



## GE Power Management Control System

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### Technical Note #19

#### GE Power Management Control System

#### Tested RS-485 Adapters

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**Subject:** Supported RS-485 adapters.

**Applies To:** PMCS systems.

Here is the list of supported RS-485 adapters for PMCS:

Manufacturer/Distributor	Part Number	Description
EMJ America	1CTF8W0	Connect Tech Intellicon Flex 8
	1CTSM42	RS485 SLIM (WILL NEED 4)
	1IOBDB9 or 1CTDF8C	I/O Box or Octopus Cable
GE Multilin	RS485 Converter	Single Port 485 Converter
# Digi International	A2P009	Stargate ACL II+
	DAF020*	Stargate NT Drivers

# As of 7/97 Digi International is in the process of discontinuing the Stargate board.

\*The NT Drivers are supplied free of charge, but must be specifically requested when ordering an ACL II+. These drivers are also available on their web site at <http://www.dgii.com>.

#### Connect Tech Intellicon Flex 8

When ordering the Connect Tech Intellicon Flex 8 make sure that the **driver version is 1.25b or higher**, early versions will not work with the GE PMCS System. The I/O box connects to the Intellicon Flex 8 board via a single cable. The Octopus Cable has eight cables branching out from the Flex 8 board, which isn't as "neat" as the I/O box but it is a less expensive solution.

**IMPORTANT INSTALLATION NOTE:** Once the board is configured via the Add board feature in the setup.exe, the driver can be loaded by either restarting the computer or by starting the cti.sys driver in the Devices, which is found in the Control Panel. Once the device driver is started, the board must be configured for two-wire

multidrop mode. This is done by clicking on the Intellicon icon in the Control Panel and selecting Advanced. Select RS-485 Multidrop Mode Enabled and Half-Duplex Mode Enabled then hit Apply for each of the Ports on the board.

Additionally, the Intellicon Flex 8 card has internal termination resistance installed, however, it is not the recommended 120ohm resistance required by the PMCS system. To compensate for this, use 600 ohm termination resistor across transmit and receive at the 485 card ONLY, rather than the 120 ohm as referenced in the PMCS Network Architecture Guide.

**Note** that the Stargate ACL 409 has been removed from the list. This is due to some discovered problems with software driver support and maximum overall throughput. The ACL 809, while never listed as a supported device, has been used in some field installations and may also be prone to these problems.

### DigiBoard / Stargate

The following symptoms have been observed with ACL 409 and ACL 809:

- Increased timeout frequency (>2% of all transmissions) when multiple ports are utilized at a baud rate of 19.2Kb.
- System hang-ups when attempting to configure the software drivers.
- System Kernel crashes when using versions 1.20 and 1.25 of the software drivers. Other versions of the driver may exhibit this behavior as well.
- The DDE Server and other programs may refuse to execute.
- The system response time may become extremely slow. The System Process Thread may consume up to 99% of CPU utilization.

The recommended solution to these problems is to replace the ACL 409/809 with an ACL II+ for both 4 port and 8 port applications. This board features a more powerful microprocessor, faster serial UART's, and more comprehensive driver support. Tests conducted with versions 1.20 and 1.25 of the software driver have been successful.

### Multilin Converter Dip Switch Settings:

The GE Multilin SCI module 232 to 485 converter has 3 banks of switches which must be set for proper operation.

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	off
DTR Controlled	off	on	off	off

\* Factory Default

#### Connection Type

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

\* Factory Default

For switch group 3 the switches should be set for the baud rate of the modbus network.

**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

The Unit is Available from:

GE Multilin  
 215 Anderson Ave.  
 Markham, Ontario Canada L6E 1B3  
 Tel: 905-294-6222  
 Fax: 905-294-8512

**Keywords**

RS-485; Stargate; Connect Tech

**Related Notes**

[Application Note 1: Network Cable Requirements](#)

[Application Note 18: Wiring Connections](#)

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