and then pass these values on to the Histogram block. The following figure shows how to use an Analog Input block in a chain.



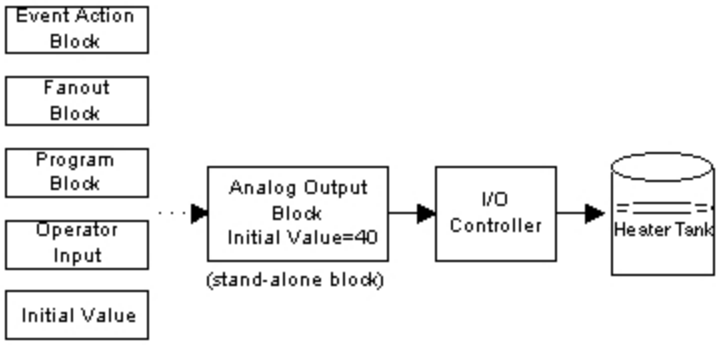
A histogram designed in the iFIX WorkSpace could then display the frequency distribution of the readings. The Analog Input block could also generate alarms. For example, if you set the High High alarm value to 212 degrees, the block would generate a High High alarm with a reading of greater than 212 degrees.

Analog Output Block Example

The Analog Output block receives values from its upstream block and sends them to its I/O driver or OPC server. One way you might use this capability is to adjust the temperature of a tank heater by converting the heater's temperature with a Calculation block and sending the converted value to an Analog Output block. Once the value is received, the Analog Output block sends it to its I/O driver, which writes the value to the heater's I/O controller. You could also enter a value in the Initial Value field to output a temperature set point during database initialization. The following figure illustrates how to use an Analog Output block in a chain.



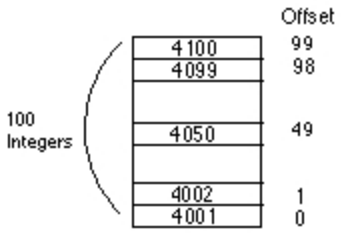
Another way you might use the Analog Output block is as a stand-alone block to allow an operator, other blocks, or the initialization of the database to control the values sent to the heater. The following figure shows how to use an Analog Output block as a stand-alone block.



Analog Register Block Examples

You can display multiple I/O points with an Analog Register block by adding Data links to a picture. The data source you specify for each Data link is a specified number of values past the block's I/O Address. You can enter A_ or F_ values in the data source, according to your needs.

For example, suppose the poll record you want to access starts at address 4001. Also, suppose that the poll record contains 100 integers.

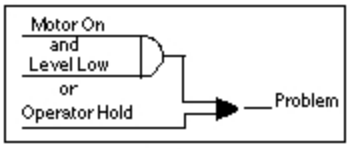


To access this poll record, you enter 4001 as the block's I/O address. Then you can create Data links to access individual poll record values by entering an A_ or F_ field as the data source. For example, to access the 50th integer in the record, you would specify the 49th element past the I/O address. As a result, you would enter A_49 or F_49 as the field in the data source.

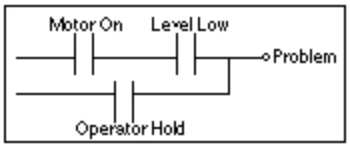
Likewise, if the I/O address of the poll record is 1075 and you want to access the first value, use the field A_0 or F_0 in the data source.

Boolean Block Examples

The Boolean block can monitor the state of a tank by turning on a siren on the plant floor if a problem arises. For example, suppose that the following conditions indicate a problem:



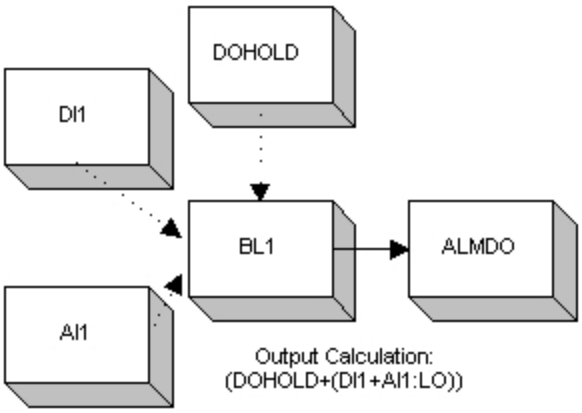
Logic Diagram



Ladder Logic Diagram

As these diagrams illustrate, a problem could be identified if either of two situations is true. The first situation requires that two conditions be true: the motor is on and the level is low. The second situation requires that only one condition be true: the operator has put the unit on hold.

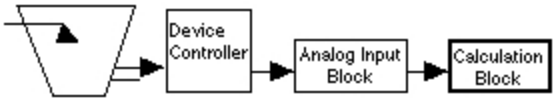
Using these conditions, you would create a database block to monitor each condition. DI1 to monitor the motor, AI1 to monitor the level, and DOHOLD to place the tank on hold.



Once you create these blocks, you can use the Boolean block to send a True (1) or False (0) signal to a Digital Output block, ALMDO, by entering these blocks as input to the Boolean block and specifying an equation. If the equation evaluates to true, the block sends a 1 to ALMDO and the siren is turned on. If the equation is false, the block sends a 0 to ALMDO and the siren remains turned off.

Calculation Block Example

One way you might use the Calculation block is to convert a temperature from Fahrenheit to Celsius. To do this, you would assign an Analog Input block to read the temperature and pass it to the Calculation block as the following figure shows:



Once the Calculation block receives the temperature from the Analog Input block it converts the value using the following equation:

°C=(°F-32)*5/9

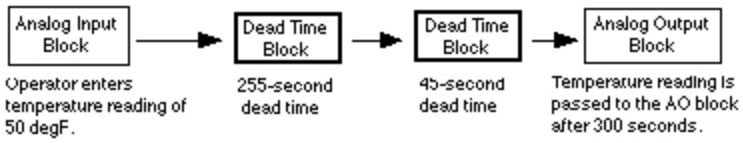
To specify this equation to the Calculation block, assign each value to one of the block's inputs and then enter the equation in the block's Output field using the input letters. For example, to represent the previous equation you would enter:

((A-B)*(C/D))

where A is the input from the upstream Analog Input block, B is 32, C is 5, and D is 9.

Dead Time Block Example

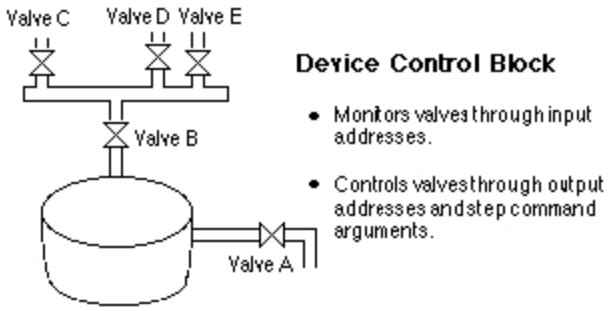
The Dead Time block is a secondary block you can use to delay the information to other blocks. Each Dead Time block can delay up to 255 seconds. If your process requires longer delays, you can chain two or more Dead Time blocks together as the following figure shows:



In this example, the input value received by the first Dead Time block delays 255 seconds before sending its value to the second Dead Time block. In turn, the second Dead Time block delays an additional 45 seconds, resulting in a total delay of 300 seconds (5 minutes).

Device Control Block Example

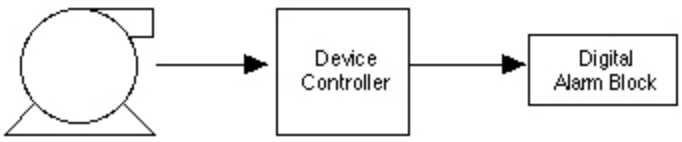
The Device Control block can fill a vat with substances from multiple sources. Assume the vat contains five valves that must be opened or closed based upon the status of the other valves, as shown in the following figure.



The Device Control block's WAITOR command ensures that Valve A closes before any other valve opens. By specifying digital output addresses in the block's dialog box, you can use output commands to open Valves B, C, D, and E according to your control scheme.

Digital Alarm Block Example

You might use a Digital Alarm block to monitor whether or not a pump is running. When the pump shuts off, it sends a digital signal to the Digital Alarm block, which then generates an alarm. If the alarm is critical, the block could re-issue the alarm after a predefined time interval. The block could also close a contact to trigger a shutdown procedure. The following figure illustrates how to use a Digital Alarm block.

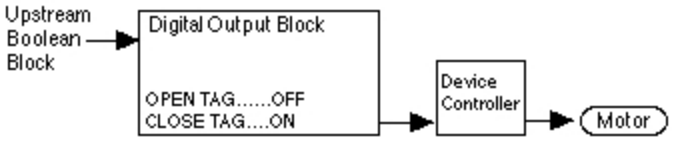


Digital Input Block Example

The Digital Input block can monitor whether a circulating pump is running and generate an alarm when the pump stops (open). In this situation, you would select the alarm condition Change from Normal Open so that should the pump stop (change from a 1 to a 0), the Digital Input block generates an alarm.

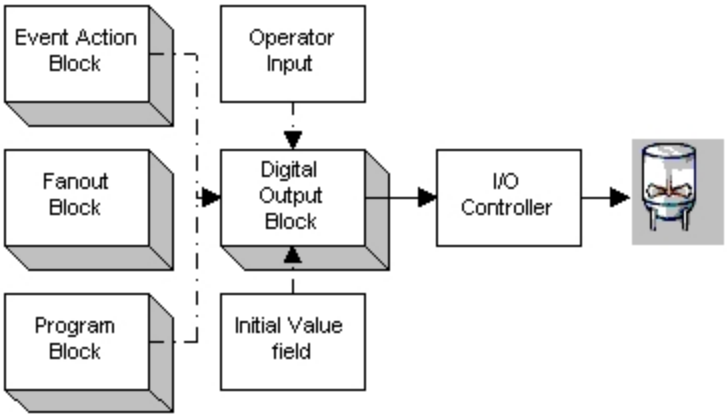
Digital Output Block Examples

The Digital Output block operates in a chain by sending digital values to an I/O address based on the value it receives from its upstream block. For example, the Digital Output block can control the status of an electric motor by passing the 1 or 0 value it receives from an upstream Boolean block's equation, as shown in the following figure.



Using the block's Open or Close (Labels) fields, you can enter the words **OFF** and **ON** to represent the motor's status and can display this text to operators when they view the status in the iFIX WorkSpace.

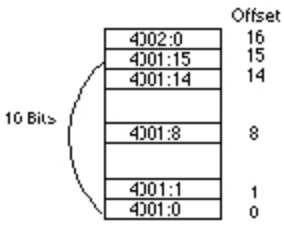
The Digital Output block, when used as a stand-alone block, allows either its Initial Value field, other blocks, or an operator to control the values sent to the I/O address. The following figure shows this configuration.



Digital Register Block Example

You can display multiple I/O points with a Digital Register block by adding Data links to a picture. The data source you enter is a specified number of values past the block's I/O Address. You can enter A_ or F_ values in the data source, according to your needs.

For example, suppose the poll record you want to access starts at address 4001:0 and this record is composed of 16 bits (4001:0 to 4001:15).



To access this poll record, you enter 4001:0 as the block's I/O address. Then you can create Data links to access individual poll record values by entering an A_ or F_ field as the data source. For example, to access the 9th bit in the record, you would specify the 8th element past the I/O address. As a result, you would enter A_8 or F_8 as the field in the data source.

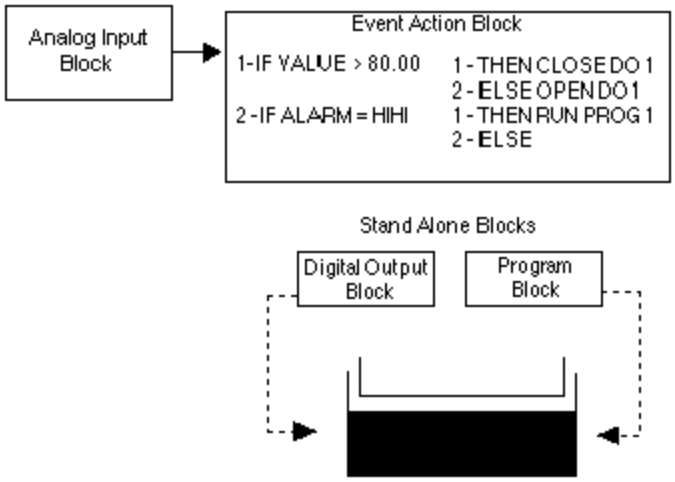
Likewise, if the I/O address of the poll record is 1075:0 and you want to access the first value, use the field A_0 or F_0 in the data source.

Event Action Block Example

The Event Action block can control a digital output based upon an analog value received from an upstream block. For example, suppose your process requires that a 100-gallon floating roof tank to be 80% full at all times. Using an Analog Input block, you can measure the level of the tank and pass this value to the Event Action block. The Event Action block then tests the analog value to determine if it should:

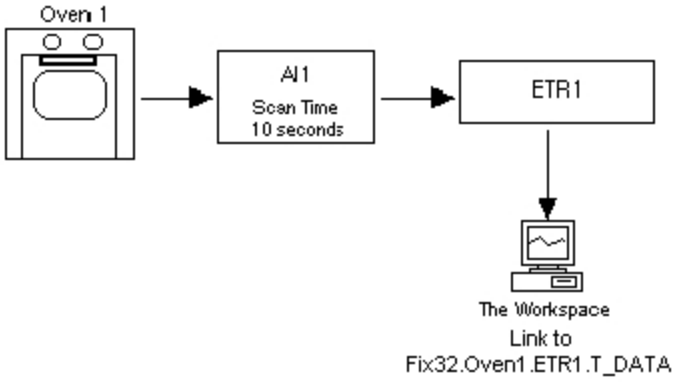
- Open or close the digital valve controlling the liquid flow.
- Run a program that opens an emergency drain and sequentially shuts down the pumps.

The following figure shows how you can use an Event Action block to control digital points.



Extended Trend Block Example

Using the Extended Trend block, you can trend a value over a period of time. For example, suppose you want to trend an oven temperature for an hour using the configuration shown in the following figure.

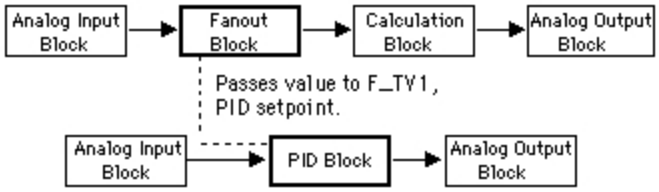


You can accomplish this by creating an Analog Input block that receives its value from the oven temperature and an Extended Trend block to trend the data. Be sure to connect the two blocks by entering the name of the Extended Trend block into the Next field of the Analog Input block. This ensures the Extended Trend block receives data from the upstream Analog Input block.

Once you finish configuring the process database, create a chart to the T_DATA field of the Extended Trend block.

