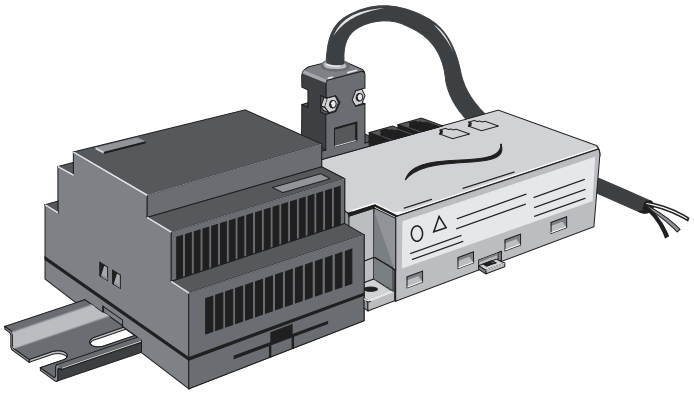
MILLTRONICS

EXTERNAL MODEM KIT

Instruction Manual February 2002



EXTERNAL MODEM KIT

Safety Guidelines

Warning notices must be observed to ensure personal safety as well as that of others, and to protect the product and the connected equipment. These warning notices are accompanied by a clarification of the level of caution to be observed.

Qualified Personnel

This device/system may only be set up and operated in conjunction with this manual. Qualified personnel are only authorized to install and operate this equipment in accordance with established safety practices and standards.

Warning: This product can only function properly and safely if it is correctly transported, stored, installed, set up, operated, and maintained.

Note: Always use product in accordance with specifications.

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Specifications

RS-232 Modem Kit

Modem:

- VT-Modem-1 WW, SIXNET external modem, DIN rail or flat panel mountable
- refer to SIXNET modem manual and CD

Power Supply:

- Siemens 120 V AC/230V AC input, 24V/1.3A output, DIN rail or flat panel mountable
- refer to Siemens power supply manual

Compatible Instruments:

- EnviroRanger ERS 500, Accumass BW500/SF500, AiRanger with SmartLinx® Modbus RTU card, OCM III Open Channel Meter

RS-485 Modem Kit

Modem:

- VT-Modem-3 WW, SIXNET external modem, DIN rail or flat panel mountable
- refer to SIXNET modem manual and CD

Power Supply:

- Siemens 120 V AC/230V AC input, 24V/1.3A output, DIN rail or flat panel mountable
- refer to Siemens power supply manual

Compatible Instruments:

- MultiRanger 100, MultiRanger 200, HydroRanger 200, IQ Radar 300, AiRanger with Smartlinx® Modbus RTU card (for multi-drop applications)

Warranty

All components of the external modem kit are covered by their individual manufacturer's warranties. Siemens Milltronics Process Instruments Inc. does not provide warranty on any of the modem kit components, separately or together.

The External Modem Kit

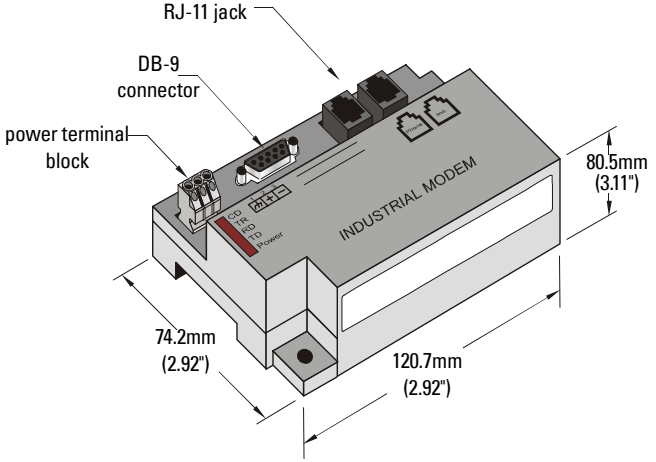
The External Modem Kit is assembled to assist users connecting external modems to Milltronics brand products. While any modem can work with Siemens Milltronics brand products, the VT-Modem by SIXNET is easy to use and reliable.

