



**Powerware® Modbus® Card
User's Guide**

Class A EMC Statements

FCC Part 15

NOTE This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

ICES-003

This Class A Interference Causing Equipment meets all requirements of the Canadian Interference Causing Equipment Regulations ICES-003.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

EN 50091-2

Some configurations are classified under EN 50091-2 as "Class-A UPS for Unrestricted Sales Distribution." For these configurations, the following applies:

WARNING This is a Class A-UPS Product. In a domestic environment, this product may cause radio interference, in which case, the user may be required to take additional measures.

Requesting a Declaration of Conformity

Units that are labeled with a CE mark comply with the following harmonized standards and EU directives:

- Harmonized Standards: EN 50091-1-1 and EN 50091-2; EC 60950 Third Edition
- EU Directives: 73/23/EEC, Council Directive on equipment designed for use within certain voltage limits
93/68/EEC, Amending Directive 73/23/EEC
89/336/EEC, Council Directive relating to electromagnetic compatibility
92/31/EEC, Amending Directive 89/336/EEC relating to EMC

The EC Declaration of Conformity is available upon request for products with a CE mark. For copies of the EC Declaration of Conformity, contact:

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Chapter 1 Introduction

The Eaton® Powerware® Modbus® Card is an X-Slot® connectivity device that allows you to continuously and reliably monitor the UPSs in your Building Management System (BMS). The card uses the Modbus protocol to integrate data from the UPS into your building management software, such as Wonderware®

The Modbus Card, shown in Figure 1, has the following features:

- RS-485 communication through an isolated DB-9 port or isolated terminal strip
- Selectable termination and polarity resistance
- RS-232 communication through a DB-9 port
- Supports Modbus READ INPUT STATUS and READ INPUT REGISTER commands
- Two-wire or four-wire communication topology
- LEDs showing communication activity
- The Modbus Profiler tool can generate a Modbus register map for easy integration into your building management software (see page 17)
- X-Slot design for UPSs with an internal X-Slot or installed in a Powerware Expansion Chassis for UPSs that do not have internal X-Slots

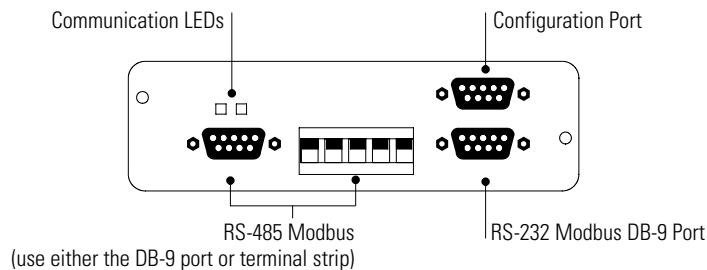


Figure 1. The Modbus Card

Figure 2 shows a Powerware UPS added to an existing network by connecting the terminal strip on the Modbus Card to the RS-485 terminals on another device.