Fanout Block Example

The Fanout block can send one analog value to different blocks, while passing the same value onto the next block in the chain. For example, if you need to use an analog value as an input to a Calculation block and you also need it as the source of a PID set point, the Fanout block can pass the same value to both chains as shown in the following figure.

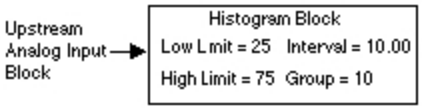


You can configure the Fanout block in this manner by:

1. Entering the Calculation block's name in the Fanout block's Next field.
2. Entering the PID block's name and the target field, F_TV1, in the Fanout block's Destination A field.

Histogram Block Example

An Analog Input block can send temperature readings to the Histogram block to track the frequency of the temperatures in a forced-air heat exchanger as shown in the following figure.

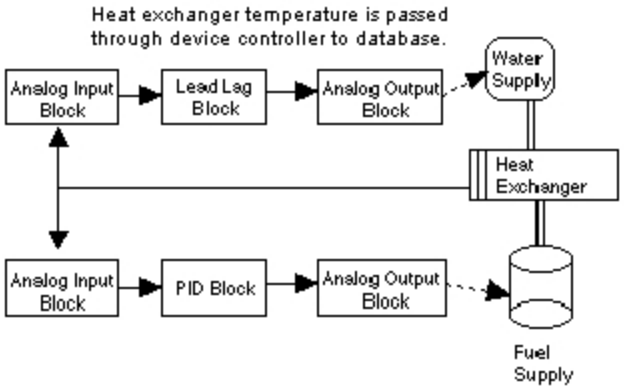


In this example, every time iFIX scans the Analog Input block, it sends a temperature to the Histogram block. The Histogram block collects these values according to its Group field. This field determines the number of values it collects from the upstream block.

Lead Lag Block Example

When combined with a PID block, you can use the Lead Lag block in feed-forward control strategies where you are using the same process variable at two different points. For example, suppose that more water must be sent to a heat exchanger prior to increasing the fuel supply to prevent flooding the system. You must control the flow rate of the water, but you cannot manipulate it directly since the valve is non-linear and subject to external influences.

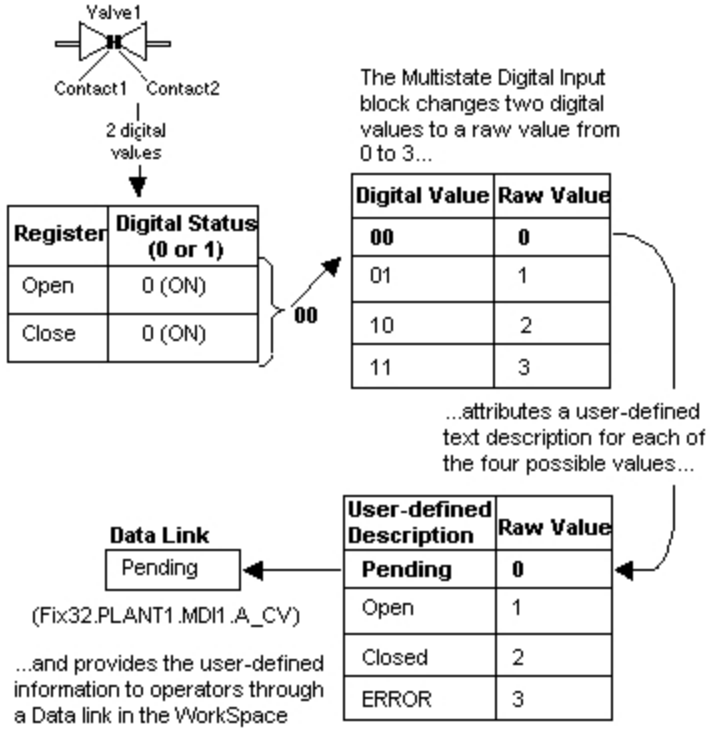
In this example, you can use a Lead Lag block to anticipate the change and make faster adjustments to the water supply.



Multistate Block Example

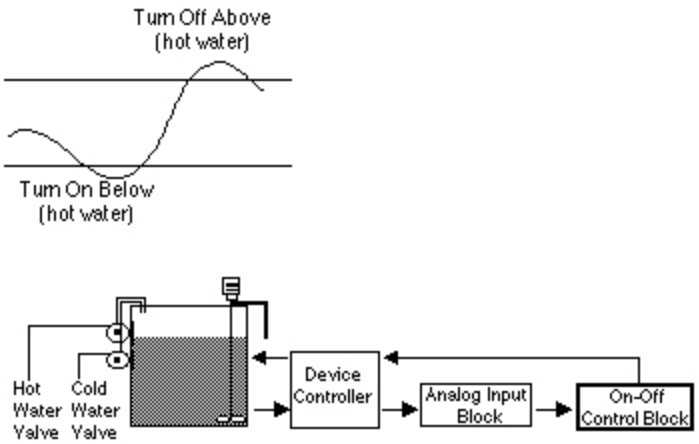
With the Multistate Digital Input block configured as a stand alone block, you can monitor the status of a mechanical valve (VALVE1) with contacts at the open and close positions. Usually, you would create a Digital Input block to provide simple ON/OFF digital status. However, with the Multistate Digital Input block, you can monitor and display to operators the pending, or middle, status of VALVE1 as well as the ON/OFF status.

The operators can use a Multistate Digital Input block to retrieve the open and close digital values from the PLC and configure one of four raw values that represent the status of VALVE1. The following figure illustrates this concept.

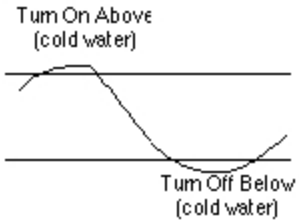


On-Off Control Block Example

The On-Off Control block uses contact inputs to implement on-off control based on an analog value. For example, as the following figure shows, the High Contact Data fields can open a valve to add hot water to a tank when the temperature reading falls below a specified value. In turn, the block can turn off the hot water when the temperature reaches a specified value.

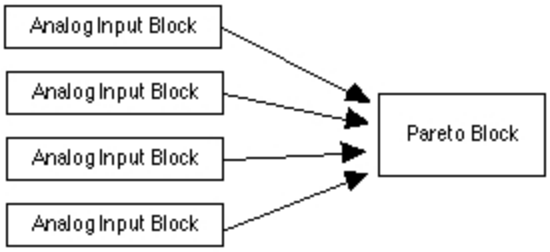


In addition, the Low Contact Data fields can trigger a cold water valve to close when the temperature falls below a specified value and to open when the reading rises above the value.



Pareto Block Example

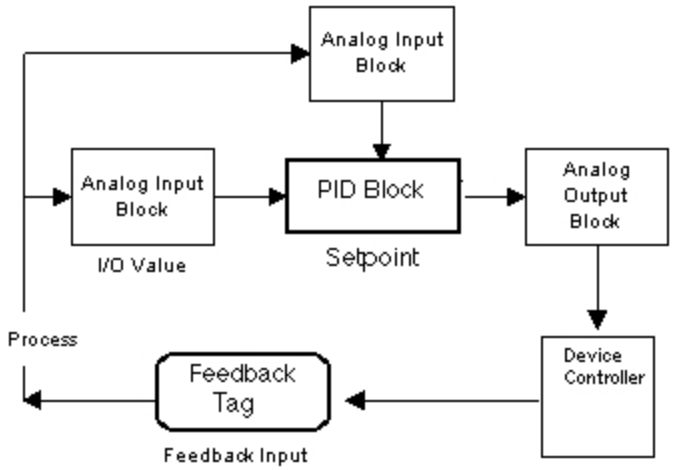
A milk packaging plant could use a Pareto block to record the number of rejected milk cartons. A carton can be rejected because of a puncture, it is the wrong size, it has a bad seal, or it is poorly labeled. To tally each defect requires four Analog Input blocks. You can use these four blocks as inputs into the Pareto block. The following figure illustrates the flow of information to the Pareto block.



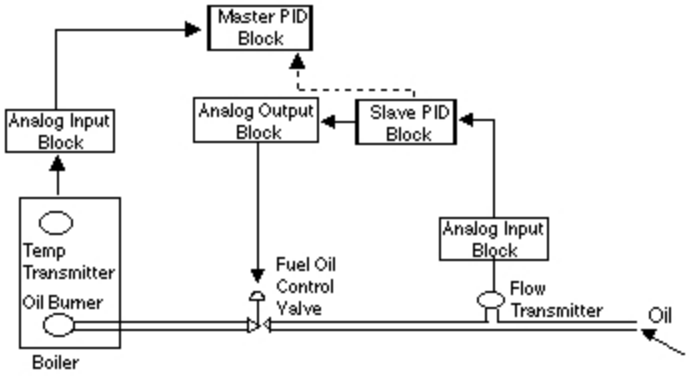
PID Block Examples

The PID block can prevent reset-windup through the use of the Feedback Tag. Reset-windup typically occurs when there is a hardware failure in the measurement device. This causes the deviation to be larger than the parameters of the block would normally produce in a full output swing.

The following figure illustrates how the Feedback Tag ensures that the controller does not get saturated under these conditions. By indicating that the PID block's output is not maintaining the set point, the Feedback Tag can help to avert serious control upsets.



If your processing scheme requires a cascade loop, the PID block can include master and slave PID blocks, as the following figure shows. The slave PID block can fetch the master PID block's adjusted output value for its set point.



The cascade loop, shown in the preceding figure, illustrates control in which the output of one PID block (master) provides the set point value for another PID block (slave). The Master PID block drives the set point of the slave PID block, which, in turn, controls the flow of fuel oil based upon the readings from a temperature transmitter. To accomplish this, specify the master block's name and the F_CV field in the slave block's Set Point Value field.

NOTE: If you specify the slave block in the master's Next Block field, the master can only send the slave a value as a variable and cannot output a value to the process.

Program Block Example

You can use the Program block as a master program to develop flexible, generic subprograms. By connecting a master Program block with subroutines in other Program blocks, you can use the blocks in many different applications.

CALL commands are very useful for setting up this type of batch process. For example, you could have a master program with the following CALL commands:

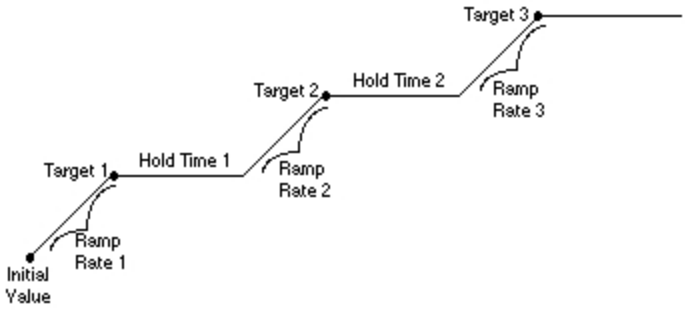
```
00 CALL STARTUP
01 CALL PROCESS
02 CALL SHUTDOWN
```

In this example, STARTUP, PROCESS, and SHUTDOWN are other Program blocks that perform specific functions. PB01 executes each subprogram sequentially. For example, PROCESS cannot start until STARTUP has executed.

Another master Program block for a second process could use the same startup and shutdown subprograms, but replace PROCESS with PROCESS1.

Ramp Block Example

The Ramp block can ensure the stability of a motor that is essential to a start up process. The block assists in the ramp and soak methods used to bring the motor up to full speed by directing the increase and hold time in RPMs during three defined stages:

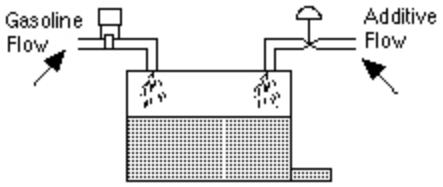


In the first stage, the block ramps up to the Target 1 value based upon the increments specified in the Ramp Rate 1 field. When the Target 1 value is reached, the block continues to output the Target 1 value for the period specified in the Hold Time 1 field. After this period has expired, the block repeats the process for ramp stages 2 and 3.

NOTE: If a Ramp rate is 0.00, the stage is not executed.

Ratio Bias Block Example

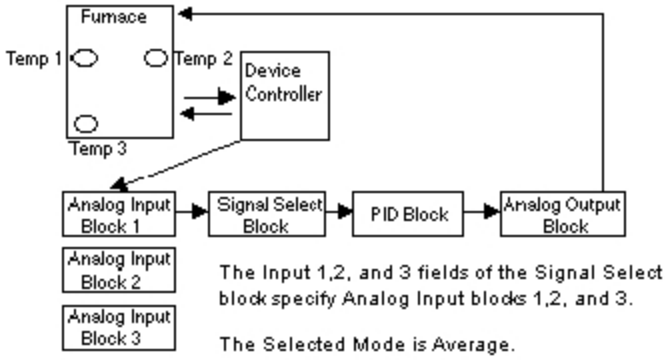
The Ratio Bias block can control blending systems that require predetermined proportions for an optimum flow rate. For example, suppose the blending of additives to gasoline require controlled blending so that the octane number remains steady.



Using the Ratio Bias block, you establish a consistent ratio that controls the flow of additives to the gasoline based upon the Ratio, Bias, and Input entries.

Signal Select Block Example

The Signal Select block can maintain the stability of large devices with multiple analog devices. For example, the block can control the temperature of a large furnace with three temperature sensors:



In this example, the Signal Select block takes the average of the three sensor readings from Analog Input blocks and passes the new value onto the PID block. Using this value, the PID block controls the heat of the furnace through the Analog Output block.

SQL Data Block Example

You can provide better control over monitoring SQL data by displaying to operators the actual values that the SQL Data block retrieves. The block reads these values each time the upstream SQL Trigger block executes.

You can display the retrieved data to operators by adding Data links that reference the fields A_TF01 through A_TF20. These fields correspond to the 20 block and field pairs (data points) listed in the SQL Data block.

You may also want to configure the Reset field of each data point to BLANK or ZERO. Selecting these values clears the A_TS fields prior to retrieving a new value and ensures that operators always see the latest values. You can configure the Reset field in the block's dialog box or by creating Data links to the A_RST01 to A_RST20 fields.

Keep in mind that when block and field name pairs have a direction of:

- **In** - the Reset To field clears the value before the SQL Data block executes.
- **Out** - the Reset To field clears the value after it is retrieved.

SQL Trigger Block Example

The SQL Trigger block execute SQL commands based on a specific time and date or an event. Using this feature, the block can select data from a relational database for use in the process database or save process data in your relational database at predefined intervals.

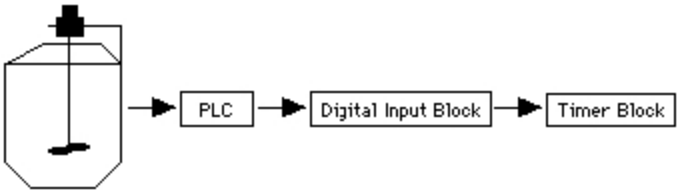
You can also configure the SQL Trigger block for manual use by allowing operators to manually trigger it. By manually triggering the block, operators can update the relational database or retrieve data from it on an as-needed basis. To configure the block for manual use, place the block in Manual mode and create a Data link to the field A_TRIP. After completing these tasks, operators can manually trigger the block by entering a 1 into the field.