Components

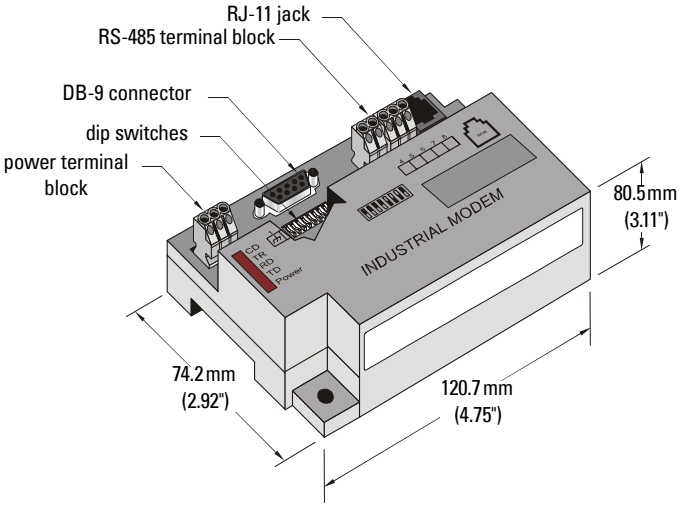
RS-232 Modem Kit	RS-485 Modem Kit
SIXNET VT-Modem-1 WW Modem	SIXNET VT-Modem-3 WW Modem
modem programming cable (DB-9)	modem programming cable (DB-9)
Siemens power supply, 24V/1.3A	Siemens power supply, 24V/1.3A
2-wire power transfer cable	2-wire power transfer cable
3-wire custom communication cable	RS-485 cable (3 ft)

Dimensions

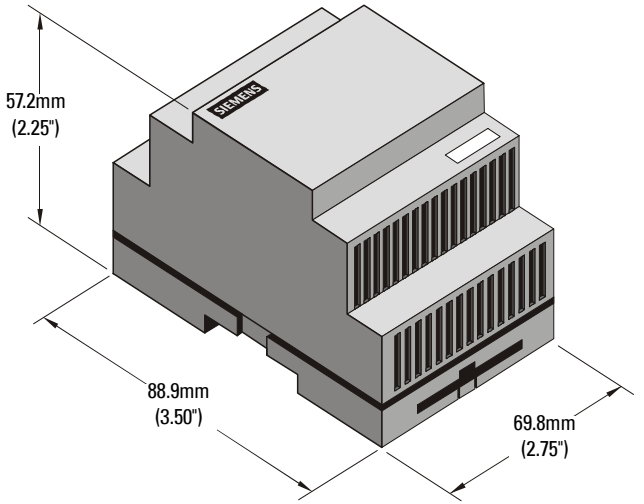
RS-232 Modem



RS-485 Modem



Power Supply



Assembly Instructions

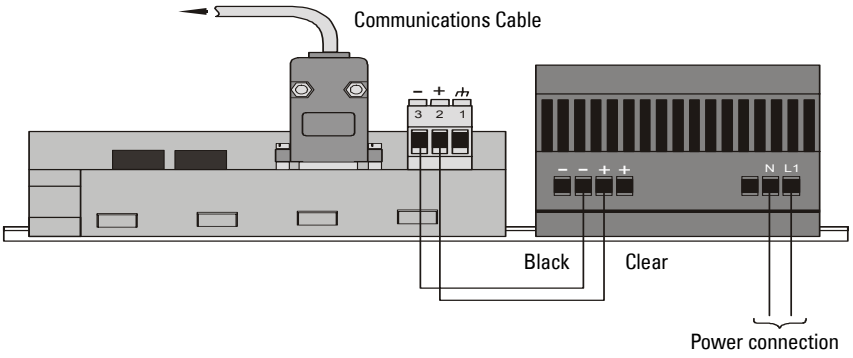
Note: Customer supplied required parts and tools:

- power cable
- cabinet ground wire
- ohmmeter
- RJ-11 phone cord

1. **DISCONNECT THE MAIN POWER SUPPLY.** Connect the power cable to the power supply.
2. Connect the power transfer cable to the power supply and modem as follows:
   - +V on power supply to terminal 2 (+) on modem using clear wire.
   - –V on power supply to terminal 3 (-) on modem using black wire.