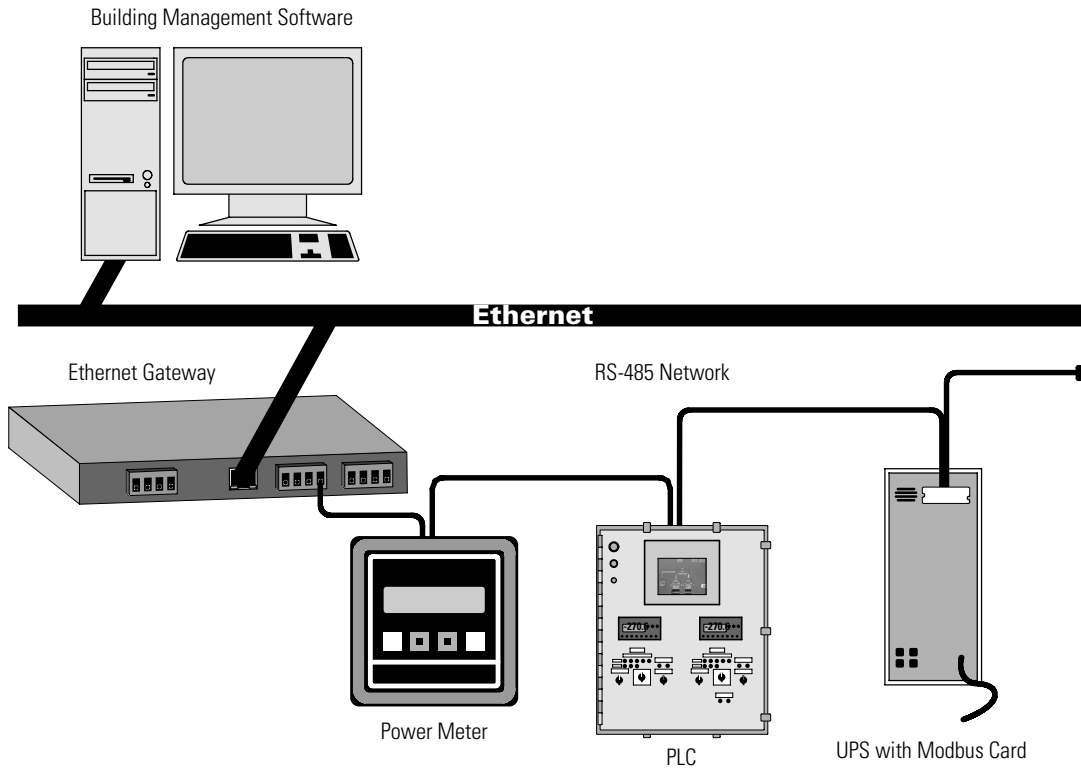


Figure 2. UPS Integrated with RS-485 Network

Chapter 2 Installing the Modbus Card

The Modbus Card is available:

- as a separate card for use with UPSs that have an X-Slot
- factory-installed in a Powerware Expansion Chassis

Use the following sequence for installing the Modbus Card:

1. For four-wire networks only, change the jumpers on the Modbus Card (see “Four-Wire Communication” on page 4).
2. If the Modbus Card will be the last device installed in the network chain or the length of the network cable is excessive, termination needs to be enabled (see “Termination” on page 10).
3. Install the card with the UPS (see the *Powerware Expansion Chassis User’s Guide* or “Installing the Modbus Card into an X-Slot” on page 6).
4. Wire the card to your network (see Chapter 3, “Wiring the Modbus Card” on page 7).
5. Configure the card (see Chapter 4, “Modbus Card Configuration” on page 13).
6. Run the Modbus Profiler tool to integrate the UPS data with the building management software (see Chapter 5, “Integrating the UPS” on page 17).

Inspecting the Equipment

If any equipment has been damaged during shipment, keep the shipping cartons and packing materials for the carrier or place of purchase and file a claim for shipping damage. If you discover damage after acceptance, file a claim for concealed damage.

To file a claim for shipping damage or concealed damage: 1) File with the carrier within 15 days of receipt of the equipment; 2) Send a copy of the damage claim within 15 days to your service representative.

Four-Wire Communication

The factory-default setting for the Modbus Card is for two-wire communication. To change the default setting, adjust the jumpers on the Modbus Card.



CAUTION

To prevent electrostatic discharge (ESD), place one hand on an unpainted metal surface such as the UPS rear panel.

1. If you are installing the Modbus Card into an X-Slot, complete Step 3 only.

If you are installing the Powerware Expansion Chassis with your UPS, complete Steps 2 through 4.

2. Remove the card from the slot on the Powerware Expansion Chassis rear panel. Retain the screws (see Figure 3).

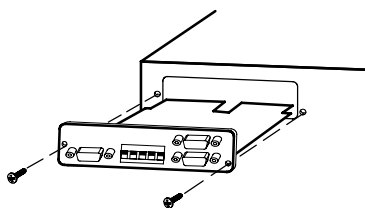


Figure 3. Removing the Modbus Card

3. Change the J9 and J10 jumpers to the desired setting as shown in Figure 4.

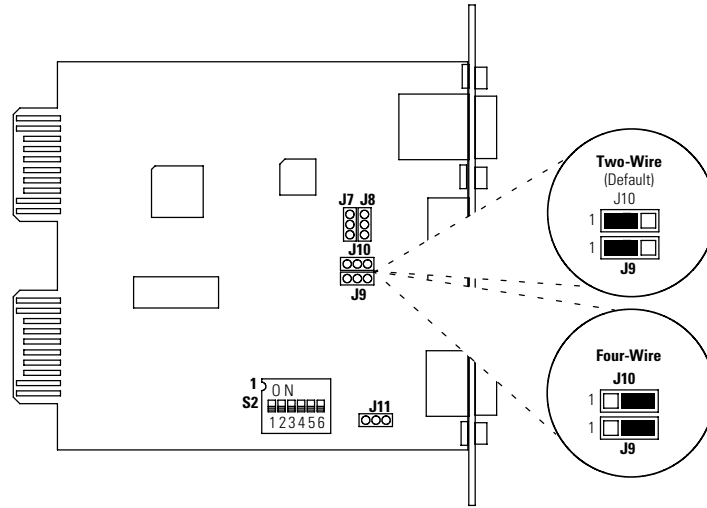


Figure 4. Modbus Card Jumpers

4. Reinstall the Modbus Card into the Powerware Expansion Chassis.

Align the Modbus Card with the slot guides and slide the card into the slot until it is firmly seated.