Text Block Example

The Text block can read hardware messages from the plant floor. Using a script, iFIX could then compare each text string against a list of possible values and take the appropriate action. For example, if the Text block receives a High alarm string, the script could close a valve or trigger a event schedule, as needed.

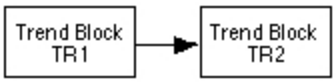
Timer Block Example

The Timer block can monitor the amount of time a piece of equipment, for example a mixer, has been running. When the block reaches a predefined value, it could trigger an alarm to notify the operator to perform preventive maintenance.



Trend Block Example

You can chain together Trend blocks to trend more than 80 values. The following steps illustrate the design of the following chain:



To chain Trend blocks together:

1. Add a Trend block to the process database.
2. Enter the name of the second Trend block in the Next Block field of first Trend block.
3. Add the second Trend block to the process database.

4. Enter the name of the first Trend block followed by the F_INP field into the Input field of second Trend block.

You could continue and add a third Trend block to become part of a chain similar to the one identified in the following table. This table shows the key fields to complete.

Block Type	Block Name	INPUT Field	Next Block field	AVG/COMPRESS Field
Analog Input	AI1	N/A	TR1	N/A
Trend	TR1	AI1.F_CV	TR2	5
Trend	TR2	TR1.F_INP	TR3	5*
Trend	TR3	TR2.F_INP	AO1	5*
Analog Output	AO1	N/A	blank	N/A

*** NOTE:** You can enter any number from 1 to 255 into the Average Compress field; however, when you chain multiple Trend blocks together, the value you enter for the second and subsequent Trend blocks should be the same as the first Trend block's. If the values in the Average Compress fields do not match, the visual pattern of trended data displayed in the iFIX WorkSpace is different and possibly confusing to operators.

If the Input field of trailing Trend blocks is blank, these blocks trend the value passed to them. For example, using the values from the preceding table, if the Input fields of TR1 and TR2 are blank , all three Trend blocks would trend the same 80 values sent by AI1 instead of a chain of 240 values.

Commands Available from Database Blocks

The following database blocks allow you to use enter commands:

- Device Control Block (DC)
- Event Action Block (EV)
- Program Block (PG)

For information on the supported commands available from each of these blocks, refer to the following sections:

- Device Control Block Commands
- Event Action Block Commands
- Program Block Commands

Device Control Block Commands

You can include up to 12 programming statements in a Device Control block. These statements let you control the block and often require a contact pattern to wait for or to output.

The Device Control block processes the statements in order. Each statement can contain up to 34 characters. The following table lists the commands you can use with the Device Control block.

Execution Control Commands	Wait Commands	Test and Jump Commands

CLRDEBUG Command

Purpose

Exits the debug mode.

Syntax

```
CLRDEBUG
```

CLRERR Command

Purpose

Clears the alarm status of the Device Control block.

Syntax

```
CLRERR
```

CLRF Command

Purpose

Clears the bit of the specified register. This command is used only with the SIM driver provided with iFIX. This driver lets you access a digital point by specifying a register and a bit. SIM registers range from 0 to 2000 and bits range from 0 to 15.

Syntax

```
CLRF register:bit
```

Example

To clear the 12th bit of the tenth SIM register, enter:

```
CLRF 10:12
```

DELAY Command

Purpose

Delays the execution of the next command for the specified number of seconds. You can specify to delay the command from 0 to 32767 seconds. The exact time you enter should be a multiple of the chain's scan time.

Syntax

```
DELAY time
```

Example

To delay the next command for 20 seconds enter:

```
DELAY 20
```

END Command

Purpose

Causes the Device Control block to go off scan.

Syntax

```
END
```

GOCLR Command

Purpose

Executes a specified statement if the digital points bit is 0 (clear). This command is used only with the SIM driver provided with iFIX. SIM registers range from 0 to 2000 and bits range from 0 to 15. The statement number can reference any programming statement in the block.

Syntax

```
GOCLR register:bit statement#
```

Example

To examine the fifth bit in the 44th register and determine if the bit is clear (equal to 0), enter:

```
GOCLR 44:5 5
```

If the bit is clear, the Device Control block executes statement 05.

GOSET Command

Purpose

Executes a specified statement if the digital points bit is 1 (set). This command is used only with the SIM driver provided with iFIX. SIM registers range from 0 to 2000 and bits range from 0 to 15. The statement number can reference any programming statement in the block.

Syntax

```
GOSET register:bit statement#
```

Example

To examine the second bit in the 30th register and determine if the bit is set (equal to 1), enter:

```
GOSET 30:2 09
```

If the bit is set, the Device Control block executes statement 09.

GOTO Command

Purpose

Continues executing commands at the specified programming statement number. The statement number can reference any programming statement in the block.

Syntax

```
GOTO statement#
```

Example

To continue executing commands with statement 08, enter:

```
GOTO 08
```

NUL Command

Purpose

Causes no operation. Use NUL as a placeholder for deleted commands, unused command lines, or for use during debugging.

Syntax

```
NUL
```

OUTPUT Command

Purpose

Sends the output contact pattern to the digital output points when this statement is executed.

Syntax

```
OUTPUT pattern
```

Example

This an example of the command:

```
OUTPUT CCCOOOXX
```

In this example, the Device Control block switches each digital output point to the status shown below.

Output Address	Status
07	Close
06	Close
05	Close
04	Open
03	Open
02	Open
01	Current state
00	Current state

SETDEBUG Command

Purpose

Enters debug mode and traces execution through messages sent to alarm destinations.

Syntax

```
SETDEBUG
```

SETERR Command

Purpose

Generates an alarm from the Device Control block to all enabled alarm destinations. The alarm contains the text "ERROR" and you can view the alarm in an Alarm Summary object. You can clear the alarm with the CLRERR command.

Syntax

```
SETERR
```

SETF Command

Purpose

Sets the bit of the specified register. This command is used only with the SIM driver provided with iFIX. SIM registers range from 0 to 2000 and bits range from 0 to 15.

Syntax

```
SETF register:bit
```

Example

To set the 15th bit in the fifth SIM register to 1, enter:

```
SETF 5:15
```

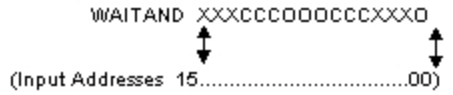
WAITAND Command

Purpose

Waits for *all* of the digital input addresses to match the specified contact pattern before continuing to the next statement. If the condition does not occur within the specified time parameter, this command continues to the statement specified by the statement number.

You can enter a wait time from 0 to 32767 seconds. Entering 0 makes the block wait indefinitely.

The contact pattern must include a letter (O, C, X) for each digital input address as the following figure shows:



The statement number can reference any programming statement in the block.

Syntax

```
WAITAND time pattern statement#
```

Example

To wait 20 seconds for a specific contact pattern to occur, enter:

```
WAITAND 20 000CCXXXXXXXXXXX 10
```

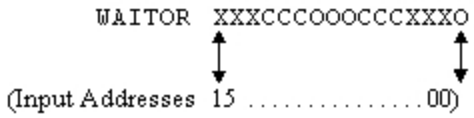
If the contact pattern does not occur within 20 seconds, the Device Control block proceeds to statement 10.

WAITOR Command

Purpose

Waits for *any* of the digital input addresses to match the specified contact pattern before continuing to the next statement. If the condition does not occur within the specified time parameter, this command continues to the statement specified by the statement number.

You can enter a wait time from 0 to 32767 seconds. Entering 0 makes the block wait indefinitely. The contact pattern must include a letter (O, C, X) for each digital input address as the following figure shows:



The statement number can reference any programming statement in the block.

Syntax

```
WAITOR time pattern statement#
```

Example

To wait 20 seconds for any one of the points specified in the input address fields, 15 to 00, to match the corresponding contact pattern, enter:

```
WAITOR 20 OOCCCCCXXXXXXXXX 7
```

If the contact pattern does not occur within 20 seconds, the Device Control block proceeds to statement 07.

Event Action Block Commands

You can use the following commands with THEN or ELSE operations:

Command	Description
RUN block	Turns the block on scan.
STOP block	Turns the block off scan.
CLOSE block	Sets a digital block to CLOSE. Digital Input and Digital Alarm blocks must be in Manual mode.
OPEN block	Sets a digital block to OPEN. Digital Input and Digital Alarm blocks must be in Manual mode.

Event Action Block - Operators and Conditions

The Event Action block tests the value or alarm condition of the previous block using IF-THEN-ELSE logic. In the IF portion of the logic, you can specify the value or alarm condition for which you want to test.

Enter...	To test the...	Example
VALUE operator condition	Current value of the upstream block.	VALUE = 75.4
ALARM operator condition	Current alarm condition of the upstream block.	ALARM = LOLO

If the condition is true, the block's THEN logic executes. If the condition is false, the block's ELSE logic. Valid operators and conditions include:

If you use...	Then the operator can be...	And the condition can be...
A value	> (Greater than) < (Less than) = (Greater than or equal to) <= (Less than or equal to) = (Equal to) != (Not equal to)	A constant A data source OPEN/CLOSE
An alarm	> (Greater than) < (Less than) >= (Greater than or equal to) <= (Less than or equal to) = (Equal to) != (Not equal to)	Any valid alarm.

Program Block Commands

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

You can include up to 20 programming statements in a Program block. These statements let you control the block. Click any command from the following list to display detailed information.

A-B

ADDOUT

ADDTAR

C-D

CALL

CLOSE

CLRDEBUG

CLRERROR

DELAY

E-L

END

GOTO

M-Q

R-S

T-Z

Using Programming Commands

SAC and the Program Block

When SAC scans a Program block, it generally runs all of the block's commands within one scan period. After scanning the Program block, SAC does not scan it again unless:

- The block is placed on scan again by the operator or another block, such as an Event Action block or another Program block.
- The database is reloaded.
- The block contains a test or wait command, and the specified condition is not met. For example, if you have an IF command that tests for a specific level and issues a GOTO command to a previous step if the level is not met, SAC continues to scan the block until the condition is met.
- GOTO 0 is the Program block's last statement. In this case, the block continually loops and SAC scans the block according to the specified scan time.

Delaying Program Commands

Certain commands limit a test command's duration. For example, you may want to use the WAITFOR command to have the Program block wait for an Analog Input block to receive a value of 50 before it proceeds to the next command. However, if the Analog Input block never receives a value of 50, the remaining commands never execute. To avoid this result, you can use the MAXWAIT command. This command specifies how long the block waits before it automatically goes onto the next command. You could then use the GOTO command to tell the Program block to jump to a particular command found later in the programming sequence. For example:

```
09 MAXWAIT 60
10 WAITFOR AI1 = 50
11 GOTO 16
```

In this example, the block waits 60 seconds before executing the GOTO command. The GOTO command specifies that step 16 is the next step to execute.

If you set up a command that waits a long time to complete, you should also include a command that notifies you when the wait ends. This method allows you to determine if an event has occurred. For example:

```
04 WAITFOR AI1 = 50
05 MSG AI1 IS NOW 50
```

In this example, the message "AI1 IS NOW 50" prints only when AI1 has successfully reached a value of 50. If AI1 never reaches 50, the message is not sent to the enabled alarm destinations.

Clamping Values

If the Program block sends a value to another block and the value exceeds a target block's EGU range, iFIX clamps the value to the block's high and low EGU limits. For example, if you SETOUT a value of 150 to a block whose EGU range is 0 to 100, the setout value is clamped at 100.

Execution Errors

The Program block goes off scan whenever it cannot execute a command. Prior to going off scan, the block sends a message to all the enabled alarm services in its alarm areas. The off scan message explains at what line the block stopped and why.

Make sure you test your Program blocks thoroughly before placing it in actual operation. You can use the debugging commands, SETDEBUG and CLRDEBUG, to help test your Program blocks before placing them online.

Using Command Arguments

Every step of a Program block contains at least one command. Each command is made up of the command keyword (for example SETOUT or MAXWAIT) and zero or more command arguments. You can use values or expressions as command arguments.

Values

Values are either a constant number or a block name. Numbers can be positive or negative integers or floating point values. A block name is the name of any block within the process database. Most commands are used in conjunction with a block.

Expressions

Expressions compare values in the IF and WAITFOR commands. An expression has the syntax:

```
operand1RelationalOperatoroperand2
```

Operand1 can be:

Operand1	Example
A block name	AGITSTART
TIME, DATE, or DAY (must be used with a constant)	IF TIME = 12:00:00 GOTO 05
OPEN/CLOSE register:bit	OPEN 23:14

Operand2 can be:

Operand2	Example
Floating-point or integer values	SETOUT AI1 34.56
OPEN/CLOSE	WAITFOR DI1=OPEN
A block name	AGITSTART
MM-DD-YY, SUN, MON, TUE, WED, THU, FRI, SAT, or HH:MM:SS for TIME, DATE, and DAY operands only. International time formats are also accepted.	IF DAY = FRI GOTO 08

All *relational operators* are legal for floating-point and integer values. However other values, such as day of the week, are restricted to = (Equals) and != (Not equal). Supported relational operators described in the following table.

Operator	Function
>	Greater than
<	Less than
<=	Less than or equal to
>=	Greater than or equal to
!=	Not equal
=	Equals

NOTE: When using the IF or WAITFOR commands to compare values, consider using the SETLIM command to create a limit of precision for the comparison. In some cases, 10 might not equal 10, since the block might really be comparing 10.0001 to 10.0003. The SETLIM command lets you assign an inclusion limit for the comparison, such as +/-0.1. Please refer to the SETLIM command for more information.

ADDOUT Command

Purpose

Adds a specified value to the current value of another block.

Syntax

```
ADDOUT value TO block
```

Example

To add 34 to the current value of the block AI2, enter:

```
ADDOUT 34 TO AI2
```

NOTE: Be sure to include a DELAY command after an ADDOUT command when it adds a value to an Analog Output block. Using the DELAY command ensures the Analog Output block can properly process the data it receives from the Program block.

ADDTAR Command

Purpose

Adds the current value of one block to the TARGET value of another block. You can also use this command to set the target for any of the three stages of the Ramp block.

Syntax

```
ADDTAR block TO block
```

NOTE: When specifying a Ramp block, ADDTAR adds the value to the first target value of the block, ADDTAR2 adds the value to the second target value, and ADDTAR3 adds the value to the third target value. If a target value that is outside the Ramp block's EGU range, the Ramp block clamps the value to its low and high EGU limits. AO blocks to not have target values. When using blocks like AO or AI, which do not have target values, use ADDOUT command.

Example

To add the current value of the block AI3 to the block PID5, enter:

```
ADDTAR AI3 TO PID5
```

To add the current value of the block AI10 to the second target value of RAMP6, enter:

```
ADDTAR2 AI10 TO RAMP6
```

CALL Command

Purpose

Places another block (usually another Program block, Device Control block, or Boolean block) on scan, while the original Program block pauses. The command returns to the original block and resumes execution when the called block completes its operation. If you want the Program block making the call to continue running, use the RUN command instead.

