Technical Note #33

Historical Trending of Power Factor on the EPM3710 & EPM3720

GE Power Management Control System

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Subject: Setting up InTouch to trend 3710 and 3720 Power Factor

Applies To: PMCS 5.0 and later; InTouch 5.0 and later

Overview:

Historical Trending of Power Factor on the 3710 and 3720 can not be accomplished by simply trending a DDE tag. Since the 3710 handles PF differently than the 3720, this Application Note will be divided into three separate sections; EPM3710 & EPM3720, EPM3710, and EPM3720. This App Note assumes that you have experience setting up basic Historical Trend wizards within InTouch.

EPM3710 & EPM3720:

The following steps are identical for both the 3710 an the 3720. These steps will setup the Trend Window to label the X axis as "100", the upper Y value as "0", and the lower Y value as "0". This method, as opposed to simply hard coding the "#,###"s, will maintain the use of the scaling feature. Note: Within your Intouch application, it is required that a unique trending window be developed solely for trending Power Factor.

1. Create a Historical Trend Window. Include all three of InTouch's Trends wizards; Hist Trend w/Scooters & Scale, Trend Zoom/Pan Panel, and Trend Pen Legend.
2. Configure the wizards, as normal.
3. Perform a Break Cell on the Hist Trend w/Scooters & Scale wizard.
4. Double-click the top "#,###". Click the "Value Display/Analog" button and edit the Analog Expression. It should read:
   100 - HTGetScaleValue(HistTrend.Name, HistTrend.UpdateCount, HistTrendPenScale, HistTrend.MinRange, HistTrend.MaxRange, **100.00**)
5. Repeat this for the next four "#,###"s. Note: The "**100.00**" will be unique with each "#,###". Do not change this number. Keep the original number.
6. Double-click the sixth "#,###". Click the "Value Display/Analog" button and edit the Analog Expression. It should read:
   -100 - (HTGetScaleValue(HistTrend.Name, HistTrend.UpdateCount, HistTrendPenScale, HistTrend.MinRange, HistTrend.MaxRange, **37.50**))
7. Repeat this for the next three "#,###"s. Note: The "**37.50**" will be unique with each "#,###". Do not change this number. Keep the original number.
8. **Double-click the Y axis bar. Delete the Action script by clearing the checkbox next to Action. Click the Line Color Analog button and change**

the first color on the color bar to red.

EPM3710:

Power Factor register mnemonic = *DeviceName*_PF Power Factor polarity register mnemonic = 8th bit in *DeviceName*_RT_POLARITY (0 = Leading, 1 = Lagging)

1. Create two dummy tags: *DeviceName*_PF2 and *DeviceName*_PF3. Type: Memory Real. *X* Log Data. Initial Value: 0. Min Value: -100. Max Value: 100.
2. Create dummy tag: FLAG. Type: Memory Discrete. Initial Value **off**.
3. Create a Condition Action Script: Condition: FLAG == 0. Condition Type: While True. Every **5000** Msec. Script: (Note: One Condition Action script (per device) can be used for all 3710s and 3720s.)

   ```
   IF
   DEVICENAME_RT_POLARITY.08 == 1
   THEN
   DEVICENAME_PF2 = - DEVICENAME_PF;
   DEVICENAME_PF3 = - 100 - (DEVICENAME_PF2);
   ELSE
   DEVICENAME_PF2 = DEVICENAME_PF;
   DEVICENAME_PF3 = 100 - DEVICENAME_PF2;
   ENDIF;
   FLAG = 1;
   ```

4. Create a Data Change Action Script: Tagname[.field]: *DeviceName*_ PF. Script:

   ```
   IF
   DEVICENAME_RT_POLARITY.08 == 1
   THEN
   DEVICENAME_PF2 = - DEVICENAME_PF;
   DEVICENAME_PF3 = - 100 - (DEVICENAME_PF2);
   ELSE
   DEVICENAME_PF2 = DEVICENAME_PF;
   DEVICENAME_PF3 = 100 - DEVICENAME_PF2;
   ENDIF;
   ```

5. In the Historical Trend Configuration screen, configure *DeviceName*_PF2 as Pen1 and color as Black. Also, configure *DeviceName*_PF3 as Pen2 and color as Red.
6. In the Trend Pen Legend Configuration screen, configure Pen1 as color Red. Note: Do not have a Trend Pen Legend for Pen2 (*DeviceName*_PF3).

EPM3720:

Power Factor register mnemonic = *DeviceName*_PF_TOTAL

1. Create two dummy tags: *DeviceName*_PF2 and *DeviceName*_PF3. Type: Memory Real. *X* Log Data. Initial Value: 0. Min Value: -100. Max Value: 100.
2. Create another dummy tag: FLAG. Type: Memory Discrete. Initial Value **off**.
3. Create a Condition Action Script: Condition: FLAG == 0. Condition Type: While True. Every **5000** Msec. Script: (Note: One Condition Action script (per device) can be used for all 3710s and 3720s.)

   ```
   IF
   DEVICENAME_PF_TOTAL < 100
   ```

```
THEN
DEVICENAME_PF2 = - DEVICENAME_PF_TOTAL;
DEVICENAME_PF3 = - 100 - (DEVICENAME_PF2);
ELSE
DEVICENAME_PF2 = 200 - DEVICENAME_PF_TOTAL;
DEVICENAME_PF3 = 100 - DEVICENAME_PF2;
ENDIF;
FLAG = 1;
```

4. Create a Data Change Action Script: Tagname[.field]: *DeviceName_* PF_TOTAL. Script:

```
IF
DEVICENAME_PF_TOTAL < 100
THEN
DEVICENAME_PF2 = - DEVICENAME_PF_TOTAL;
DEVICENAME_PF3 = - 100 - (DEVICENAME_PF2);
ELSE
DEVICENAME_PF2 = 200 - DEVICENAME_PF_TOTAL;
DEVICENAME_PF3 = 100 - DEVICENAME_PF2;
ENDIF;
```

5. In the Historical Trend Configuration screen, configure *DeviceName_*PF2 as Pen1 and color as Black. Also, configure *DeviceName_*PF3 as Pen2 and color as Red.
6. In the Trend Pen Legend Configuration screen, configure Pen1 as color Red. Note: Do not have a Trend Pen Legend for Pen2 (*DeviceName_*PF3).

Keywords:

Power Factor; PF; Historical Trending

Related Notes:

None.

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