Secure the Modbus Card with the screws removed in Step 2.

Installing the Modbus Card into an X-Slot

CAUTION



To prevent electrostatic discharge (ESD), place one hand on an unpainted metal surface such as the UPS rear panel.

1. Remove the X-Slot cover (or existing X-Slot module) on the UPS rear panel. Retain the screws (see Figure 5).



NOTE Some UPSs may have another X-Slot module already installed (such as the Powerware 9125 UPS). If there is a communication cable attached to this module, disconnect the cable and then remove the X-Slot module.

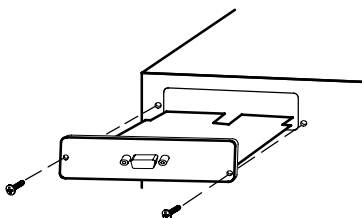


Figure 5. Removing the Single-Port Module

2. Install the Modbus Card into the X-Slot on the UPS.
Align the Modbus Card with the slot guides and slide the card into the slot until it is firmly seated.
Secure the Modbus Card with the screws removed in Step 1.

Chapter 3 Wiring the Modbus Card

The Modbus Card provides an easy path for integrating a Powerware UPS into an RS-485 Modbus network and also provides isolation of the communication between the UPS and the RS-485 Modbus network.

You can use the DB-9 port or terminal strip on the Modbus Card to wire into a two-wire or four-wire network.

Two-Wire Networks

The Modbus Card's default configuration is for two-wire, half-duplex, RS-485 networks. Figure 6 shows a detailed view of two-wire connections using the Modbus Card terminal strip.

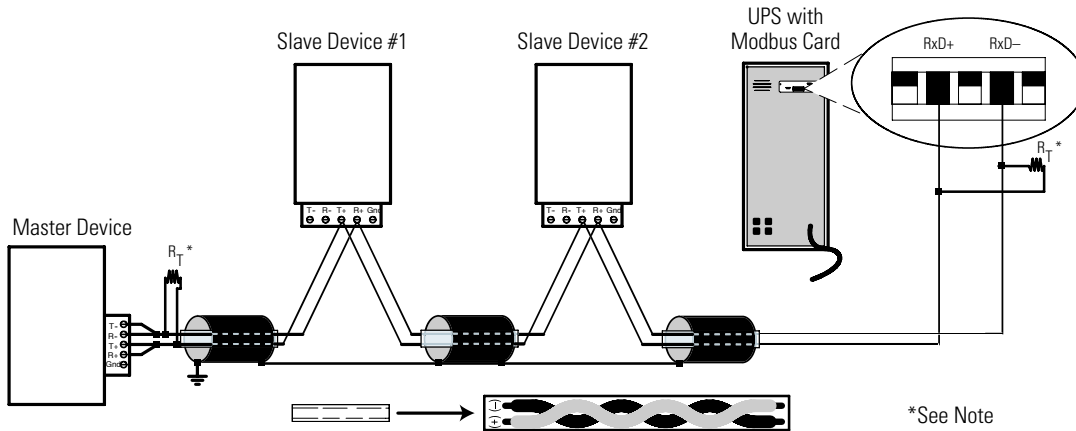


Figure 6. Two-Wire RS-485 Modbus Network



NOTE Only one transmission pair is used. It is not necessary to jumper the unused pair together (this connection is made internally). Belden 9841 or equivalent cabling (a single twisted-pair shielded cable with ground) is recommended.

NOTE If the Modbus Card is the last device installed in the network chain or the length of the network cable is excessive, termination needs to be enabled (see page 10).

Four-Wire Networks

The Modbus Card also supports four-wire, half-duplex, RS-485 networks. Figure 7 shows a detailed view of four-wire connections using the Modbus Card terminal strip.