Syntax

```
CALL block
```

Example

To place the block PROG2 on scan, enter:

```
CALL PROG2
```

NOTE: When making a CALL to a Program block, make sure you take into account any previous MAXWAIT commands. In addition, you cannot use the CALL command in a Program block that is part of an exception-based chain.

Called blocks should be off scan until called. If the block calls a block that is already on scan, the call is ignored.

Purpose

Closes a digital block (sets the value equal to 1). The block reflects the new value based on its own scan period.

You can also close SIM registers. SIM registers range from 0 to 2000. Bit values range from 0 to 15.

Syntax

```
CLOSE block
CLOSE register:bit
```

Example

To close the Digital Output block DO1, enter:

```
CLOSE DO1
```

To close SIM register 28:4, enter:

```
CLOSE 28:4
```

NOTE: When using the CLOSE command to set a Digital Input block, the block must be in Manual mode. If you attempt to set a Digital Input block that is in Automatic mode with a CLOSE command, iFIX generates an error message and takes the Program block off scan.

CLRDEBUG Command

Purpose

Exits the debug mode and resumes normal execution. Refer to the SETDEBUG command for more information on debug mode.

Syntax

```
CLRDEBUG
```

CLRERROR Command

Purpose

Clears the error condition (alarm) that was established by a preceding SETERROR command.

Syntax

```
CLRERROR
```

DELAY Command

Purpose

Delays the execution of the remaining steps in the block for the specified number of seconds.

Syntax

```
DELAY value
```

Parameter

value - specifies the number of seconds (0-32767 seconds) you want to delay execution. The value you enter should be an exact multiple of the chain's scan time. If it is not, the value is rounded to the next highest multiple of the block's scan time at runtime. Use the following formula to determine the correct value for the DELAY command:

$$\frac{\text{Delay in seconds}}{\text{Scan Time}} = \text{Number of Scan Periods delayed}$$

For example, if you enter a value of 10 (seconds) and the block has a scan time of 5 seconds, the DELAY command delays the block for two scan periods. If the value you specify is not evenly divisible by the scan time, the calculation is rounded to the next highest multiple of the scan time.

Example

To delay execution of the remaining steps for 10 seconds, enter:

```
DELAY 10
```

NOTE: You cannot use the DELAY command in a block that is exception-based.

END Command

Purpose

Places the block executing this command off scan.

Syntax

```
END
```

GOTO Command

Purpose

Allows the program to continue execution at the designated step number.

Syntax

```
GOTO step#
```

Parameters

step# - specifies the step number you want to go to. If the designated step number is less than the current step number (making a backward jump), iFIX suspends processing the Program block and the jump occurs during the next scan period. If the designated step number is greater than the current step number (making a forward jump), execution continues at the next step without interruption.

Example

To continue execution at the step 14, enter:

```
GOTO 14
```

IF Command

Purpose

Tests a condition and then specifies a statement number to go to.

Syntax

```
IF expression GOTO step #
```

Parameters

expression - compares values in the IF command. The syntax of an expression for these commands is:

```
operand1 relationaloperator operand2
```

For more information on these arguments, refer to the topic Using Command Arguments.

GOTO step# - specifies the step number you want to go to when the expression is TRUE. If the designated step number is less than the current step number (making a backward jump), iFIX suspends processing the Program block and the jump occurs during the next scan period. If the designated step number is greater than the current step number (making a forward jump), execution continues at the next step without interruption.

TIP: In rare instances, you can have a Program block that waits for a specific value from a block to test a condition, but because of the unavoidable round-off errors that occur in digital systems, the block consistently sends out a slightly different value that never satisfies the condition. For example, 10 might not equal 10, since the block might really be comparing 10.0001 to 10.0003. The easiest way around this problem is to add a SETLIM command to create a limit of precision on the value that is received from the block. This command lets you assign an inclusion limit for the comparison, such as +/- 0.1.

Examples

You can use the IF command to test for a condition and then jump to a specific command. For example, if the value of the Analog Input block, LEVEL, is greater than 3000, then proceed to step 12 uses the following statement:

```
08 IF LEVEL > 3000 GOTO 12
```

Operands

The IF command can also use the operands:

- DATE
- DAY
- TIME

IF DATE

To test that the date is June 29, 1997 before executing step 12, enter:

```
04 IF DATE > 06-29-97 GOTO 12
```

If the date is any other date, then step 05 executes.

IF DAY

To test for the correct day, use the following statements:

Step#	Command	Action
3	IF DAY=SUN GOTO 06	If it is Sunday, go to Step 6.
4	WAITFOR TIME =23:59:59	If it is not Sunday, wait = 23:59:59 until the next day.
5	GOTO 3	Check again to see if it is Sunday.
6	CALL PM	Call Program block for preventive maintenance cycle.

NOTE: You can only use = and != for operators with the DAY operand. Legal identifiers for days of the week are SUN, MON, TUE, WED, THU, FRI, and SAT.

IF TIME

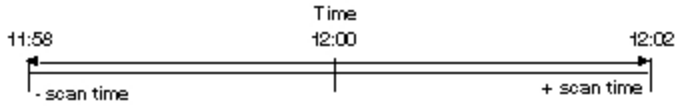
The TIME operand executes the designed step number according to the time of day. This command differs from the IFTIME GOTO command in that you do not have to use it in conjunction with a WAITSTAT command. To make the distinction between the commands, use a space between the IF command and the TIME operand.

The IF TIME command uses the block's scan time as a +/- dead band if you are using the Equals (=) operator. You can enter the time in a 24-hour format, HH:MM:SS.

Consider the following command:

```
07 IF TIME = 12:00:00 GOTO 4
```

If the block has a scan time of 2 minutes, the command evaluates to true at any time between 11:58:00 and 12:02:00 as shown below.



Therefore, even if the block is not scanned at exactly 12:00:00, the IF TIME command still executes as close to 12:00 as the scan time allows.

However, because of the deadband, it is possible for the IF TIME command to execute more than once. For example, if iFIX scans the block with the - scan time to the + scan time range, it is scanned twice, as shown below:

If the block is scanned exactly on the edge of the deadband, iFIX scans the block three times, as shown below:

To prevent multiple executions, the IF command could be used with TIME and GOTO as follows:

Step#	Command	Comments
14	IF TIME-E=12:00:00 GOTO 16	12:00 is half an hour prior to plant shutdown; start shutdown procedures.
15	WAITFOR TIME =23:59:59	If time is outside the deadband range, return to step 0 and start another run.
16	GOTO 3	Reminder to operator to start shutdown procedures.
17	CALL PM	Delay for three times the scan time (2 minutes in this case) to prevent the IF TIME command from executing more than once.

IFTIME GOTO Command

Purpose

Waits for a preceding WAITFOR or WAITSTAT command to timeout before proceeding to a step number other than the one that follows either command.

Syntax

```
IFTIME GOTO step#
```

Example

Use the following example, to provide a processing check:

Step	Command	Action
08	`MAXWAIT 60`	Set the maximum wait time.
09	`WAITFOR AI1 > 90`	Wait for the temperature to exceed 90 degrees.
10	`IFTIME GOTO 14`	If the temperature is not greater than 90 degrees after 60 seconds, go to step

		14; otherwise, proceed to the next step.
11	MAXWAIT 0	Reset MAXWAIT before making a call.
12	CALL PROCESS	Call a Program block that runs the actual process.
13	END	End the program.
14	CALL WARMUP	Call a Program block that increases the temperature.
15	GOTO 8	Return to step 8.

NOTE: In this example, the MAXWAIT command determines how long the block waits for the temperature to exceed 90. Yet whether the process times out or the condition set by WAITFOR is fulfilled, the block continues to the next step. This means that in the event of an equipment failure another process operation is executed in response to the failure.

By including the IFTIME GOTO command, you provide an alternative path if the WAITFOR condition is not fulfilled.

MAXWAIT Command

Purpose

Defines the time the block waits for the condition specified in a subsequent WAITFOR or WAITSTAT command to occur.

Syntax

```
MAXWAIT value
```

Parameter

value - specifies the number of seconds (0-32767 seconds) you want to wait. The value you enter should be an exact multiple of the chain's scan time. If it is not, the value is rounded to the next highest multiple of the block's scan time at run-time. Note that the value 0 means to wait forever.

For example, if you specify a MAXWAIT of 60 seconds and the block has a scan block of 25 seconds, the MAXWAIT command suspends the block for 75 seconds because the MAXWAIT period extended into the block's third scan period.

Examples

The MAXWAIT command applies to all subsequent WAITSTAT and WAITFOR commands unless another MAXWAIT command occurs. For example:

```
MAXWAIT 60
WAITSTAT PID1 AUTO
WAITFOR AI1 10
MAXWAIT 5
WAITSTAT SUBPROG1 ON
```

In this program, the block waits a maximum of 60 seconds for PID1 to be switched to Automatic mode and another 60 seconds for the output of AI1 to equal 10. But the block only waits a maximum of 5 seconds for SUBPROG1 to be placed on scan.

The MAXWAIT command also applies to called Program blocks. For example:

```
MAXWAIT 60
CALL PROG2
SETAUTO AI1
```

These commands instruct the Program block to wait a maximum of 60 seconds before it switches AI1 to Automatic mode. The SETAUTO command is then processed within 60 seconds regardless of whether PROG2 has processed all of its commands.

MSG Command

Purpose

Prints the specified text to the enabled alarm destinations in the block's alarm areas.

Syntax

```
MSG string
```

NUL Command

Purpose

Causes no operation; this is a place-holder for deleted commands or for use during debugging.

Syntax

```
NUL
```

OPEN Command

Purpose

Opens a digital block (sets the value equal to 0). The block reflects the new value based on its own scan period.

You can also open SIM registers. SIM registers range from 0 to 2000. Bit values range from 0 to 15.

Syntax

```
OPEN block
OPEN register:bit
```

NOTE: When using the OPEN command to set a Digital Input block, the Digital Input block must be in Manual mode before it can be set. If you attempt to set a Digital Input block that is in Automatic mode with an OPEN command, iFIX generates an error message and takes the Program block off scan.

PLAYSOUND Command

Purpose

Works in conjunction with iFIX sound support to play sound files you create with Microsoft-supported sound software.

Syntax

```
PLAYSOUND sound file
```

Parameters

sound file - specifies the name of the sound file you want to play. Sound files should have an extension of .WAV and are created using Microsoft-supported sound software. The PLAYSOUND command looks in Picture path for sound files. However, you also can define the location of the sound files along with the sound file name. For example:

```
PLAYSOUND C:\SOUNDS\WARNING.WAV
```

RUN Command

Purpose

Places a block on scan. Note that the command does not wait for the block to finish processing before proceeding to the next command.

Syntax

```
RUN block
```

Example

To place the block, DOWNRCP, on scan, enter the following:

```
RUN DOWNRCP
```

NOTE: The block places other blocks on scan in the order that RUN statements occur. Make sure you examine the RUN statements in the block to ensure that they execute as you intend.

Keep in mind that the RUN command allows the block to continue processing its remaining commands while the CALL command pauses the block until the called block finishes.

RUNTASK Command

Purpose

Runs FIX or third-party applications. For example, you can use this command to automatically download a recipe or save the process database. This command can also launch third-party applications such as Windows Notepad.

Syntax

```
RUNTASK executable [command line parameter]
```

Parameters

executable - specifies the name of the .EXE file for the application you want to run. This parameter can include path information, but not wildcards. For example:

```
RUNTASK C:\PROGRAMS\MYPROG.EXE
```

command line parameter - specifies any applicable command line parameters for the executable, enclosed in quotes. Up to 128 characters can be used to define command line parameters. Command line parameters are available for the following iFIX applications:

- Database Manager
- Recipe

SETAUTO Command

Purpose

Changes the status of the designated block from Manual to Automatic mode. Note that the command has no effect if the block is already in Automatic mode.

Syntax

```
SETAUTO block
```

Example

To place the block, AI1, into Automatic mode, enter:

```
SETAUTO AI1
```

SETDEBUG Command

Purpose

Switches the block to debug mode. In debug mode, the block executes only one command per scan period. In general, SAC processes all commands in a single scan, except in the cases where Wait commands are used.

NOTE: When the Program block is in debug mode, you can create a Data link in a picture with the field F_TV1 and view which command the block is executing. If the block encounters an error, you can see the command that generated the message.

To place the block into debug mode, insert the SETDEBUG command where you want the debug mode to begin, and then place the CLRDEBUG command where you want the debug mode to end. While in debug mode, the Program block sends the current step number to the enabled alarm services in its alarm areas.

Syntax

```
SETDEBUG
```

SETERROR Command

Purpose

Generates an alarm for the block executing this command. The message contains the block's name and description. This command is useful when you want the block to notify you of an undesirable condition that you have programmed into the block's logic.

Syntax

```
SETERROR
```

SETLIM Command

Purpose

Places a precision limit on the operators used in WAITFOR and IF commands. Like MAXWAIT commands, a SETLIM command applies to all the commands that follow it until a new SETLIM command occurs.

Syntax

```
SETLIM value
```

Parameters

value - specifies the number of engineering units (EGUs) that this command sets as a precision limit. The default value is 1 EGU.

Example

Suppose you want place a -2 to +2 limit around the value in a WAITFOR. The following commands accomplish this:

```
SETLIM 2
WAITFOR AI1 = 90
```

These commands instruct the block to wait as long as the value of AI1 is between 88 and 92.

SETMAN Command

Purpose

Changes the status of the designated block from Automatic to Manual mode. Note that the command has no effect if the block is already in Manual mode.

Syntax

```
SETMAN block
```

SETOUT Command

Purpose

Sets the current value of the specified block to the designated value or to the current value of another block.

Syntax

```
SETOUT block value
SETOUT block block
```

Examples

To set the current value of the block AI1 to 80, enter:

```
SETOUT AI1 80
```

To set the current value of AI2 to AI1, enter:

```
SETOUT AI2 AI1
```

NOTE: Be sure to include a DELAY command after a SETOUT command when sets the value of an Analog Output block. Using the DELAY command ensures that the Analog Output block has time to process the data it receives from the Program block.

Since the SETOUT command sets the current value of the specified block, you cannot use this command with a Text block.

SETSEL Command

Purpose

Sets the selection mode of a Signal Select block to the specified mode.

Syntax

```
SETSEL block mode
```

The available modes determine how the Signal Select block uses its input values to calculate its output value. These modes are described in the following table.

The mode...	Outputs the...
Average	Average of all assigned inputs.
Good	First good input. Note: A good value is one that iFIX considers valid. For example, if you have defined the engineering units range of the block as 70 to 80 degrees Celsius, and the sensor registers 60 degrees, the input is considered bad or invalid.
High	Highest input.
Low	Lowest input.
Sum	Sum of all the inputs.
Inputs 1	Corresponding input number.

