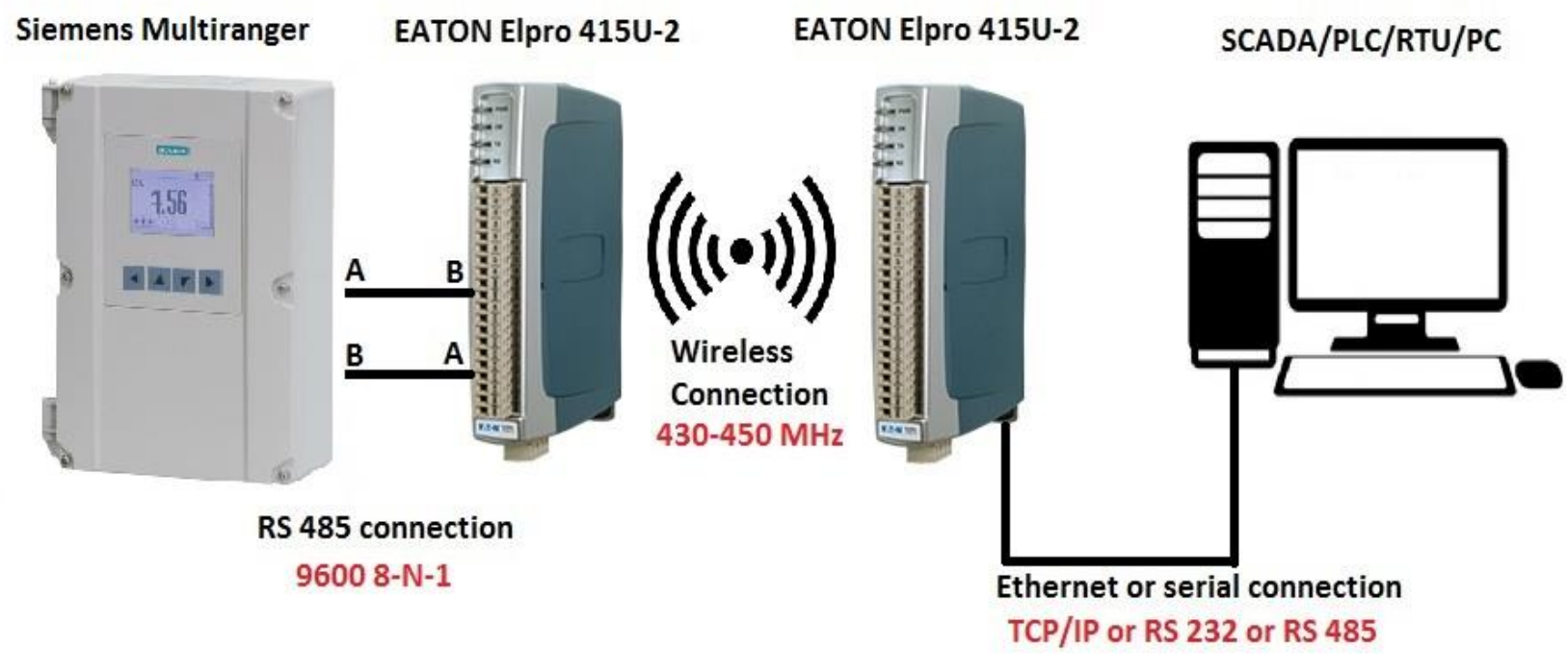
Interfacing the Siemens Multiranger Flow Meter with EATON Elpro 415U-2

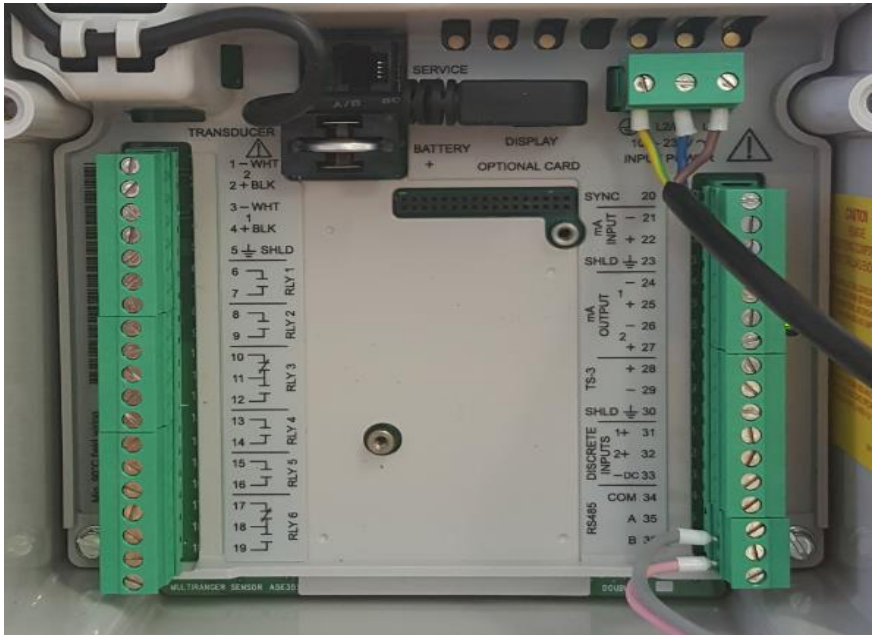


Outcome: Gain wireless access to the Modbus RTU registers of the Siemens Multiranger flow meter.

