GE Power Management Control System

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Technical Note #18

RS-485 Modbus Wiring Connections: GE PLC, Stargate RS-485 Card and Ethernet Gateway

Subject: RS-485 Modbus Wiring connections.

Applies To: GE Fanuc's PLCs, Stargate, Connect Tech, and Ethernet Gateway.

This application note describes connections required to wire to the following PMCS devices:

1. GE Fanuc's PLCs
2. DB9 Connections to the Stargate and Connect Tech RS-485 cards
3. DB9 Connections to the Ethernet Gateway

GE PLC Connector

The part consists of two 100 inch lengths of Belden 9841 cable covered with sleeving and attached to a male DB25 pin connector according to Table A.

		DB25 Pin
Cable	**Conductor**	**Location**
Cable #1	White	21
	Blue	9
	Shield	1
Cable #2	White	25
	Blue	13
	Shield	1

Table A: Belden 9841 Connections into Connector

Jumpering inside the connector should be done according to Table B, and smaller gauge wire may be used for jumpering.

Jumper Connections
Pin 9 to Pin 13
Pin 21 to Pin 25
Pin 22 to Pin 23
Pin 10 to Pin 11

Table B: Jumper Connections Inside Connector

At the end opposite to the connector, the outer jackets of the cables should be stripped off about 3 inches from the end. The conductors should be grouped with two labels, as shown in Table C. Note that the three conductors from each cable should be grouped together, but the label locations are actually interchangeable.

Group	Label	
Blue, White, Shield from One Cable	"RS-485 IN"	Interchangeable
Blue, White, Shield from Other Cable	"RS-485 OUT"	

Table C: Labels for Conductors

The connector end should have heat shrink, and the opposite end need not.

Part #2: GE Stargate Connector

The part consists of two 120 inch lengths of Belden 9841 cable covered with sleeving and attached to a male DB9 pin connector according to Table D1.

		DB9 Pin
Cable	**Conductor**	**Location**
Cable #1	White	4
	Blue	2
	Shield	Metal Shell
Cable #2	White	9
	Blue	7
	Shield	Metal Shell

Table D1: Belden 9271 Connections into Connector

Jumpering inside the connector should be done according to Table E1, and smaller gauge wire may be used for jumpering.

Jumper Connections
Pin 2 to Pin 7
Pin 4 to Pin 9

Table E1: Jumper Connections Inside Connector

At the end opposite to the connector, the outer jackets of the cables should be stripped

off about 3 inches from the end. The conductors should be grouped with two labels, as shown in Table F1. Note that the three conductors from each cable should be grouped together, but the label locations are actually interchangeable.

Group	Label	
Blue, White, Shield from One Cable	"RS-485 IN"	Interchangeable
Blue, White, Shield from Other Cable	"RS-485 OUT"	

Table F1: Labels for Conductors

The connector end should have heat shrink, and the opposite end need not.

GE Connect Tech Connector

The part consists of two 120 inch lengths of Belden 9841 cable covered with sleeving and attached to a female DB9 pin connector according to Table D1.

		DB9 Pin
Cable	**Conductor**	**Location**
Cable #1	White	1
	Blue	3
	Shield	Metal Shell
Cable #2	White	2
	Blue	4
	Shield	Metal Shell

Table D1: Belden 9271 Connections into Connector

Jumpering inside the connector should be done according to Table E1, and smaller gauge wire may be used for jumpering.

Jumper Connections
Pin 1 to Pin 2
Pin 3 to Pin 4

Table E1: Jumper Connections Inside Connector

At the end opposite to the connector, the outer jackets of the cables should be stripped off about 3 inches from the end. The conductors should be grouped with two labels, as shown in Table F1. Note that the three conductors from each cable should be grouped together, but the label locations are actually interchangeable.

Group	Label	
Blue, White, Shield from One Cable	"RS-485 IN"	Interchangeable
Blue, White, Shield from Other Cable	"RS-485 OUT"	

Table F1: Labels for Conductors

The connector end should have heat shrink, and the opposite end need not.

Part #3: GE Ethernet Gateway Connector

The part consists of one 48 inch length of Belden 9841 and attached to a male DB9 pin connector according to Table G.

	DB9 Pin
Conductor	**Location**
White	1
Blue	2
Shield	5

Table G: Belden 9271 Connections into Connector

At the end opposite to the connector, the outer jackets of the cables should be stripped off about 3 inches from the end.

Both ends should have heat shrink.

Keywords

PLC; Wiring; Stargate; Ethernet Gateway

Related Notes

Application Note 1: Network Cable Requirements

Application Note 19: Tested RS-485 Adapters

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