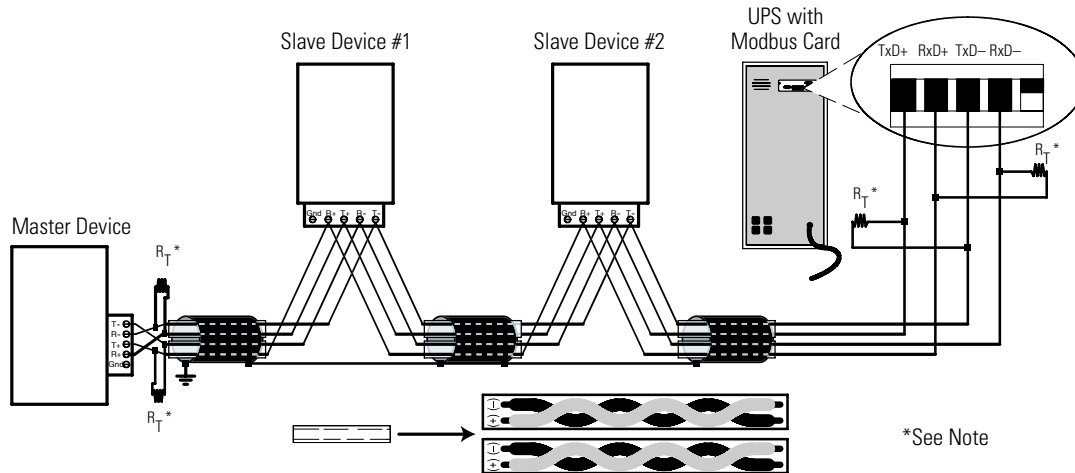


Figure 7. Four-Wire RS-485 Modbus Network



NOTE Belden 9842 or equivalent cabling (a dual twisted-pair shielded cable with ground) is recommended.

NOTE If the Modbus Card is the last device installed in the network chain or the length of the network cable is excessive, termination needs to be enabled (see page 10).

RS-485 Terminal Strip

The RS-485 five-position terminal strip provides an alternate interface to attach the RS-485 transmission lines. This connector also allows external resistors to be applied to terminate the network.

Before connecting the RS-485 network to the Modbus Card, remove the detachable plug from the 5-pin terminal strip connector. The RS-485 signal names are shown just above the connector (see Figure 8).

For two-wire networks. Connect the RS-485 network signal TxD(+) to the RxD(+) input signal on the Modbus Card terminal strip. Connect the RS-485 network signal TxD(-) to the RxD(-) input signal on the Modbus Card terminal strip. The Modbus Card factory-default jumper setting for J9 and J10 is two-wire communication.

For four-wire networks. All four RS-485 network signals including TxD(+), RxD(+), TxD(-), and RxD(-) must be connected to the terminal strip as illustrated in Table 1. Verify that the Modbus Card J9 and J10 jumpers are set to the four-wire option (see “Four-Wire Communication” on page 4).

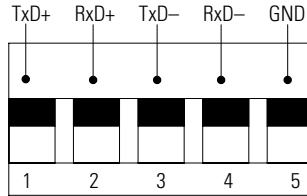


Figure 8. RS-485 Terminal Strip

Table 1. RS-485 Terminal Strip Pin Assignments

Pin Number	Modbus Card Signal Name	RS-485 Network Signals Master Signal Name
1	TxD(+)	RxD(+)
2	RxD(+)	TxD(+)
3	TxD(-)	RxD(-)
4	RxD(-)	TxD(-)
5	Signal common	Signal common

RS-485 Modbus Port

For two-wire networks. Connect the RS-485 network signal TxD(+) to the Modbus RxD(+) input signal (DB-9 Pin 1). Connect the RS-485 network signal TxD(-) to the Modbus RxD(-) input signal (DB-9 Pin 6). The Modbus Card factory-default jumper setting for J9 and J10 is two-wire communication.

For four-wire networks. All four RS-485 network signals including TxD(+), RxD(+), TxD(-), and RxD(-) must be connected to the pin assignments on the DB-9 connector as illustrated in Table 2. Verify that the Modbus Card J9 and J10 jumpers are set to the four-wire option (see “Four-Wire Communication” on page 4).

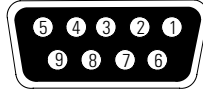


Figure 9. RS-485 DB-9 Pin Numbers

Table 2. RS-485 DB-9 Pin Assignments

Pin Number	Modbus Card Signal Name	RS-485 Network Signals Master Signal Name
1	RxD(+)	TxD(+)
2	TxD(+)	RxD(+)
3	Signal common	Signal common
4	Reserved	—
5	Reserved	—
6	RxD(-)	TxD(-)
7	TxD(-)	RxD(-)
8	Reserved	—
9	Reserved	—

Termination



CAUTION

Termination resistors should be placed only at the extreme ends of the RS-485 network. No more than two termination points should be used in the RS-485 network.

Termination is not required unless the Modbus Card is located at the end of the RS-485 network or the length of the network cable is excessive.

If receive termination is required, an on-board 120 ohm termination resistor may be selected by setting S2-3 to the ON position. A 120 ohm resistor will be placed in parallel with the RxD(+) and RxD(-) lines (see Figure 10).

If transmit termination (four-wire networks) is required, an on-board 120 ohm termination resistor may be selected by setting S2-4 to the ON position. A 120 ohm resistor will be placed in parallel with the TxD(+) and TxD(-) lines (see Figure 10).