-6	

NOTE: If one or more of the inputs are bad or off scan when the selected mode is Average or Sum, the Signal Select block ignores these inputs and continues with the calculation based on the remaining inputs.

SETTARG Command

Purpose

Defines a PID block's set point value, a Ramp block's target value, or the bias value of a Ratio Bias block to a specified value.

Syntax

```
SETTARG block value
```

Example

To define the set point value of PID1 to 50, enter:

```
SETTARG PID1 50
```

NOTE: When specifying a Ramp block, SETTARG sets the value of the first target value, SETTARG2 sets the value of the second target value, and SETTARG3 sets the value of the third target value. If a target value that is outside the Ramp block's EGU range, the Ramp block clamps the value to its high and low EGU limits.

SETTIME Command

Purpose

Sets the delay time (1-255 seconds) of a Dead Time block or the hold time (0-1000 hours) of a Ramp block.

Syntax

```
SETTIME block value
```

Example

To set the delay time of the Dead Time block, DT2, to 60 seconds, enter:

```
SETTIME DT2 60
```

NOTE: When specifying a Ramp block, SETTIME sets the hold time for the first stage and SETTIME2 sets the hold time for the second stage.

STOP Command

Purpose

Places another block off scan. Use the END command to place the Program block off scan.

Syntax

```
STOP block
```

Example

To place the block, AI2, off scan, enter:

```
STOP AI2
```

SUBOUT Command

Purpose

Subtracts a specified value from the current value of a block.

Syntax

```
SUBOUT value FROM block
```

Example

To subtract 12 from the current value of the block, AI2, enter:

```
SUBOUT 12 FROM AI2
```

NOTE: Be sure to include a DELAY command after a SUBOUT command when it subtracts a value from an Analog Output block. Using the DELAY command ensures the Analog Output block has time to process the data it receives from the Program block.

SUBTAR Command

Purpose

Subtracts the current value of one from the TARGET value of another block.

Syntax

```
SUBTAR block FROM block
```

Example

To subtract the current value of AI3 from the target value of PID5, enter:

```
SUBTAR AI3 FROM PID5
```

NOTE: When specifying a Ramp block, SUBTAR subtracts the value from the first target value of the block, SUBTAR2 subtracts the value from the second target value, and SUBTAR3 subtracts the value from the third target value. If a target value that is outside the Ramp block's EGU range, the Ramp block clamps the value to its high and low EGU limits. AO blocks to not have target values. When using blocks like AO or AI, which do not have target values, use SUBOUT command.

WAITFOR Command

Purpose

Waits for a process condition to occur. The Program block checks for this condition once per scan period. If the condition occurs or you have a previous MAXWAIT command that times out, the Program block continues with the next command.

Syntax

```
WAITFOR expression
```

Parameter

expression - compares values in the IF command. The syntax of an expression for these commands is:

```
operand1 relationaloperator operand2
```

For more information on these arguments, refer to the topic Using Command Arguments.

Example

To wait for the current value of the block, AGITSPEED, to equal 400, enter:

```
WAITFOR AGITSPEED = 400
```

TIP: In rare instances, you can have a Program block that waits for a specific value from a block to test a condition, but because of the unavoidable round-off errors that occur in digital systems, the block consistently sends out a slightly different value that never satisfies the condition. For example, 10 might not equal 10, since the block might really be comparing 10.0001 to 10.0003. The easiest way around this problem is to add a SETLIM command to create a limit of precision on the value that is received. The SETLIM statement lets you assign an inclusion limit for the comparison, such as +/- 0.1. If you do use the SETLIM command before your WAITFOR command, remember that you must account for the precision limit that you set for the condition.

WAITSTAT Command

Purpose

Suspends the operation of this block until the specified block is switched to the specified status. Valid status entries are OFF, ON, AUTO, and MANL.

Syntax

```
WAITSTAT block status
```

Examples

You can use the WAITSTAT command to:

- Suspend the operation of the block.
- Limit suspension time.
- Wait for an operator to change a block's status manually.

For example, to suspend the operation of the block until a previous RUN, STOP, SETAUTO, or SETMAN command has fully executed, enter:

```
SETAUTO AI1
WAITSTAT AI1 AUTO
```

To limit the suspension time, use the WAITSTAT command with the MAXWAIT command. When used together, the next command is executed only after the designated status occurs, or when MAXWAIT times out. For example, the following commands prevent the block from moving to the next step until PID1 is switched to an Automatic status or until MAXWAIT times out after 5 seconds:

```
MAXWAIT 5
WAITSTAT PID1 AUTO
```

To set up the WAITSTAT command to wait for a block's status to change, use the command with a Data link in a picture. For example, the following command suspends the Program block indefinitely unless a previous command switches AI1 to Manual mode:

```
WAITSTAT AI1 MANL
```

NOTE: If the operator places AI1 into Manual mode with a Data link, the block continues executing the remaining steps.

Math Features in Database Blocks

The following table provides more information on the math features available from the specified blocks.

Block Name	Math Features
Boolean Block (BL)	• Equations • Changing the Order of Precedence
Calculation Block (CA)	• Equations • Changing the Order of Precedence
Device Control Block (DC)	• Understanding Contact Patterns
PID Block (PID)	• Algorithms • Using the Proportional Band
Signal Select Block (SS)	• Modes
Statistical Data Block (SD)	• Formulas • Constants and Formulas for Control Charts • Factors for Standard Deviation Control Limits

Boolean Block - Equations

In order for the Boolean block to calculate its output correctly, you must enter an equation. In general, the equation syntax is:

```
input operator input
```

where *input* is one of the block's inputs and *operator* is a Boolean operator. You specify inputs in the equation by their letter. For example, if you enter DI1 into the Boolean block's A Input field, you would refer to it in the equation as A.

You can specify any operator listed in the following table:

Enter...	To represent the operator...	Description
-	NOT	Inverts the incoming value. If A is true, -A is false.
*	AND	Evaluates to true if all inputs are true. If any input is false, the output is false.
!	NAND	Evaluates to true if A and B are not both true. Otherwise the output is false.
+	OR	Evaluates to true as long as one or more of the inputs are true. If all inputs are false, the output is false.
^	XOR	Evaluates to true if one input is true and the other false. If both inputs are true or false, the output is false.
=	Equal	Evaluates to true if A equals B. Otherwise, the output is false.
~	Not Equal	Evaluates to true if A does not equal B. Otherwise, the output is false.

Boolean Block - Changing the Order of Precedence

The Boolean block defines an order of precedence for each operator to determine which operators (and the values on each side of the operator) are evaluated first. You can change this order by enclosing part of the equation in parenthesis. The following table lists the order of precedence for Boolean operators.

Operator	Precedence
Parenthesis	1
NOT	2
AND	3
XOR	4
OR	5
NAND	6
Equal to	6
Not Equal to	6

Calculation Block - Equations

In order for the Calculation block to compute its output correctly, you must enter an equation. In general, the equation syntax is:

```
input operator input
```

where *input* is one of the block's inputs and *operator* is a mathematical symbol. You specify inputs in the equation by their letter. For example, if you enter DI1 into the Calculation block's B Input field, you would refer to it in the equation as B.

You can enter any operator listed in the following table:

Operator	Function
ABS(input)	Absolute value
SQRT(input)	Square root
EXP(input)	Anti-log
LOG(input)	Natural log
LOG10(input)	Base-10 log
INT(input)	Changes floating point values to integers
-	Unary minus (example, -A).
^	Raise to power, exponential.
*	Multiply
/	Divide
+	Add
-	Subtract (example, A-B)
<	Less than
>	Greater than

NOTE: When doing greater than or less than comparisons, the Calculation block passes a value of 1 to the next block if the statement is true. If the statement is false, the block passes a value of 0.

Calculation Block - Changing the Order of Precedence

The Calculation block defines an order of precedence for each operator to determine which operators (and the values on each side of the operator) are evaluated first. You can change this order by enclosing part of the equation in parenthesis. The following table lists the order of precedence for Calculation block operators.

Operator	Priority Level
( )	1
ABS(input)	2
SQRT(input)	2
EXP(input)	2
LOG(input)	2
LOG10(input)	2
INT(input)	2
-	2
^	3
*	4
/	4
+	5
-	5
<	6
>	6

Device Control Block - Understanding Contact Patterns

A contact pattern is a character text string that represents the state of the digital points controlled and monitored by the Device Control block. You can use a contact pattern to:

- Monitor the digital points specified in the Input box.
- Control the digital points specified in the Output box.
- Specify the Initial Value of the digital points specified in the Output box when SAC is first started.

Each letter in a contact pattern corresponds to an output or input address defined in the block's dialog box. The following table lists and describes the characters used in building the contact pattern.

The letter...	Represents...
O	An open digital point. Note: Enter the letter O, not a zero (0).
C	A closed digital point.
X	The current state of a digital point. Use this letter if an output address is not defined or if a particular digital point's state is immaterial.

You can use contact patterns in conjunction with the Device Control block's programming statements. Programming statements monitor and control the digital points specified as input and output addresses. You can enter up to 12 programming statements. Each statement can be up to 34 characters long.

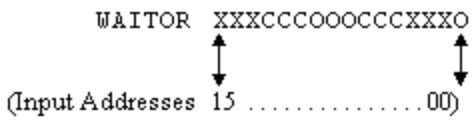
For example, to control the state of the digital points specified in the Output Addresses column you might enter a contact pattern similar to the following:

```
OUTPUT CCOOXXCO
```

The following table identifies the correspondence between each digital address specified in the Output Addresses column and the eight letters in the sample contact pattern above.

Output Address	Contact Pattern
07	First character (C)
06	Second character (C)
05	Third character (O)
04	Fourth character (O)
03	Fifth character (X)
02	Sixth character (X)
01	Seventh character (C)
00	Eighth character (O)

You can also use a contact pattern to monitor the state of the digital points specified in the Input Addresses box:



The correspondence between each digital address specified in the Input Addresses box and the 16 letters in the contact pattern is similar to the preceding table. The left-most letter corresponds to the top address, 15, and the letter on the far right corresponds to the bottom address, 00.

PID Block – Algorithms

The steady state PID block algorithm is:

$$\Delta y_n = K_p * \beta (E_n - E_{n-1}) + \frac{T}{T_I} (F_n - y_{n-1}) + \frac{T K_p E_n}{T_I} + \frac{K_p * T_D * \gamma (E_n + 3E_{n-1} - 3E_{n-2} - E_{n-3})}{6 * T * (T_D * \alpha + 1)}$$

The following table identifies the variables for the algorithm.

Variable	Value
Δy_n	yn - yn-1 where: yn is the current output yn-1 is the previous output
Kp	100/PB
En	sp - pv (or the error at current scan time) where: sp is the set point pv is the current input
T	Scan time (or sample time).
Fn	Feedback tag value.
En-1	Error at previous scan time (1 scan time prior to current).
TI	Reset time constant (minutes/repeat).
TD	Derivative time constant (minutes).
α	Derivative mode filter
β	Proportional action constant
γ	Derivative action constant

The new output of the PID block is:

$$\Delta y_{n+1} = y_n + \Delta y_n$$

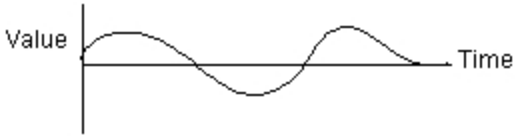
where y_{n+1} = the new output.

PID Block – Using the Proportional Band

You can adjust the value in the Proportional Band field to control how sensitive the PID block is to process changes. For example, decreasing the proportional band generates a high gain and provides sensitive, but unstable control. With this *narrow* proportional band, a relatively small change in measurement

causes a 100% change in the block's output travel. This method generally allows the set point to be reached faster, but with more severe fluctuations, as the following picture shows:

Conversely, increasing the proportional band generates a low controller gain and provides stable, but insensitive control. With this *wide* proportional gain, a relatively large change in measurement causes a small change in the block's output travel. This method generally takes longer to reach the set point, but causes fewer fluctuations, as the following picture shows:



Signal Select Block - Modes

The Signal Select modes determine how the block handles its input values and calculates its output value. Each modes is described below:

Alarm Type	Description
Average	Outputs the average of all assigned inputs. Bad or off scan inputs are not included in the calculation.
Good	Outputs the first input that FIX considers valid.
High	Outputs the highest input.
Low	Outputs the lowest input.
Sum	Outputs the sum of all the inputs. Bad or off scan inputs are not included in the calculation.
Inputs 1 - 6	Outputs the corresponding input number.

Statistical Data Block - Formulas

In the following table, n represents the number of observations and g is the number of groups.

Formula	Abbreviation	Description
$\overline{X} = \frac{\Sigma X}{n}$	XBAR	The group average.
$\overline{\overline{X}} = \frac{\Sigma \overline{X}}{g}$	XBARBAR	The average of the group average.

R=Xmax - Xmin	R	The range of the group.
$\bar{R} = \frac{\Sigma R}{g}$	RBAR	The average range of all groups.
$s = \sqrt{\frac{\Sigma (X - \bar{X})^2}{n-1}}$	S	The standard deviation of the group.
$\bar{s} = \frac{\Sigma s}{g}$	SBAR	The average of sample standard deviations.
$UCLX = \bar{\bar{X}} + A_2\bar{R}$ $LCLX = \bar{\bar{X}} - A_2\bar{R}$	UCLX LCLX	The upper and lower control limits*.
$UWLX = \bar{\bar{X}} + (.666\ A_2\bar{R})$ $LWLX = \bar{\bar{X}} - (.666\ A_2\bar{R})$	UWLX LWLX	The upper and lower warning limits*.
$UCLR = D_4\bar{R}$ $LCLR = D_3\bar{R}$	UCLR LCLR	The upper and lower control limit for range.
$UCLs = B_4\bar{s}$ $LCLs = B_3 s$	UCLs LCLs	The upper and lower control limits for the standard deviation.
$\hat{\sigma} = \bar{s}/C_4$	Sigma	The process standard deviation.
$Z_U = \frac{USLX - \bar{\bar{X}}}{\hat{\sigma}}$ $Z_L = \frac{\bar{\bar{X}} - USLX}{\hat{\sigma}}$	ZU ZL	The upper and lower CPK limit.
CPK=MIN(ZU,ZL) / 3.0	CPK	The process capability index.

***NOTE:** The block sets the upper (USLX) and lower (LSLX) user specification limits to values greater and less than the upper and lower control limits, respectively, if you do not specify a value.

A2 is the factor for control limits for X. D4 and D3 are factors for control limits for R. C4 is the divisor estimate of the standard deviation. Additional information on the control charts that these values are derived from can be found in the original text: ASTM publication STP-15D, *Manual on the Presentation of Data and Control Chart Analysis*, 1976; Pages 134-136.