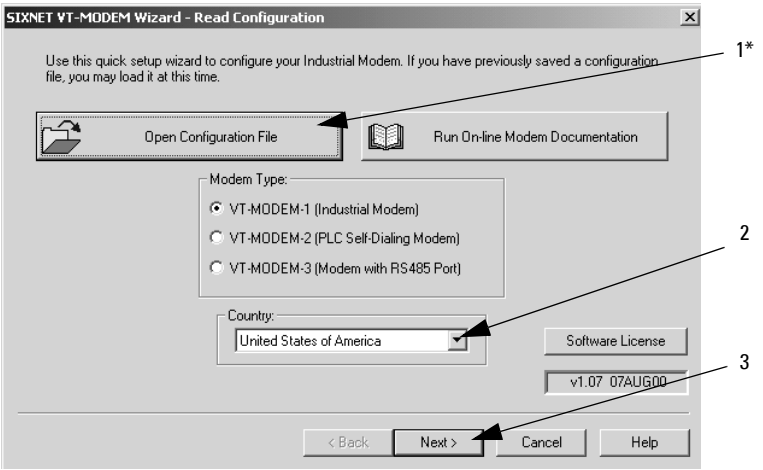
   Connect the ground on the modem to the cabinet ground (wire not provided).
3. Turn on power to the power supply. Connect modem programming cable to modem's DB-9 connector and then to an available port on a PC (eg. Com 1).
4. Configure external modem. See detailed instructions on page 6. Disconnect the programming cable when finished.
5. Connect the Siemens Milltronics product to the external modem using the appropriate wiring code (see Configuring Instruments on page 9).
6. Program the Siemens Milltronics product using the correct parameters listed in Configuring Instruments section. Connect external modem to **analog** phone line using RJ-11 telephone cable in the modem's **line** jack.
7. Configure the internal modem in laptop or desktop PC using Windows 95 or 98 to communicate using Modbus RTU protocol. (See Configuring Internal Modem on page 16.)
8. Dial in to Siemens Milltronics product using internal modem.

Note: When modem and power supply are mounted in an external enclosure, ensure they are not exposed to the elements, dust, or debris.



Configuring External Modem

Install SIXNET Modem Setup Wizard from SIXNET CD. After installation, run the SIXNET Setup Wizard. When configuring the VT-Modem-1, choose default options after changing country of installation (See Step 2).



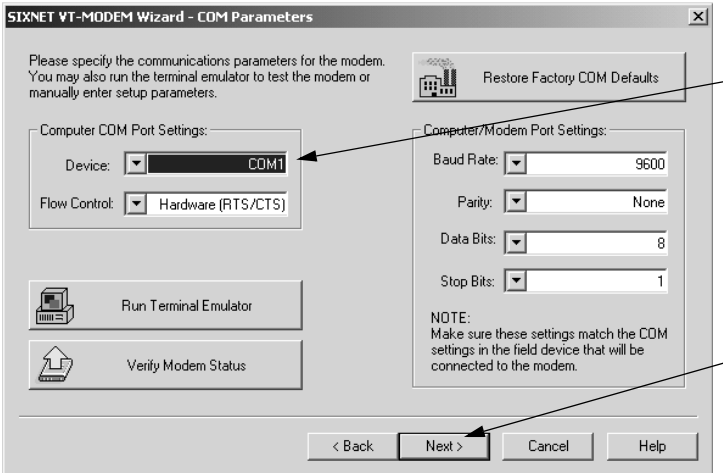
1. Open configuration file and choose the file for your application.

File Name	Associated Product
SMPI_modbus232.6ms	EnviroRanger ERS 500, Accumass BW500, Accumass SF500, AiRanger with Smartlinx Modbus RTU Card
SMPI_OCM.6ms	OCM III
SMPI_modbus485.6ms	MultiRanger 100 / 200, HydroRanger 200, IQ Radar 300, AiRanger with Smartlinx Modbus RTU Card (multi-drop applications)