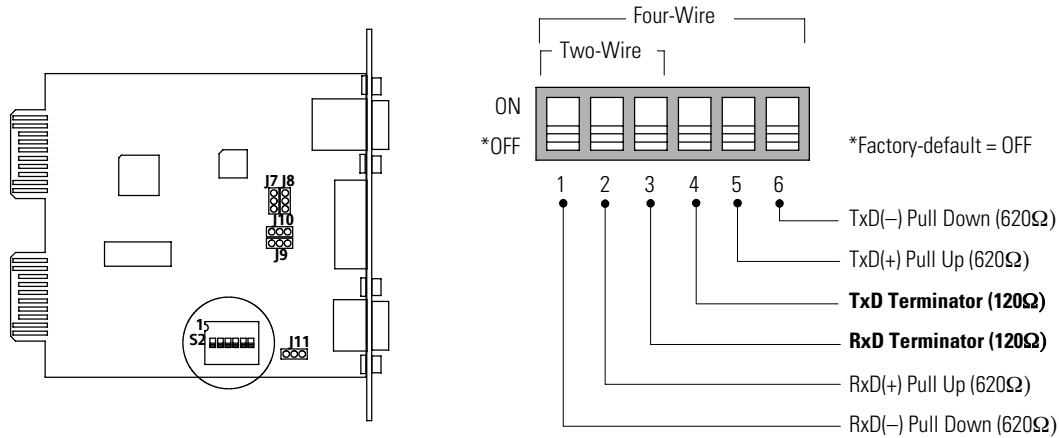


Figure 10. S2 Termination Configuration

If a value other than the on-board 120 ohm termination is required, then S2-3 and S2-4 should be set to the OFF position. The Modbus Card terminal strip provides easy access to attach external termination resistors across the TxD(+), TxD(-), RxD(+), and RxD(-) RS-485 network lines.

Biasing Resistors



CAUTION

Biasing resistors should be used at only one point in the RS-485 network.

Biasing resistors are used to ensure that the idle voltage sensed across the receiver does not create false data bits. The factory-default for S2 (1–6) is OFF.

Two on-board 620 ohm biasing resistors may be selected by setting S2-1 and S2-2 to the ON position. If biasing is set at the master terminal unit, then S2-1, S2-2, S2-5, and S2-6 should be set to the OFF position.

RS-232 Modbus Port

It is also possible to use the RS-232 Modbus port for connecting to your network.

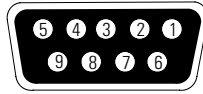


Figure 11. RS-232 DB-9 Pin Numbers

Table 3. RS-232 DB-9 Pin Assignments

Pin Number	Function	Direction from the Modbus Card
1	No connection	—
2	RS-232 transmit data	Out
3	RS-232 receive data	In
4	No connection	—
5	Signal common	—
6	No connection	—
7	No connection	—
8	No connection	—
9	No connection	—

Chapter 4 Modbus Card Configuration

The Modbus Card has an RS-232 configuration port that you can access with a terminal or a computer equipped with a terminal emulation program.

To use the configuration screens for the Modbus Card, you need:

- A serial communication cable (supplied).
- A terminal with a serial communication port, or a computer with a terminal emulation program such as HyperTerminal®

The serial line should be set to 9600 baud, No parity, 8 data bits, 1 stop bit, and no hardware handshaking. The configuration port always runs at these settings.

Configuring the Modbus Card



NOTE *The Modbus Card is already configured for communication at 9600 baud and the slave address is set to 29. If you do not need to change these settings, continue to Chapter 5, “Integrating the UPS” on page 17 to integrate the UPS data with your building management software.*

To connect the card to the computer and start the terminal emulation program:

1. Connect the supplied serial cable from the configuration port on the Modbus Card to an available RS-232 communication port on your computer (see Figure 12).

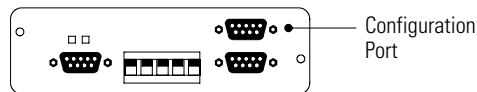


Figure 12. Configuration Port

2. Press [Enter]. The Configuration screen appears (see Figure 13).

```

Powerware Modbus Card
Version 1.00 (1-16-02)

Current Configuration:

Baud Rate:      9600
Slave Address:  29
-----

Valid Commands:

AD Change Slave Address, usage AD n,
   where n is the new slave address for the card (1 - 247 valid).
BD Change Modbus Baud Rate, usage BD n,
   where n is the new baud rate (1200, 2400, 4800, 9600, 19200).
SA Save Configuration
-----

```

Figure 13. Configuration Screen

If the Configuration screen does not appear, press [Enter] one more time.