Statistical Data Block – Constants and Formulas for Control Charts

	$\bar{X}$ and R Charts*				$\bar{X}$ and s Charts*			
	Chart for Averages (X)	Chart for Ranges (R)			Chart for Averages ($\bar{X}$)	Chart for Standard Deviations (s)		
Group Size	Factors for Control Limits	Divisors for Estimate of Standard Deviation	Factors for Control Limits		Factors for Control Limits	Divisors for Estimate of Standard Deviation	Factors for Control Limits	
n	A_2	d_2	D_3	D_4	A_3	c_4	B_3	B_4
2	1.880	1.128	-	3.267	2.659	0.7979	-	3.267
3	1.023	1.693	-	2.574	1.954	0.8862	-	2.568
4	0.729	2.059	-	2.282	1.628	0.9213	-	2.266
5	0.577	2.326	-	2.114	1.427	0.9400	-	2.089
6	0.483	2.534	-	2.004	1.287	0.9515	0.030	1.970
7	0.419	2.704	0.076	1.924	1.182	0.9594	0.118	1.882
8	0.373	2.847	0.136	1.864	1.099	0.9650	0.185	1.815
9	0.337	2.970	0.184	1.816	1.032	0.9693	0.239	1.761
10	0.308	3.078	0.223	1.777	0.975	0.9727	0.284	1.716
11	0.285	3.173	0.256	1.744	0.927	0.9754	0.321	1.679
12	0.266	3.258	0.283	1.717	0.886	0.9776	0.354	1.646
13	0.249	3.336	0.307	1.693	0.850	0.9794	0.382	1.618
14	0.235	3.407	0.328	1.672	0.817	0.9810	0.406	1.594
15	0.223	3.472	0.347	1.653	0.817	0.9823	0.428	1.572
16	0.212	3.532	0.363	1.637	0.763	0.9835	0.448	1.552
17	0.203	3.588	0.378	1.622	0.739	0.9845	0.466	1.534
18	0.194	3.640	0.391	1.608	0.718	0.9854	0.482	1.518
19	0.187	3.689	0.403	1.597	0.698	0.9862	0.497	1.503
20	0.180	3.735	0.415	1.585	0.680	0.9869	0.510	1.490
21	0.173	3.778	0.425	1.575	0.663	0.9876	0.523	1.477
22	0.167	3.819	0.434	1.566	0.647	0.9882	0.534	1.466
23	0.162	3.858	0.443	1.557	0.633	0.9887	0.545	1.455
24	0.157	3.895	0.451	1.548	0.619	0.9892	0.555	1.445
25	0.153	3.931	0.459	1.541	0.606	0.9896	0.565	1.435

$UCL_{\bar{X}}, LCL_{\bar{X}} = \bar{\bar{X}} \pm A_2\bar{R}$

$UCL_R = D_4\bar{R}$

$LCL_R = D_3\bar{R}$

$UCL_S = B_4\bar{S}$

$LCL_S = B_3\bar{S}$

$\hat{\sigma} = \bar{S}/c_4$

If the number of observations per group = 1, then:

$UCL_{\bar{X}}, LCL_{\bar{X}} = (\bar{\bar{X}} \pm 3\bar{R}/d_2)$

$UWL_{\bar{X}}, LWL_{\bar{X}} = \bar{\bar{X}} \pm \frac{2}{3}A_2\bar{R}$

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Statistical Data Block - Factors for Standard Deviation Control Limits

The following table describes the factors for standard deviation control limits in the Statistical Data block.

Subgroup Size	B3	B4
2	0	3.267
3	0	2.568
4	0	2.266
5	0	2.089
6	0.030	1.970

7	0.118	1.882
8	0.185	1.815
9	0.239	1.761
10	0.284	1.716
11	0.321	1.679
12	0.354	1.646
13	0.382	1.618
14	0.406	1.594
15	0.428	1.572
16	0.448	1.552
17	0.466	1.534
18	0.482	1.518
19	0.497	1.503
20	0.510	1.490
21	0.523	1.477
22	0.534	1.466
23	0.545	1.455
24	0.555	1.445
25	0.565	1.435

Additional Information on Alarming

Some blocks require additional information for configuring and understanding alarms. The following sections provide more information on alarming:

- Alarm Priorities for the Analog Alarm Block
- Alarm Transitions for the Analog Alarm Block
- Alarm Types for the Analog Alarm Block
- Alarms in the Boolean Block
- Alarm Handling in the Multistate Digital Input Block
- Alarming Considerations in the Statistical Data Block
- Alarm States in the Event Action Block
- Alarm States, Contacts, and the Digital Alarm Block

Alarm Priorities for the Analog Alarm Block

Before sending an alarm, iFIX compares the alarm priority of each alarm against the SCADA server's alarm priority. If the alarm's priority is equal to or higher than the SCADA server's priority, iFIX sends the alarm to the enabled alarm destinations in the specified alarm areas. However, if the alarm's priority is less than the SCADA server's, iFIX automatically acknowledges the alarm and does not send to the enabled alarm destinations.

If multiple alarms occur simultaneously, the lower priority alarm type is ignored. In this case, the Analog Alarm block closes any contacts defined for the lower priority alarms, but does not send alarms. When the block detects an alarm condition and no other alarms of greater priority are in effect, the block generates an alarm and closes the digital block defined in the Contact Name field.

NOTE: It is possible to close more than one digital block if the alarm type increases in priority without returning to normal. For example, if the block generates a Rate of Change alarm, it closes the digital block specified in the Rate of Change alarm's Contact Name field. If the block then generates a High alarm, it closes the digital block in the High alarm's Contact Name field.

Example

If you assign a high priority to a deviation alarm and a low priority to a High High alarm, iFIX treats deviation alarms as more severe than High High alarms. If Deviation and High High alarm conditions are simultaneously active, Data links that reference the current and latched alarms display DEV because the deviation alarm has greater priority.

Assigning the same priority to both the Deviation and High High alarms causes iFIX to treat the alarms according to the default order of alarm types.

NOTE: The alarm priority of the High alarm must be equal to or less than the priority of the High High alarm. Similarly, the alarm priority of the Low alarm must be equal to or less than priority of the Low Low alarm.

iFIX automatically acknowledges any alarm below the computer's alarm priority. This means that if the associated contact is set to clear on Acknowledge, it opens when iFIX acknowledges the alarm. Contacts set to clear in All Clear mode open when the block value falls within defined limits.

Alarm Transitions for the Analog Alarm Block

When an alarm occurs, the Analog Alarm block generates an alarm and closes the associated contact (digital block). For example, when a High alarm occurs, the block sends a High alarm to the alarm destinations defined in the SCU and closes the contact you defined for the High alarm.

The block handles each type of alarm independently of other alarms. For example, if a Rate of Change (ROC) and a High alarm occur simultaneously, the Analog Alarm block generates both alarms and closes the specified contacts.

Some alarm transitions generate only one alarm. For example, when the Analog Alarm block goes from a normal state to a High High alarm, the contacts for the High and High High alarms close. The block generates a High High alarm and suppresses the High alarm. Transitions from a normal state to a Low Low alarm work in a similar manner. The Low and Low Low alarm contacts close. The block generates a Low Low alarm and suppresses the Low alarm.

Block Mode

The block's Out Mode determines how it responds to certain alarm transitions. Possible Out Mode values are:

Entry	Description
Acknowledge	Opens the digital block when the operator acknowledges the alarm.
Return	Opens the digital block when the alarm is cleared.
All Clear	Opens the digital block when the alarm is acknowledged and cleared.
Never	Does not open the digital block.

For example, when the block's Out Mode is set to Return and the current alarm changes from a Low or Low Low alarm to a High High alarm, the block generates a High High alarm only after opening the Low and Low Low contacts and closing the High and High High contacts. Similarly, if the Out Mode is set to Return and the current alarm changes from a High or High High alarm to a Low Low alarm, the High and High High contacts open, the Low and Low Low contacts close, and the block generates a Low Low alarm.

The block's Out Mode also determines how the block responds to less abrupt alarm transitions. For example, when the current alarm changes from a High High alarm to a High alarm, the High High alarm contact opens depending on the alarm's mode. The block does not generate a High alarm and the state of the High alarm contact is unchanged because the block is still in an High alarm state. The transition from Low Low to Low works in a similar manner. The Low Low alarm contact opens, depending on the alarm's mode, the block does not generate a Low alarm, and the state of the Low alarm contact is unchanged. You can configure the Analog Alarm block to generate an alarm for either transition, by using a short re-alarm time for the High and Low alarm.

Using Contacts

You can specify the same contact for multiple alarms. When you do this, the contact closes when any alarm condition that uses the contact occurs. The contact remains closed until each alarm returns to normal. For example, if the High and High High alarms use the same contact, and a High High alarm occurs, the contact remains closed until the block's value falls below the High alarm limit.

Alarm Types for the Analog Alarm Block

The Analog Alarm Block generates the following alarm types, represented in the order of decreasing priority:

Alarm Type	Description
Other	An alarm that is not one of those listed elsewhere in this table. Possible values include Comm (for communication errors), Over (when the blocks value is greater than the High Limit value), or Under (when the blocks value is less than the Low Limit value).
High High	A critically high alarm.
Low Low	A critically low alarm.
High	A high alarm.

Low	A low alarm.
Rate of Change	A rate of change alarm. This alarm indicates that the block's value exceeds an acceptable rate of change.
Deviation	A deviation alarm. This alarm occurs when the current value of the block varies from the Target Value field by an amount greater than the deviation alarm's value.

NOTE: If multiple alarms occur simultaneously, the lower priority alarm type is ignored. The block closes any contacts defined for the lower priority alarms, but does not send alarms. When it detects an alarm of greater priority, the block generates an alarm and closes the digital block defined in the Contact Name field.

Alarms in the Boolean Block

To include an alarm as an input in a Boolean block calculation, you must use the following format:

```
tag name:alarm type
```

Valid alarm types and their priorities include the following:

Priority	Alarm Type	Description
1	COMM	Communication Error (BAD value).
1	OCD	Open circuit detected.
1	IOF	General I/O Failure.
1	FLT	Floating Point Error.
1	OVER	Over Range.
1	UNDER	Under Range.
1	ERROR	Any Statistical Data block alarm.
2	CFN	Change from normal alarm (digital blocks only).
2	COS	Change of State alarm (digital blocks only).
2	HIHI	Block in HIHI alarm state.
2	LOLO	Block in LOLO alarm state.
3	RATE	Value exceeds rate-of-change setting.
3	HI	Block in HI alarm state.
3	LO	Block in LO alarm state.
4	DEV	Deviation Alarm.
5	OK	Block in normal state.

Alarm Handling in the Multistate Digital Input Block

The Multistate Digital Input Block generates Change from Normal (CFN) alarms only on a transition between alarm status and no alarm status. Transitions between different alarm states do not generate new alarms.

When you select the Re-alarm check box, the block re-issues alarms every time the block changes alarm states (even if the block is already in alarm). iFIX treats these alarms as unacknowledged alarms.

Alarming Considerations in the Statistical Data Block

The Statistical Data block supports *out of control* alarming on the following limits:

- XBAR, Range, and Standard Deviation control limits.
- Warning limits for XBAR plots.
- Trend Alarm.
- Length of Runs Alarm.
- Crossings of the Mean Alarm.

Statistical Data block alarms are based on groups. Group alarming occurs if a user-defined group exceeds any limit. These alarms include the following limits:

Control Limits - defines the limits as within plus or minus three (+/- 3) standard deviations (also called sigma).

Warning Limits - defines the limits as within plus or minus two (+/- 2) standard deviations (XBAR plot only).

At run-time, the Statistical Data block calculates all control limits and statistical values after collecting the first *n* groups, where *n* is the number of groups specified in the block's dialog box.

You can specify alarm limits through Data links to the following fields. The block supports both A_ and F_ versions of these fields.

LCLR	LCLS	LCLX	LSLX
LWLX	RBAR	SBAR	UCLR
UCLS	UCLX	USLX	UWLX
XBB			

If you manually input limit values, verify that the values are very close to the ones the block would calculate. Otherwise, the validity of statistical alarms and control charts is questionable. You should also select NEVER for the block's Auto Limits and Auto Calculations fields when you manually enter limit values. This selection lets the block calculate alarm limits, XBAR, R, and S values based upon defaults and lets you enter values at any time before or after startup. Operators can also change the setting of Auto Calculations or Auto Limits through Data links to the fields A_AUTOX and A_LCALC, respectively.

Alarm States in the Event Action Block

You can include any of the following alarm states in an Event Action IF statement:

Priority	Alarm Type	Description
1	COMM	Communication Error ("BAD" value).
1	OCD	Open circuit detected.
1	OVER	Over Range.
1	UNDER	Under Range.

1	ERROR	Any Statistical Data block alarm.
2	CFN	Change from normal alarm (digital blocks only).
2	COS	Change of State alarm (digital blocks only).
2	HIHI	Block in HIHI alarm state.
2	LOLO	Block in LOLO alarm state.
3	RATE	Value exceeds rate-of-change setting.
3	HI	Block in HI alarm state.
3	LO	Block in LO alarm state.
4	DEV	Deviation Alarm.
5	OK	Block in normal state.

Alarm States, Contacts, and the Digital Alarm Block

The Digital Alarm block opens and closes contacts based on its alarm state. When the block detects an alarm of the type specified in the Alarm Type area, it closes the contact specified in the Contact Name field. The contact opens based on the Contact Mode area. Possible values are:

Button	Description
Acknowledge	Opens the digital block when the operator acknowledges the alarm.
Return	Opens the digital block when the alarm returns to normal.
All Clear	Opens the digital block when the alarm is acknowledged and cleared.
Never	Requires the operator to open the contact manually or via other program logic.

iFIX automatically acknowledges any alarm below the node's alarm priority. This means that if the associated contact is set to clear on Acknowledge, it opens when iFIX acknowledges the alarm. Contacts set to clear in All Clear mode open when the block's current value falls within the defined limits.

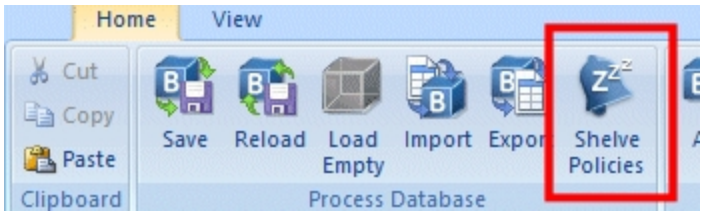
About Alarm Shelving

Alarm shelving empowers your operators to make informed decisions by providing the ability to manually remove alarms from the active alarm list for a set period. This helps improve the display of alarm information on screen, and lets operators focus on only the most important alarms. Alarm shelving in iFIX was built taking into consideration ISA 18.2 Shelving, providing you a thorough alarm management solution.

With alarm shelving enabled in iFIX, you can temporarily suppress alarms from the Alarm Summary object's active alarm list for a predefined period. To configure alarm shelving, in the iFIX Database Manager, first you must define your alarm shelving policies with the preset time choices and maximum duration for shelving. Next, you must enable each tag that you want to enable alarm shelving on. After you do that, in WorkSpace configure mode, you need to configure the Alarm Summary object to display the Alarm Shelving fields.