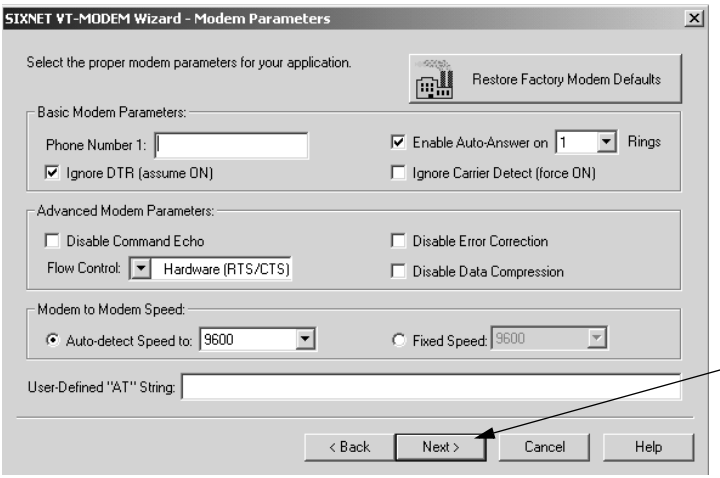
Notes

- If the files listed above are not on the SIXNET CD, they can be found on the Siemens Milltronics web site at **www.siemens-milltronics.com**
- The SIXNET Modem Setup Wizard screens will differ slightly according to the configuration file shown. The example shown is for Modbus RS-232 communication.

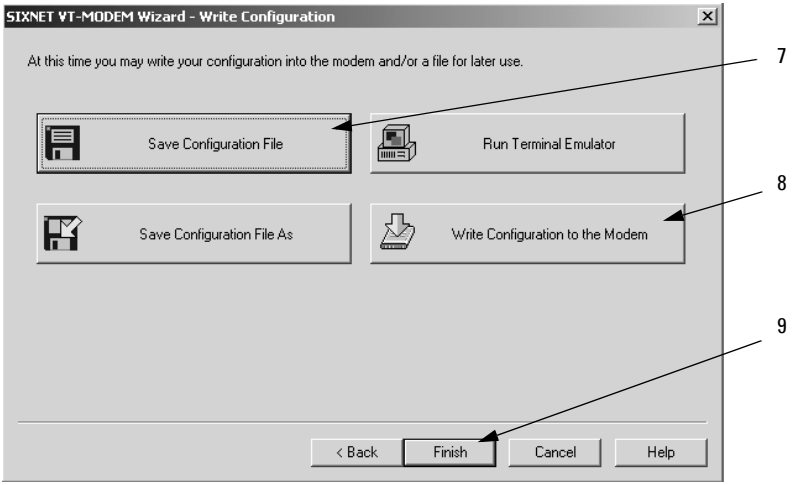
2. Choose country from drop-down list if installation is outside North America.
3. Click Next.



4. Choose the COM port for your computer.
5. Click Next.



6. Click Next.



7. Save Configuration file.
8. After connecting the modem programming cable to modem's DB-9 connector and the designated port on your PC, and setting the dip switches (RS-485 modem only), write configuration file to the modem.
9. Click Finish.

The modem is now configured for 9600 baud communication.
The internal modem (Modbus Master) must be set up for:

- Modbus RTU
- 8 data bits
- 1 stop bit
- no parity
- no flow control

(See Configuring Internal Modem on page 16)

RS-232 Modem Kit Instruments

EnviroRanger ERS 500, Accumass BW500, Accumass SF500, AiRanger with SmartLinx® Modbus RTU card, OCM III

EnviroRanger ERS 500

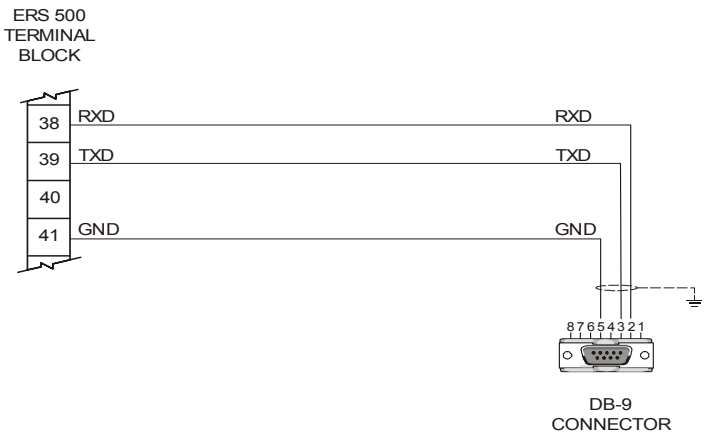
Port 2 set-up parameters:

Parameter	Description
P770 (2)* = 3	Modbus RTU slave
P771 (2) = 1	Modbus slave address of 1
P772 (2) = 9.6	9600 baud
P773 (2) = 0	no parity
P774 (2) = 8	8 data bits
P775 (2) = 1	1 stop bit
P776 (2) = 0	no flow control
P777 (2) = 0	no key up delay
P778 (2) = 1	answer only
P779 (2) = 300	Modem inactivity timeout = 300

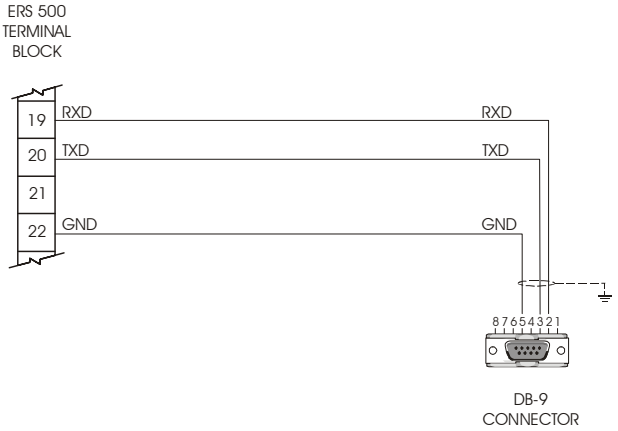
*(2) refers to the primary index (secondary index 0).

Wiring Diagram for Connection to EnviroRanger ERS 500 (Rack and Panel Mount)

1. Use an ohmmeter to rung out the communication cable. Determine which pin connects with each wire of the cable.
2. Connect the communication cable to the ERS 500 as follows:



Wiring Diagram for Connection to EnviroRanger ERS 500 (Wall Mount):



Accumass BW500/SF500:

Port 1 set-up parameters:

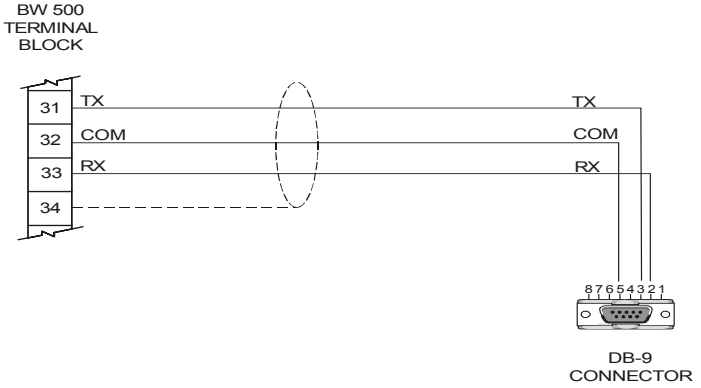
Parameter	Description
P770 (1)* = 3	Modbus RTU slave
P771 (1) = 1	Modbus slave address of 1
P772 (1) = 2	9600 baud
P773 (1) = 0	no parity
P774 (1) = 8	8 data bits
P775 (1) = 1	1 stop bit
P778 (1) = 1	modem attached
P779 (1) = 300	Modem inactivity timeout = 300

*(1) refers to the primary index (secondary index 0)

Note: After setting Port 1 parameters for the BW500 and SF500, you must cycle power to the unit for them to take effect.

Wiring Diagram for Connection to Accumass BW500/SF500:

1. Use an ohmmeter to rung out the communication cable. Determine which pin connects with each wire of the cable.
2. Connect the communication cable to the BW500/SF500 as follows



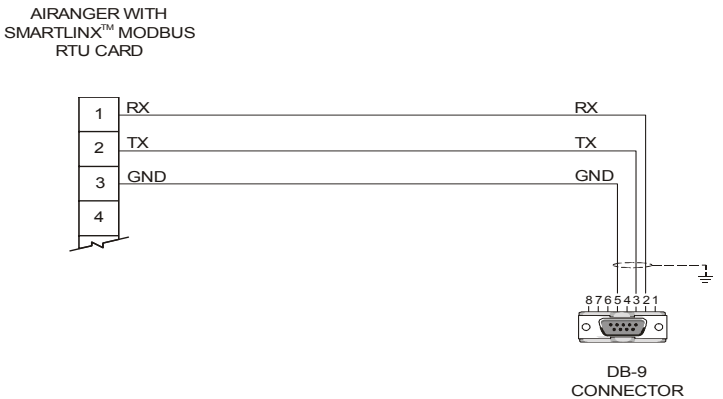
AiRanger with SmartLinx®Modbus RTU card

Port 1 set-up parameters:

Parameter	Description
P751 = 3	9600 baud
P752 = 0	no parity
P753 = 1	station address 1
P758 = 15	interframe spacing = 15 ms

Wiring Diagram for Connection to AiRanger with SmartLinx® Modbus RTU card

1. Use an ohmmeter to rung out the communication cable. Determine which pin connects with each wire of the cable.
2. Connect the communication cable to the AiRanger as follows:



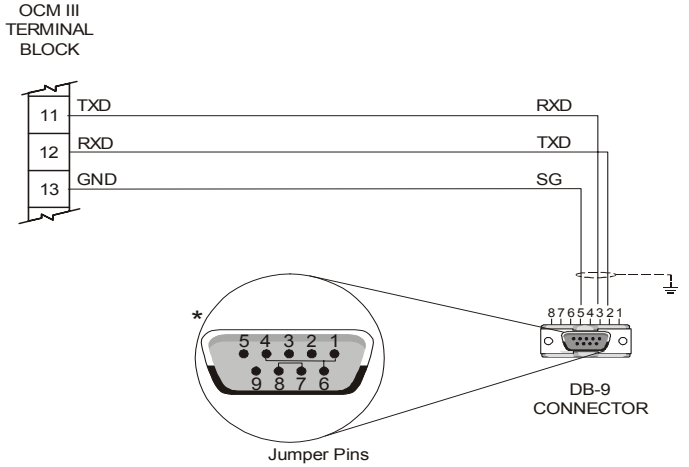
OCM III Configuration Parameters

Parameter	Description
P37 = 5	9600 baud

The modem is now configured for 9600 baud communication.

Set internal modem to standard modem configuration (Windows default values).

Wiring Diagram for connection to OCM III:



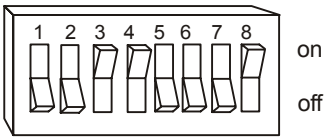
***Note:** Jumpers are required for communication with the OCM III. The jumpers are included in communications cable supplied with Siemens Milltronics RS-232 External Modem Kit.

RS-485 Modem Kit Instruments

MultiRanger 100, MultiRanger 200, HydroRanger 200, IQ Radar 300, AiRanger with Smartlinx Modbus RTU Card (multidrop applications)

Modem Dip Switch Settings

Set the Modem dip switches as follows:



MultiRanger 100/200, HydroRanger 200

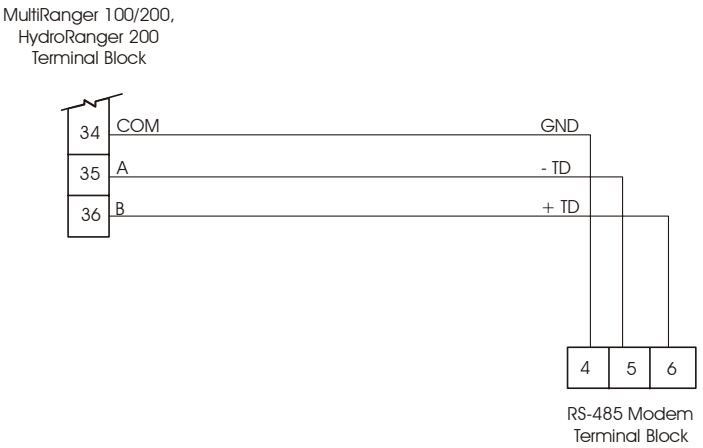
Port 2 set-up parameters:

Parameter	Description
P770 (2)* = 3	Modbus RTU slave
P771 (2) = 1	Modbus slave address of 1
P772 (2) = 9.6	9600 baud
P773 (2) = 0	no parity
P774 (2) = 8	8 data bits
P775 (2) = 1	1 stop bit
P778 (2) = 1	modem attached
P779 (2) = 300	Modem inactivity timeout = 300

*(2) refers to the primary index (secondary index 0).