If you still do not see the Configuration screen, check the following conditions:

- The communication settings of the terminal should be 9600 baud, No parity, 8 data bits, 1 stop bit, and no hardware handshaking.
 - If the serial configuration is correct, check the cabling to be sure all connections are secure.
 - Verify that your terminal emulation program is on the correct communication port for serial communication.
 - Verify that the UPS has input power and is turned on.
3. To configure the Modbus Card baud rate, type **BD** followed by a space and the baud rate (1200, 2400, 4800, 9600, or 19200) and press [Enter]. The default is 9600 baud. This setting affects both RS-232 and RS-485 Modbus connections.

4. To configure the slave address, type **AD** followed by a space and node (1 through 247) and press [Enter]. The default is 29. This setting affects both RS-232 and RS-485 Modbus connections.
5. To save and exit, type **SA** and press [Enter] to permanently save the new configuration changes.
6. The card is now configured. Shut down the terminal emulation program and disconnect the serial cable from the Modbus Card.
7. Continue to Chapter 5, "Integrating the UPS" on page 17.

Chapter 5 Integrating the UPS

Powerware provides a software tool named Modbus Profiler that creates a Modbus register map specifically for your Powerware UPS. Refer to the Master Modbus Register Map for a complete list of the Status, Alarm, and Meter data for all Powerware UPS equipment (open the *reg_map.pdf* file in the directory where the Modbus Profiler tool is located).

You need the following system requirements to install the Modbus Profiler tool:

- Microsoft® Windows® 9x, NT, 2000, or XP operating system
- 100 KB of free hard drive space
- 100 KB of free RAM
- An open RS-232 communication port on your computer
- A working Internet connection

Generating Modbus Data

To generate Modbus data that your building management software needs to poll UPS information:

1. Connect the supplied serial cable from the configuration port on the Modbus Card to an available RS-232 communication port on your computer (see Figure 14).

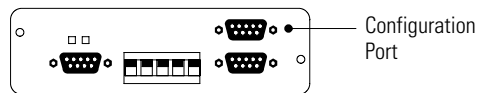


Figure 14. Configuration Port

2. Create a directory on your computer for the Modbus Profiler tool, such as: *c:\ModbusProfiler*
3. Download the Modbus Profiler tool from the Powerware Web site at: http://www.powerware.com/software/modbus_profiler.asp
4. Unzip the files to the directory created in Step 2.

5. Run *profiler* from the command prompt or double-click *profiler.exe* from Microsoft Windows Explorer.

By default, Modbus Profiler uses the communication port specified in the [Connection] section of the *profiler.ini* file. If *profiler* fails to connect using this communication port, you are prompted with a list of alternate communication ports. You may also edit the **Port=** value in the [Connection] section of the *profiler.ini* file to change the default value.

6. Modbus Profiler creates an output file named *profiler.csv* in the directory where the Modbus Profiler tool is located.

Before the program exits, you are prompted to view the data.

The comma delimited file can be easily imported into Microsoft Excel for viewing of the Modbus data. This data is used to create the necessary template files on your Building Management System for polling the desired UPS information.



NOTE *Modbus Profiler does not provide Modbus data for the Powerware 9315 Series UPS. Powerware 9315 configuration-specific profiles are available in the directory where the Modbus Profiler tool is located (refer to the 950*.pdf files).*

Example Modbus Profiler Output Files

The following tables are sample Modbus Profiler output files for a Powerware 9315 Reverse Transfer (RT) Single Module UPS. Refer to the Master Modbus Register Map for a complete list of the Status, Alarm, and Meter data for all Powerware UPS equipment (open the *reg_map.pdf* file in the directory where the Modbus Profiler tool is located).

Table 4. Read Input Status - Modbus Function Code 02 (Inputs Start at 10000)

Register	Name	Value	Format	Unit
1	On Battery	0	BOOL	Status
10	On Bypass	1	BOOL	Status
11	System Normal	0	BOOL	Status
16	UPS Off	0	BOOL	Status
NOTE <i>Registers 1–16 are mutually exclusive.</i>				
112	Rectifier Status	1	BOOL	Status