How to Configure Alarm Shelving in the Database Manager

Before you enable alarm shelving for your blocks, you need to define your alarm shelving policies. Policies for the preset time choices available to an operator, along with the maximum amount of time an alarm can be shelved, are created in the Shelve Policies dialog box, accessed from the Shelve Polices button in the iFIX Database Manager. For more information, refer to the Alarm Shelving Policies topic.



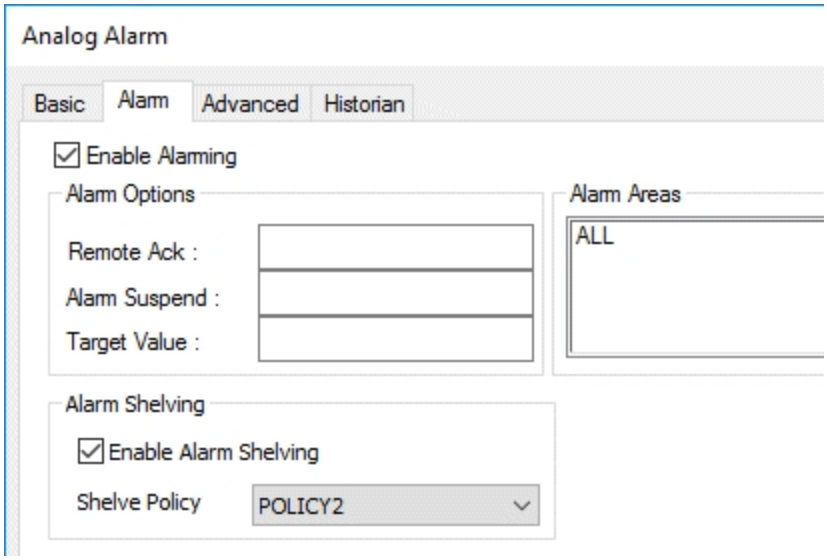
Next, alarm shelving can be enabled on the block. You can enable alarm shelving on the following blocks types in the Database Manager:

- Analog Alarm (AA)
- Analog Input (AI)
- Digital Alarm (DA)
- Digital Input (DI)
- Multistate Digital Input (MDI)
- Program Block (PG)
- PID or Proportional-Integral-Derivative (PID)
- Statistical Data (SD)
- SQL Trigger (SQT)
- Timer (TM)
- Text (TX)

Additional Database Dynamos (loadable blocks added with Database Dynamo Configuration Utility, BTKCFG.exe, that support the alarm shelving feature include:

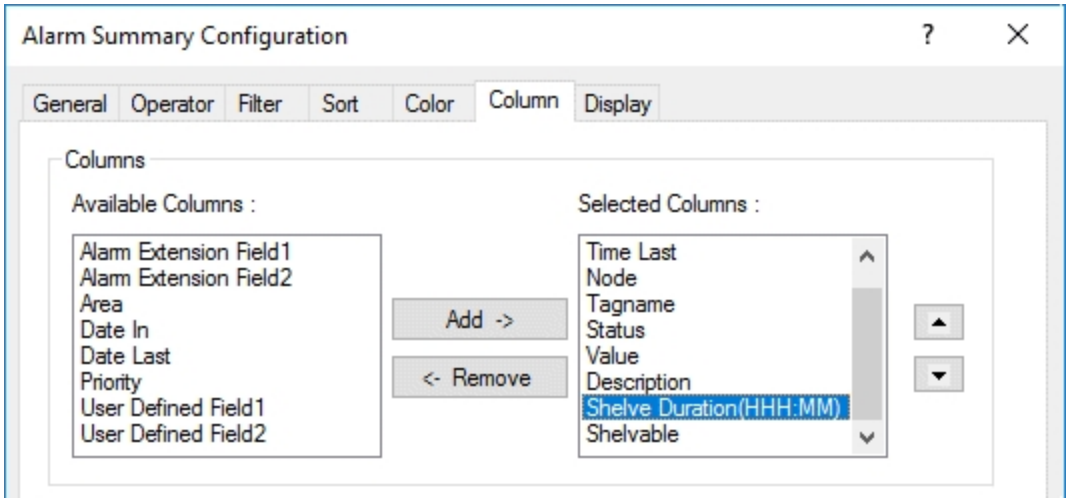
- Analog Input with Freeform Scaling (AIS)
- Transition Counter (CTR)
- 16 Bit Digital Status (D16)
- Improved PID (PI2)

Alarm Shelving is enabled on the Alarms tab for each individual block you want to configure, as shown in the following figure. From here you can also choose the policy that you want to assign to this block.

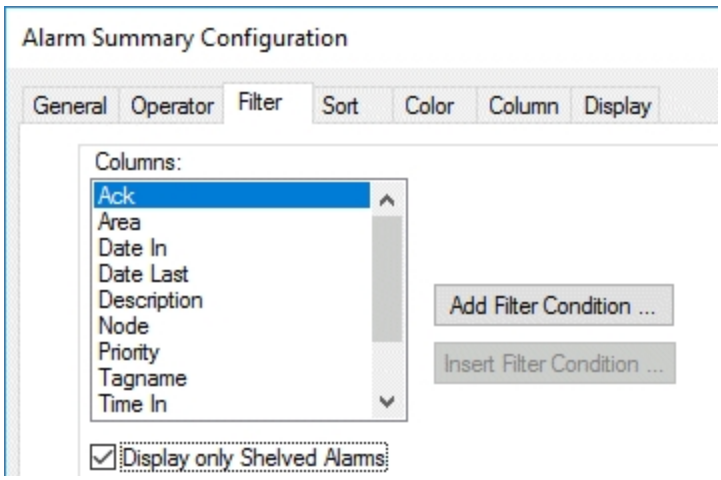


How Alarm Shelving is Setup in the WorkSpace Configure Mode

To view whether alarms are shelvable in the Alarm Summary object in the iFIX WorkSpace, you first need to add the alarm shelving columns to your Alarm Summary display. From the Alarm Summary Configuration, select the Column tab. Move the Shelvable and Shelve Duration (HHH:MM) columns to the Selected Columns list as shown in the following figure and click Apply.

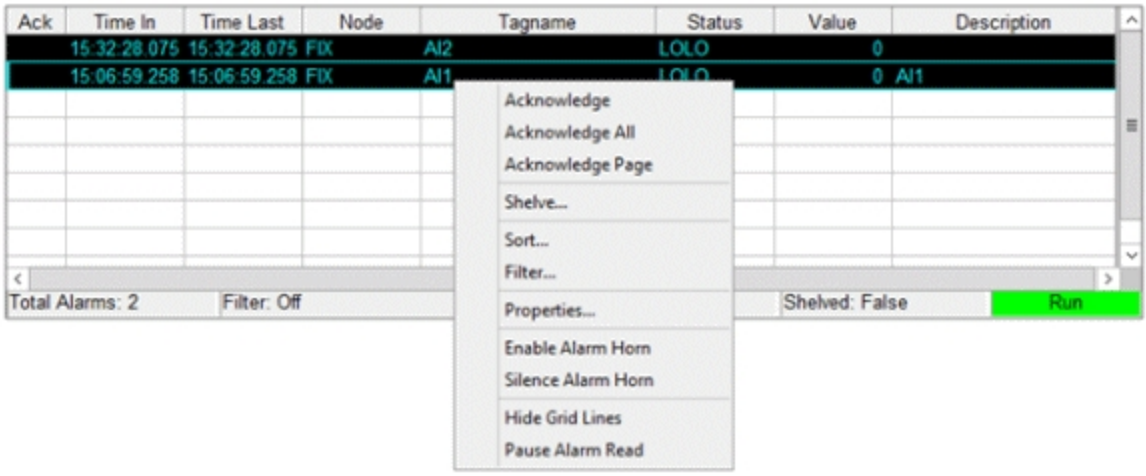


If you want to view only the shelved alarms in the Alarm Summary object, make a copy of your Alarm Summary object. On the Filter tab, select Display only Shelved Alarms and click Apply, as shown in the following figure. This will allow you to view alarms as you move them between the active alarm list and the shelved alarm list.



Run Mode Alarm Shelving for the Operator

When in WorkSpace run mode, select the alarm or alarms you want to shelve from the Alarm Summary object. Then, with the alarms highlighted, use the right-click menu to access the pop-up menu and select the Shelve option.

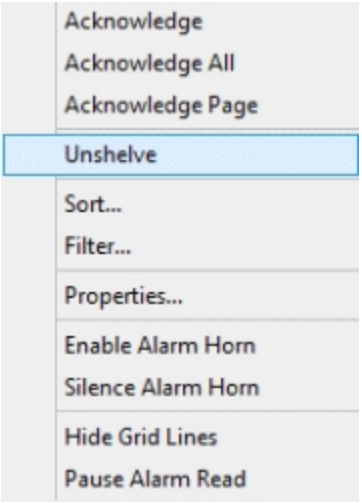


Three shelve options are available:

- Custom duration
- Maximum duration (limited to 999 hours)
- Preset duration.

After you select the duration and click Shelve, the alarm (or alarms) temporarily gets removed from the alarm list. When the duration is expired, if the alarm is still active, it will pop back into the Alarm Summary list.

To remove an alarm before a shelving period expires, right-click the selected the alarm or alarms and select Unshelve. This brings the alarm back in to the active alarm display.

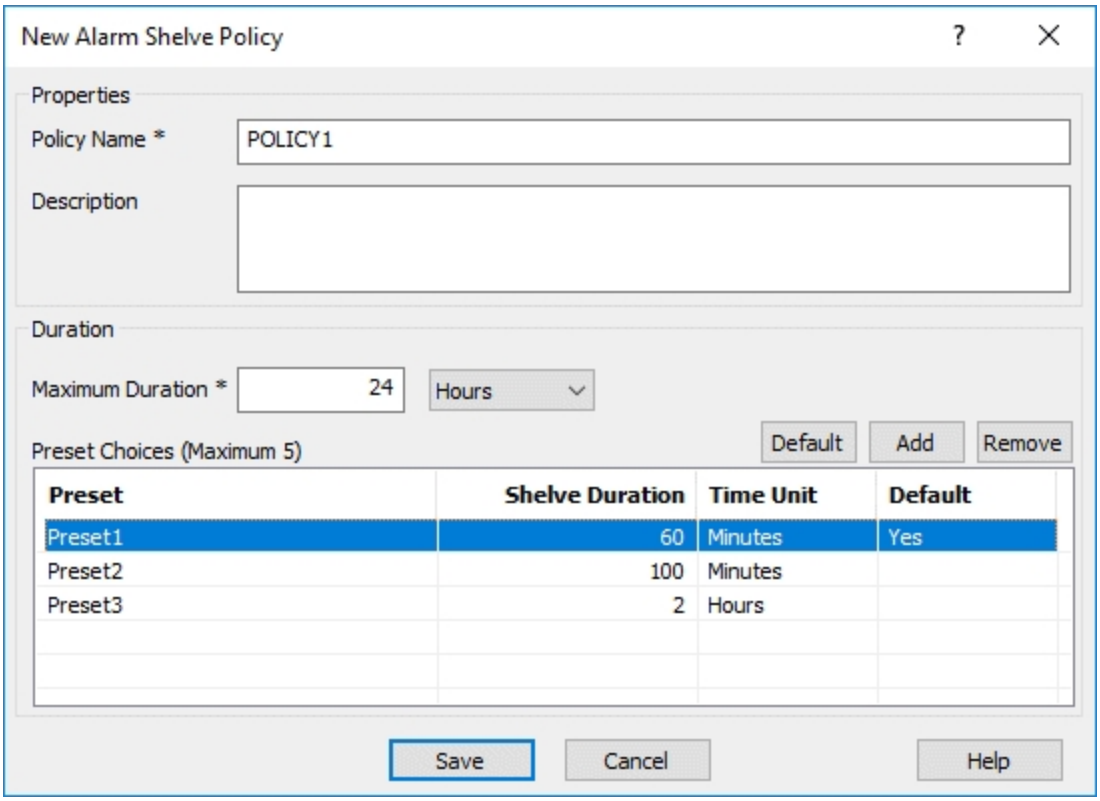


NOTE: Be aware that the shelve durations are based off the system clock and not a timer.

Alarm Shelving Policies

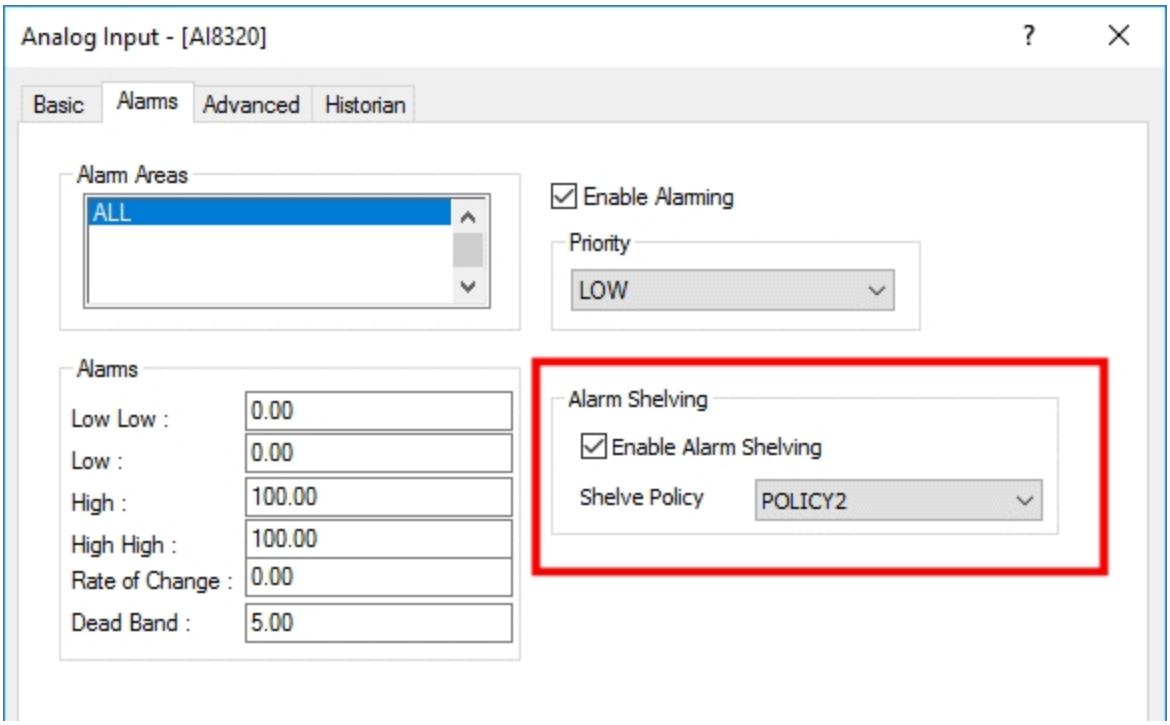
Alarm Shelving Policies help you manage the options available to operators in run mode when choosing to shelve alarms. In the iFIX Database Manager, on the Home tab, select the Shelve Policies button to open the Alarm Shelve Policies dialog box. From here, you can define up to 20 alarm shelving policies.