Wiring Diagram for Connection to MultiRanger 100/200, HydroRanger 200

1. Connect the communication cable to the MultiRanger 100/200 or HydroRanger 200 as follows:



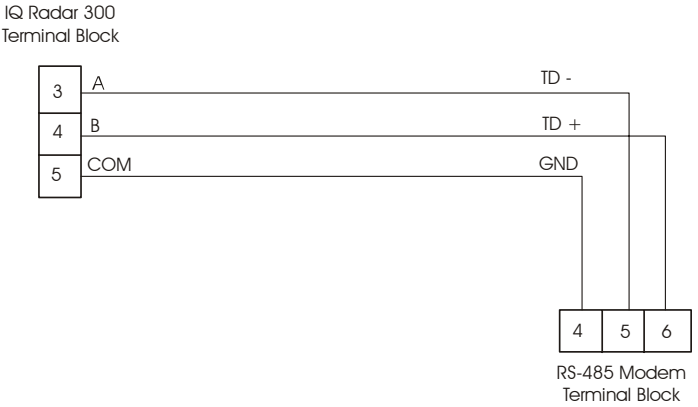
IQ Radar 300

Port 2 set-up parameters:

Parameter	Description
P770 = 3	Modbus RTU slave
P771 = 1	Modbus slave address of 1
P772 = 9.6	9600 baud
P773 = 0	no parity
P774 = 8	8 data bits

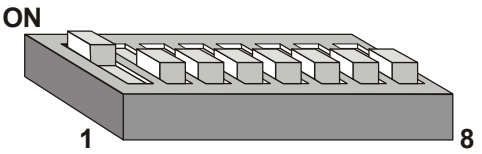
Wiring Diagram for Connection to IQ Radar 300

1. Connect the communication cable to the IQ Radar 300 as follows:



AiRanger with SmartLinx®Modbus RTU Card (for multidrop applications)

SmartLinx Modbus RTU Card port configuration (for RS-485 transmission):

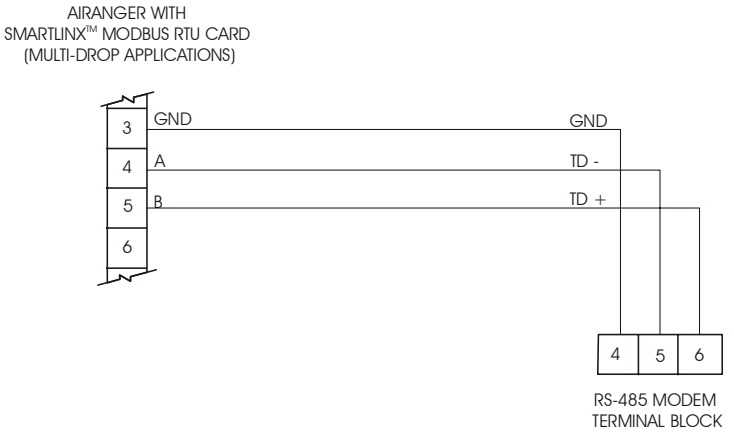


AiRanger Port 1 set-up parameters:

Parameter	Description
P751 = 3	9600 baud
P752 = 0	no parity
P753 = 1	station address 1
P758 = 15	interframe spacing = 15 ms

Wiring Diagram for Connection to AiRanger with SmartLinx® Modbus RTU card

1. Connect the communication cable to the AiRanger as follows:



Configuring Internal Modem

The internal modem communicating with the external modem and Siemens Milltronics instrument must communicate using the Modbus RTU serial protocol.

To set up internal modem using Windows:

1. On the Start Menu, click **SETTINGS** and click **CONTROL PANEL**.
2. Double-click **MODEMS**.
3. Highlight the internal modem being used and then click **PROPERTIES**.
4. Select the **GENERAL** tab. Set speed to **9600** using Maximum Speed dropdown menu.
5. Select the **CONNECTION** tab. Under Connection Preferences, set data bits to **8**, parity to **NONE**, stop bits to **1**.
6. Click **ADVANCED** at bottom right of Connection screen.
7. Verify the **Use error control** and **Use flow control** boxes are not checked.
8. Verify Modulation type is **Standard**.
9. Save changes and exit.
10. Reboot computer.

Modem configuration:

- Modbus RTU
- 9600 baud
- 8 data bits
- 1 stop bit
- no parity
- no flow control

Notes

Notes

MILLTRONICS

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