Register	Name	Value	Format	Unit
113	Rectifier Input Status	1	BOOL	Status
114	Bypass Status	0	BOOL	Status
115	Bypass Input Status	1	BOOL	Status
116	Input Circuit Breaker Status (CB1)	1	BOOL	Status
117	Battery Disconnect Status	1	BOOL	Status
118	Inverter Disconnect Status	1	BOOL	Status
119	Inverter Status	1	BOOL	Status
120	UPM Normal	0	BOOL	Status
121	UPM On Battery	0	BOOL	Status
122	UPM Bypass (Off Line)	0	BOOL	Status
123	UPM Notice	0	BOOL	Status
124	UPM Alarm	0	BOOL	Status
125	UPM Standby	0	BOOL	Status
144	Inverter AC over voltage	0	BOOL	Status
145	Inverter AC under voltage	0	BOOL	Status
146	Inverter under or over frequency	0	BOOL	Status
147	Bypass AC over voltage	0	BOOL	Status
148	Bypass AC under voltage	0	BOOL	Status
149	Bypass under or over frequency	0	BOOL	Status
150	Input AC over voltage	0	BOOL	Status
151	Input AC under voltage	0	BOOL	Status
152	Input under or over frequency	0	BOOL	Status
153	Output AC over voltage	0	BOOL	Status
154	Output AC under voltage	0	BOOL	Status
155	Output under or over frequency	0	BOOL	Status
158	Building Alarm 6	0	BOOL	Status
159	Building Alarm 5	0	BOOL	Status
160	Building Alarm 4	0	BOOL	Status
161	Building Alarm 3	0	BOOL	Status

Register	Name	Value	Format	Unit
162	Building Alarm 2	1	BOOL	Status
163	Building Alarm 1	0	BOOL	Status
169	Output overload	0	BOOL	Status
172	DC link over voltage	0	BOOL	Status
173	DC link under voltage	0	BOOL	Status
174	Rectifier failed	0	BOOL	Status
176	Battery contactor fail	0	BOOL	Status
177	Bypass breaker fail	0	BOOL	Status
191	Battery current limit	0	BOOL	Status
194	Output current over 100%	0	BOOL	Status
199	Shutdown imminent	0	BOOL	Status
200	Battery low	0		Status
212	Battery DC over voltage	0	BOOL	Status
214	Power supply failure	0	BOOL	Status
229	Network not responding	0	BOOL	Status
241	Emergency shutdown command	0	BOOL	Status
249	Bypass not available	0	BOOL	Status
251	Battery contactor open	0	BOOL	Status
252	Inverter contactor open	0	BOOL	Status
270	Battery totally discharged	0	BOOL	Status
295	Battery not charged	0	BOOL	Status
312	UPS On Battery	0	BOOL	Status
313	UPS On Bypass	1	BOOL	Status
314	Load Dumped (Load Power Off)	0	BOOL	Status
337	Fan Failure	0	BOOL	Status
345	Transformer Over Temperature	0	BOOL	Status
361	Input Breaker Failed	0	BOOL	Status

Table 5. Read Input Registers - Modbus Function Code 04 (Input Registers Start at 30000)

Register	Meter Name	Scale	Unit
1	OUTPUT VOLTS AB	/10	Volts
2	OUTPUT VOLTS BC	/10	Volts
3	OUTPUT VOLTS CA	/10	Volts
4	INPUT VOLTS AB	/10	Volts
5	INPUT VOLTS BC	/10	Volts
6	INPUT VOLTS CA	/10	Volts
10	BYPASS VOLTS AB	/10	Volts
11	BYPASS VOLTS BC	/10	Volts
12	BYPASS VOLTS CA	/10	Volts
19	INPUT CURRENT PHASE A	/10	Amps
20	INPUT CURRENT PHASE B	/10	Amps
21	INPUT CURRENT PHASE C	/10	Amps
22	OUTPUT TRUE POWER	/10	kW
23	INPUT TRUE POWER	/10	kW
24	OUTPUT APPARENT POWER	/10	kVA
25	INPUT APPARENT POWER	/10	kVA
26	OUTPUT POWER FACTOR	/100	—
27	INPUT POWER FACTOR	/100	—
28	OUTPUT FREQUENCY	/10	Hz
29	INPUT FREQUENCY	/10	Hz
30	INVERTER FREQUENCY	/10	Hz
31	BYPASS FREQUENCY	/10	Hz
33	BATTERY CURRENT	/10	Amps
34	BATTERY VOLTAGE	/10	Volts
35	% BATTERY LEFT	/10	%
36	BATTERY TIME REMAINING	/10	Minutes
60	INVERTER VOLTS PHASE A	/10	Volts
61	INVERTER VOLTS PHASE B	/10	Volts

