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Technical Note #49

GE Power Management Control System

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Johnson Controls Metasys Support for Power Leader Components

Related Documents

- Metasys Connectivity Technical manual 629.5 Metasys Integrator Application Note Issue Date 0497 - Code no. LIT-6295290

Overview

The Johnson Controls Support for Power Leader makes metering, setpoint, and status information available to the Johnson Controls Metasys System. All screens and integration will be done by Johnson Controls on a job by job basis.

Network Architecture

Johnson Controls(JCI) communicates with Modbus devices using a JCI supplied unit called the Metasys Integrator. The proper device drivers for the GE devices to be supported must be loaded into the integrator by the Johnson Controls field engineer doing the installation. A number of integrator units may be present on any given system.

The Johnson Controls Integrator is available in versions having both 1 and 2 RS-232 ports. On a two port version these ports may be used for different drivers. For example: Port A might be GE power leader and Port B might be brand X Chillers.

For RS-485 Modbus connections to GE Modbus products, a RS-232 to RS485 converted is placed on the RS232 port and RS-485 wiring is run from the converter to the RS485 Modbus devices.

The number of devices connected to each integrator port should be selected by Johnson Controls working with the customer to achieve desired system response. It cannot exceed 31 electrical devices. For more information see the PMCS Network Architecture Guide (GEH- 6502).

Communications and Wiring

GE Power Leader components are supported over RS-485 two wire using the Modbus Master-Slave Protocol. It is recommended that agreements be written so that Johnson Controls is responsible for RS-485 wiring and conversion to RS-232. On new equipment it is recommended that agreements be written so that GE provide modbus wiring within the electrical equipment and Johnson Controls be responsible for the wiring and hardware to connect to this wiring.

Devices Supported

The devices supported by Johnson Controls in the 1st Quarter 1997 release of Metasys Integrator are:

1. EPM3720 Meter over Modbus

Devices Under Development

Johnson Controls has additional drivers which may be under development or may have been developed for individual customers. The local Johnson Controls Branch should contact Johnson Controls in Milwaukee for availability of the following drivers:

1. PQM over Modbus.
2. MVT PM for PowerBreak, PowerBreakII, AKR, and WavePro through the Modbus Concentrator.
3. MVT PM for Spectra through the Modbus Concentrator.
4. MDP over Modbus.
5. EPM3710 over Modbus.
6. EPM over Modbus.

Note# 2: (6/96) Johnson Controls lists standard CEBUS support for the PML 3710 meter. This support is over the CEBUS protocol and is not compatible with the PML 3710 meters sold by GE with Modbus RTU.

Legacy Devices

Commnet device support through the PLPIM485G01 module continues to be supported only for existing Metasys connections to the PLPIM485G01. Any new or expanded integration to Metasys should be done using the MVT PM through the modbus concentrator or using devices which talk modbus directly.

The only converter approved for use with the PLPIM485G01 is:

Multilin model RS232/485 CON Revision D or later.

Other devices should be used with the converter specified in the Johnson Controls Metasys Integrator GE Application Note.

EPIC support through the FPU continues to be supported only for existing Metasys connections to the FPU.

Support for Modbus Monitor

The Modbus Monitor is not supported in a network with a Metasys Integrator and cannot be used in such a network due to the fact that the Metasys Integrator will act as the host and is not able to provide data to the Modbus Monitor.

Data Supported

See Johnson Control Literature for full point list.

SETPOINTS **-** Read is supported for all devices. Write is not supported.

METERING DATA **-** Read is supported for all devices.

CLEARING ENERGY, PEAK CURRENT, PEAK WATT DEMAND - Supported only for Power Leader Meter.

WAVEFORM CAPTURE - Not supported.

DEVICE STATUS - Status information supported for all devices. Trip and alarm types are available for conditions still in effect. When the devices are reset these values will be reset. Fault currents are not available (but can be viewed at the device). Spectra breakers require auxiliary switch option for trip status to function properly.

UNSOLICITED EVENTS - Not supported as events but trip status available in device status. Limited event handling may be possible by alarming change in states within the Metasys system. For more information contact the local Johnson Controls sales branch.

Keywords

RS485, commnet, modbus, Johnson Controls, building automation

Related Notes

PIM1 - PLPIM485G01 Network cable and wiring requirements

Wiring for Commnet Networks is as is standard for commnet networks with the exception that it is required that a commnet repeater be configured in the network such that the PLPIM485G01 is at the Input of the repeater and the devices are at the output of the repeater. The Commnet shield should be connected to ground at the PLPIM485G01 end of the network.

Belden 3074F or 9841 should be used for all Modbus Connections.

The shield of the Modbus cable should be connected at the PIM end only.

PIM2 - Use of Multilin RS232/485 Converter with PLPIM485G01

The PLPIM485G01 has been qualified in configurations with Modbus communications from a RS-232 port converted to RS485 using the Multilin Model RS232/485 Converter revision D.

The dip switches within the converter should be set as shaded in the following:

Direction Control

SW1	1	2	3	4
* Data Controlled	on	off	on	X
DTR Controlled	off	on	off	X

* Factory Default

Connection Type

SW2	1	2	3	4
* Direct	on	off	on	off
Modem	off	on	off	on

* Factory Default

Baud Rate

SW3	1	2	3	4	5	6
300	on	off	off	off	off	off
1200	off	on	off	off	off	off
* 2400	off	off	on	off	off	off
4800	off	off	off	on	off	off
9600	off	off	off	off	on	off
19200	off	off	off	off	off	on

* Factory Default

This Unit is Available from:

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Markham, Ontario Canada L6E LB3
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