Each policy that you create contains preset durations for alarms to be shelved, along with the maximum shelf duration for which an operator can shelve an alarm. For each policy, one or several presets (up to 5) can be defined. The following figure displays an example of an alarm shelving policy named POLICY1 with 3 presets defined, and a maximum duration of 24 hours.



Policy definitions are editable only through the Database Manager and EDA functions. You can also access shelve policy values using the system database fields. For more information, refer to the Alarm Shelving System Fields section. All shelve policy system fields can be accessed through datalinks in the iFIX WorkSpace, and are read-only.

Policies are set at the block level. If you enable alarm shelving for the block when configuring your blocks in the iFIX Database Manager, you also select the policy that you want to apply to that database tag. The following example shows a Shelve Policy of POLICY2 that applies to the tag.



SQL Use in Database Blocks

The following database blocks can be used if you want to interface between your iFIX process database and a SQL relational database:

- SQL Data Block (SQD)
- SQL Trigger Block (SQT)

The SQD block acts as the actual interface, while the SQT block runs the SQL commands. When working with these block types, you should be aware of the following information:

- Reading and Writing Data of SQL Data
- Behavior of SQL Data Blocks While Off Scan
- Keywords Available for use in the SQL Data Block
- Direction of SQL Data Block
- SQL Trigger Block States
- SQL Trigger Blocks in Manual Mode

Reading and Writing of SQL Data

The SQL Data block can read data from the iFIX process database or your relational database. After reading the data, the SQL Data block can write it to either database depending on the SQL command that executes.

If the SQL command is...	The block...
SELECT	Reads values from the relational database and writes them to the process database.
INSERT, UPDATE, or DELETE	Writes process data values to the relational database

A SELECT command with a Where clause instructs the block to read and write data to both databases. For values in the Where clause, the block reads from the process database and writes them to the relational database. However, for the values not in the Where clause, the block reads from the relational database and writes to the process database.

Behavior of SQL Data Blocks While Off Scan

The SQL Data block identifies the blocks that transfer to or receive data from your relational database. The block, however, does not monitor a block's status or mode. If a block is off scan, when the upstream SQL Trigger block starts, the SQL task substitutes a null value for the off-scan block's current value. If the target column in the relational database cannot accept a null value, the INSERT or UPDATE fails and the SQL Trigger block generates an alarm.

Keywords Available for use in the SQL Data Block

You can use any of the following keywords in place of a block and field pair.

- **NODENAME** - The node name of the local SCADA server.
- **SQTBLK** - The name of the SQT block.
- **TMDT** - The current time and date.
- **TIME** - The current time.
- **DATE** - The current date.

For example, to save the time and date of each relational database transaction, enter the keyword TMDT in the SQL Data block.

Direction of SQL Data Block

The value of the Direction field also determines whether values are read or written to the relational database as follows:

Out - Send the values of the specified block and field name pairs to the relational database. These values update existing values, are inserted in the relational database, or used in a Where clause. Typically, the number of Out fields equals the number of parameters in INSERT or UPDATE commands.

In - Receive the values of the specified block and field name pairs from the relational database. Typically, the number of In fields equals the number of columns specified in the SELECT commands.

For example, using the command shown below, you can add a new record in the relational database:

```
INSERT into TBL1 (COL1, COL2, COL3) values (?, ?, ?)
```

The direction for each value in this example is set to OUT.

SQL Trigger Block States

SQL Trigger blocks can be in any of the following states:

The state...	Indicates the block is...
MANUAL	In Manual mode.
OFF	Off scan or not connected to a relational database.
TIME	Waiting for a time event.
EV SET	Waiting for a low to high event.
EV CLR	Waiting for a high to low event.
EV CHG	Waiting for the block event to change.
PERIOD	Waiting for the next event period.
W EV CLR	Waiting for the event to clear.
W CONF	Waiting for the confirmation tag to set.
IDLE	Not waiting for an event.

SQL Trigger Blocks in Manual Mode

SQL Trigger blocks automatically execute SQL commands when placed in Automatic mode, not in Manual mode. However, an operator can manually trigger a SQL Trigger block through a Data link that uses the A_TRIP field or through the Database Manager. When manually triggered, the block executes SQL commands as if it were in Automatic mode.

If an SQL Trigger block is monitoring the CLOSE to OPEN state of a digital block, the SQL Trigger block activates when the digital block opens. If the SQL Trigger block is placed in Manual mode before the digital block opens, the SQL Trigger block does not activate until it is switched to Automatic mode.

System Fields

System fields display internal database, SAC, and network information. To use these fields in a data source, use SYSTEM as the block name, as follows:

```
Fix32.node.SYSTEM.field
```

For example, to display the local time of the SCADA server MIXER, use the syntax:

```
Fix32.MIXER.SYSTEM.A_NTIME
```

To display redundancy information use NSD as the block name, as follows:

```
Fix32.node.NSD.field
```

For example, to display the physical node name of the local node, use the syntax:

```
Fix32.MIXER.NSD.A_LOCALNAME
```

Database and SAC System Fields

The following table lists the system fields for the iFIX database and the Scan, Alarm, and Control (SAC) program, and what each field displays.

The field...	Parameter...	Displays...
A_BLKS	Total number of tags processed	The number of blocks that SAC processed since iFIX started.
A_BPS	Number of tags processed per second	The number of blocks that SAC processed in the last second.
A_CPM	SAC cycles per minute	The number of scans that SAC completes per minute with no overruns. SAC attempts to complete 60 scans per minute or 1200 scans if you are using subsecond processing. If the number in this field is less than 60 or 1200, your SCADA server is overloaded.
A_CPS	SAC cycles per second	The number of scans SAC completes per second with no overruns. SAC attempts to complete 1 scan per second or 20 scans if you are using subsecond processing. If the number in this field is less than 1 or 20, your SCADA server is overloaded.
A_DBNAM	Database name	The name of the database on the local SCADA server.
A_NDATE	Node date	The current date of the local SCADA server.
A_NODE	Node name	The name of the local SCADA server.
A_NTIME	Node time	The time of the local SCADA server.
A_PDBSN	Database serial number	The serial number of the process database.
A_SACOU	SAC output status	Enable, if SAC writes operator entries to the process hardware, or Disable if SAC writes operator entries to the process database and

		not to the process hardware.
A_SACOV	Number of SAC over-runs	The number of times that the Scan, Alarm, and Control (SAC) program could not execute all requests during a scan. The count begins from the time the SCADA server started.
A_SACPR	Alarm priority level	The SCADA server's alarm priority: INFO, LOLO, LOW, MEDIUM, HIGH, HIHI, or CRITICAL.
A_SACST	SAC scan status	RUN if SAC is scanning the process database, or STOP if SAC is not running.

Redundancy System Fields

For information on NSD fields, refer to the Enhanced Failover electronic book.

Alarm Shelving System Fields

The Alarm Shelving policy values can be accessed using the following database fields. Up to 20 shelve policies can be defined.

IMPORTANT: All shelve policy fields when accessed through the datalinks are read-only. Policy definitions are editable only through the iFIX Database Manager and EDA functions.

Field	Description
A_SHELVEPOLICY0-19	Shelve policy name (64 characters).
A_SHELVPOLICYDESC0-19	Shelve policy description (256 characters).
F_MAXSHELVETIME0-19	Shelve policy maximum duration (with a maximum shelve duration value of 999 hours).
A_SP0-19_CHOICEDESC0-4	Shelve policy preset description (64 characters).
A_SP0-19_CHOICETIME0-4	Shelve policy preset duration value (from 1 minutes to the maximum shelve duration value).
A_SP0-19_CHOICEDEF0-4	Shelve policy preset definition default state. The preset default state of yes is selected by default in run mode.

Accessing Alarm Shelving System Fields

All the shelve policy fields can be accessed in the iFIX WorkSpace through a datalink. For example, create a datalink and define the source as:

Fix32.FIX.SYSTEM.A_SHELVEPOLICY

where FIX is the node name, and A_SHELVEPOLICY is the field.

NOTE: When accessed through a datalink, all shelve policy fields are read-only.

SIM Signal Generation Registers

SIM registers generate a repeating pattern of random and predefined values. To select a register, enter the respective two-letter acronym in the I/O Address field. These registers are listed below:

- RA SIM register
- RB SIM Register
- RC SIM register
- RD SIM register
- RE SIM register
- RF SIM register
- RG SIM register
- RH SIM register
- RI SIM register
- RJ SIM register
- RK SIM register
- RX SIM register
- RY SIM register
- RZ SIM register

RA SIM Register

The RA SIM register ramps a value from 0 to 100% of the EGU range at a rate controlled by the RY register. RA register values are read-only.

Use the RX register to enable the generation of values in the RA register.

RB SIM Register

The RB SIM register counts from 0 to 65535 at a rate of twenty counts per second. RB register values are read-only.

Use the RX register to enable the generation of values in the RB register.

RC SIM Register

The RC SIM register shifts one bit through a 16-bit word at a rate controlled by the RZ register. RC register values are read-only.

Use the RX register to enable the generation of values in the RC register.

RD SIM Register

The RD SIM register generates a sine wave from 0 to 100% of the EGU range at a rate controlled by the RY register. RD register values are read-only.

Use the RX register to enable the generation of values in the RD register.

RE SIM Register

The RE SIM register generates a sine wave from 0 to 100% of the EGU range at a rate controlled by the RY register. The sine wave is delayed 90 degrees relative to the RD register. RE register values are read-only.

Use the RX register to enable the generation of values in the RE register.

RF SIM Register

The RF SIM register generates a sine wave from 0 to 100% of the EGU range at a rate controlled by the RY register. The sine wave is delayed 180 degrees relative to the RD register. RF register values are read-only.

Use the RX register to enable the generation of values in the RF register.

RG SIM Register

The RG SIM register generates random values between 25% and 75% of the EGU range. RG register values are read-only values.

Use the RX register to enable the generation of values in the RG register.

RH SIM Register

The RH SIM register ramps a value from 0 to 100% of the EGU range and then ramps down to 0 again at a rate controlled by the RJ register. RH register values are read-only.

Use the RK register to enable the generation of values in the RH register.

RI SIM Register

The RI SIM register controls the direction the value in the RH register ramps. The value automatically changes when RH reaches 0 or 100% or its EGU value.

From the run-time environment, you can enter 1 to ramp up the register or 0 to ramp down the register.

RJ SIM Register

The RJ SIM register controls the speed (in cycles per hour) at which the value in the RH register ramps. The default value is 60 (1 cycle per minute).

From the run-time environment, you can enter a value from 2 to 3600.

RK SIM Register

The RK SIM register enables or disables the generation of values in the RH register. From the run-time environment, you can enter 1 to enable ramp and 0 to disable ramp.

Use the RX register to enable the RK register.

RX SIM Register

The RX SIM register enables or disables the generation of values in other registers.

From the run-time environment, you can enter 1 to enable all registers and 0 to disable all registers.

RY SIM Register

The RY SIM register controls the speed (in cycles per hour) at which new values are generated for registers RA, RD, RE, and RF.

From the run-time environment, enter a value from 2 - 3600. By default, this register is set to 60 (1 cycle per minute).

RZ SIM Register

The RZ SIM register controls the speed (in bits per minute) that the RC register changes its value.

From run-time environment, enter a value from 2 to 1200. By default, this register is set to 180 (3 bit shifts per second).

Database Manager Dialog Boxes

The iFIX Database Manager includes the following dialog boxes (listed in alphabetical order):

- Alarm Shelve Policy Dialog Box
- Browse I/O Address Dialog Box
- Verify Database Dialog Box

Alarm Shelve Policy Dialog Box

The Alarm Shelve Policy dialog box displays the following items:

Policy Name

Displays the alarm policy name. Up to 64 characters are allowed, with no spaces. This field is read-only if editing. Displays in all capital letters.

Description

Displays the alarm policy description. Up to 256 characters are allowed, including spaces.

Maximum Duration

Displays the maximum amount of time that an alarm can be shelved for the specified policy. Be aware that the shelve durations are based off the system clock and not a timer.

Units

The units for the maximum time: Hours or Minutes.

Default

Select this button to define a default preset.

Add

Select this button to add a new preset. Up to 5 presets can be defined. Be aware that all shelve durations are based off the system clock and not a timer.

Remove

Displays the Items List using large icons.

Preset Choices

Displays the list of defined presets.

Save

Select this button to save your policy or changes.

Browse I/O Address Dialog Box

The Browse I/O Address dialog box displays the following items:

I/O Address

Displays the hierarchical path to the object currently selected in the Items List.

Channels and Device Tree

Displays a hierarchical tree depicting the driver's channels and devices. Expand the tree by clicking the plus sign next to an object in the tree. When you click an object, its available subsidiary objects display in the Items List.

Items List

Displays the servers, groups, or items that are available from the selected object in the Channels and Device Tree.

Refresh

Forces the dialog box to flush its cache and retrieve fresh information from the driver.

Sort Ascending

Sorts the Items List in alphabetical order.

Sort Descending

Sorts the Items List in reverse alphabetical order.

Large Icons

Displays the Items List using large icons.

Small Icons

Displays the Items List using small icons.

List

Displays the Items List as a basic list.

Verify Database Dialog Box

If Database Manager detects no errors, it displays a message box to inform you. However, if it encounters errors, the Verify Database dialog box appears.

The Verify Database dialog box displays the following items:

Tag Names

Lists the tag name of the block that contains an error.

Error Condition

Describes the type of error that the block contains. The following table lists the possible error conditions and how to resolve them.

Error Condition	Description	Resolution
tagname a:*tagname b* Tag is in more than one chain	The block, *tagname b*, has more than one upstream block linked to it. *Tagname a* identifies one of these blocks.	Remove one or more links to *tagname b*.
tagname:Tag is not in any chain	You may have a secondary block that is not in any chain or is the first block in a chain.	Remove the secondary block or add a primary block to the start of the chain.
tagname: Block not found for NEXT	The block, *tagname*, chains to a block that does not exist.	Create a block with the name specified in the Next field or enter the name of a block that exists.
tagname:Chains to itself	The block, *tagname*, contains its own name in its Next field.	Change the name in the Next field or leave it blank. If you want to repeatedly perform a task, use a Program block instead.
tagname: is not defined	The block, *tagname*, does not exist and another block references it.	Create the block or change the reference to a block that exists.
fieldname No such field in FDT	The field, *fieldname*, does not exist and it is referenced by a block in the database.	Change the reference to a field that exists.
Exceeding MAX chain size of 30	The database contains a chain with more than 30 blocks.	Redesign this chain by breaking it into two smaller chains or remove any unnecessary blocks.

OK

Click to close the dialog box.

Edit

Click to access the selected block's dialog box.

Re-Verify

Click to re-verify the database.

Help

Click to access Help.

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