Register	Meter Name	Scale	Unit
62	INVERTER VOLTS PHASE C	/10	Volts
66	LOAD CURRENT PHASE A	/10	Amps
67	LOAD CURRENT PHASE B	/10	Amps
68	LOAD CURRENT PHASE C	/10	Amps
69	LOAD CURRENT PHASE A BAR CHART	/10	Amps
70	LOAD CURRENT PHASE B BAR CHART	/10	Amps
71	LOAD CURRENT PHASE C BAR CHART	/10	Amps
72	OUTPUT VA BAR CHART	/10	kVA
79	OUTPUT VOLTS A	/10	Volts
80	OUTPUT VOLTS B	/10	Volts
81	OUTPUT VOLTS C	/10	Volts

Chapter 6 Troubleshooting

Problem	Possible Cause	Corrective Action
The Modbus Profiler tool does not generate the <i>profiler.csv</i> file	The wrong communication port number was entered in the <i>profiler comX</i> command.	Verify the correct port number on your computer that is connected to the Modbus Card.
	The serial cable is not connected.	Verify that the serial cable connections are secure.
Communication doesn't work	Incorrect communication parameters.	Verify that the communication parameters are set to the desired baud rate, No parity, 8 data bits, 1 stop bit, and no hardware handshaking.
	RS-485 communication lines are reversed.	For two-wire networks. Verify that the master RS-485 network signal TxD(+) is connected to the Modbus Card RxD(+) input signal and the RS-485 network signal TxD(-) is connected to the Modbus Card RxD(-) input signal. For four-wire networks. Verify that all four RS-485 network signals are connected to the terminal strip or DB-9 connector as illustrated in Table 1 on page 9 or Table 2 on page 10, respectively. See Chapter 3, "Wiring the Modbus Card" on page 7 for more information.
	If the Modbus Card is the last device installed in the network chain or the length of the network cable is excessive, termination needs to be enabled.	Verify the termination settings (see "Termination" on page 10 for the correct settings).
	J9 and J10 jumpers could be in the incorrect position for your configuration.	Verify the jumpers are in the correct position (see Figure 4 on page 5).
	The polling rate in the Building Management Software (BMS) application or Modbus software is set below 500 mS.	The Modbus Card updates the status of the Eaton equipment every 1000 mS. Configure the BMS/Modbus application polling rate to 500 mS or greater to ensure proper operation.

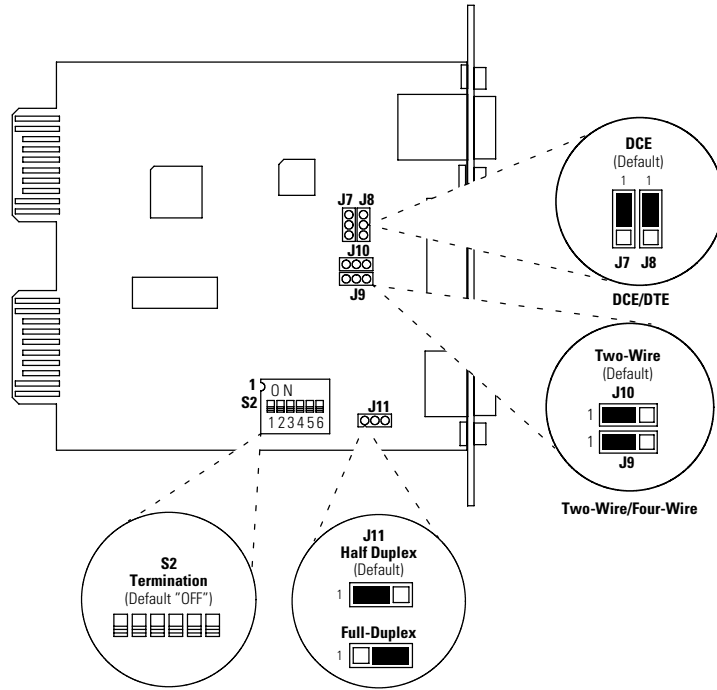


Figure 15. Modbus Card Default Jumper Settings

Service and Support

If you have any questions or problems with the Modbus Card, call your **Local Distributor** or the **Help Desk** at one of the following telephone numbers and ask for a Modbus Card technical representative.

United States: **1-800-356-5737** or **1-919-870-3149**
Canada: **1-800-461-9166 ext 260**
All other countries: **Call your local service representative**

Please have the following information ready when you call the Help Desk:

- Model number
- Date of failure or problem
- Symptoms of failure or problem
- Customer return address and contact information

If repair is required, you will be given a Returned Material Authorization (RMA) Number. This number must appear on the outside of the package and on the Bill Of Lading (if applicable). Use the original packaging or request packaging from the Help Desk or distributor. Units damaged in shipment as a result of improper packaging are not covered under warranty. A replacement or repair unit will be shipped, freight prepaid for all warrantied units.



NOTE For critical applications, immediate replacement may be available. Call the **Help Desk** for the dealer or distributor nearest you.



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