Connections: (Please Note: This document refers to the Modbus connection ofthe devices. For power or I/O connections, refer to the respective manuals.)

The devices use the RS485 serial communications method which utilises a Sig+ line and a Sig- line labelled as “A” and “B”. This labelling is not consistent across different manufacturers, resulting in the “A” signal line of one device not always connecting to the “A” signal line of another device of a different brand and “B” to “B”

In the case of the EATON Elpro 415U-2 and the Siemens Multiranger, their labelling methods differ and require that “A” (labelled as A on the 415U-2) be connected to “B” (labelled as B 36 on the Siemens Multiranger) and that “B” (labelled as B on the 415U-2) be connected to “A” (labelled as A 35 on the Siemens Multiranger). See below for RS-485 wiring captures.



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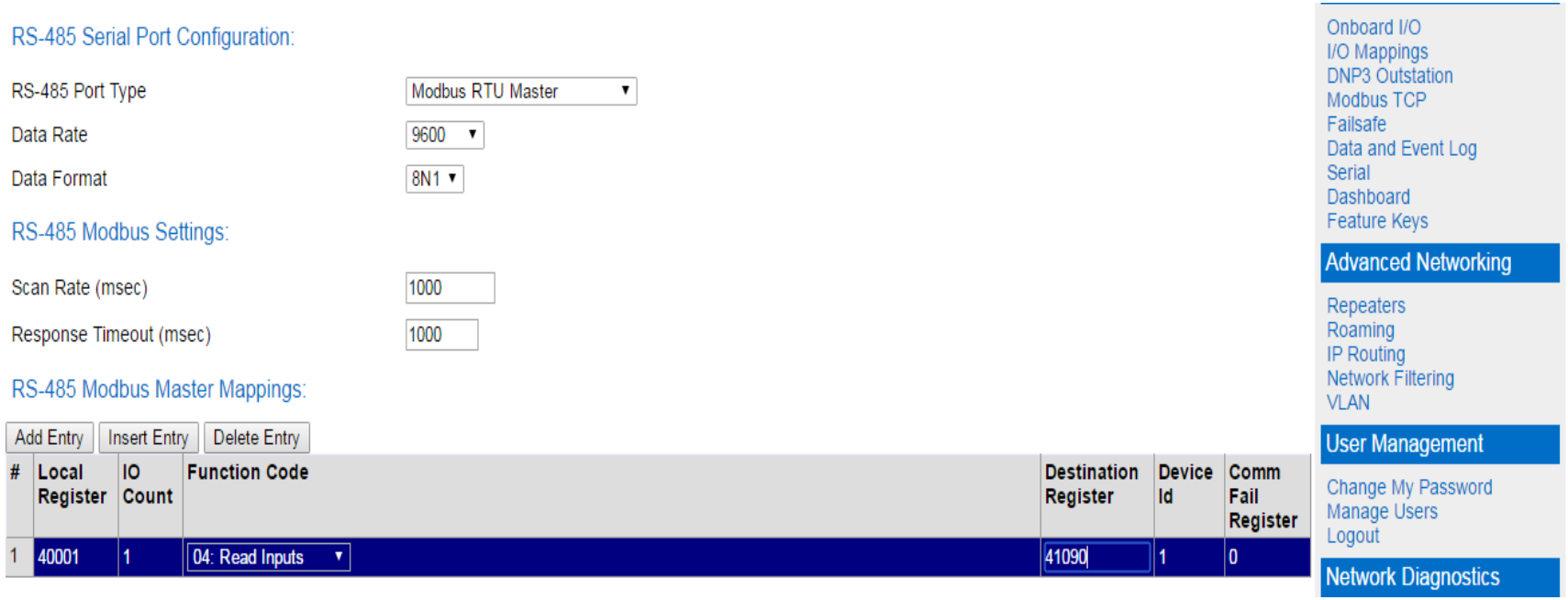
Setup: Both devices are capable of an array of serial speeds and settings and are capable of communicating with each other as long as the serial settings are matched. In this document, the standard serial settings of 9600bps, 8 data bits, no parity, 1 stop bit (9600 8-N-1) will be used.

To set this up on the 415U-2, connect to the devices web interface and select "Serial" from the menu on the right of the screen.



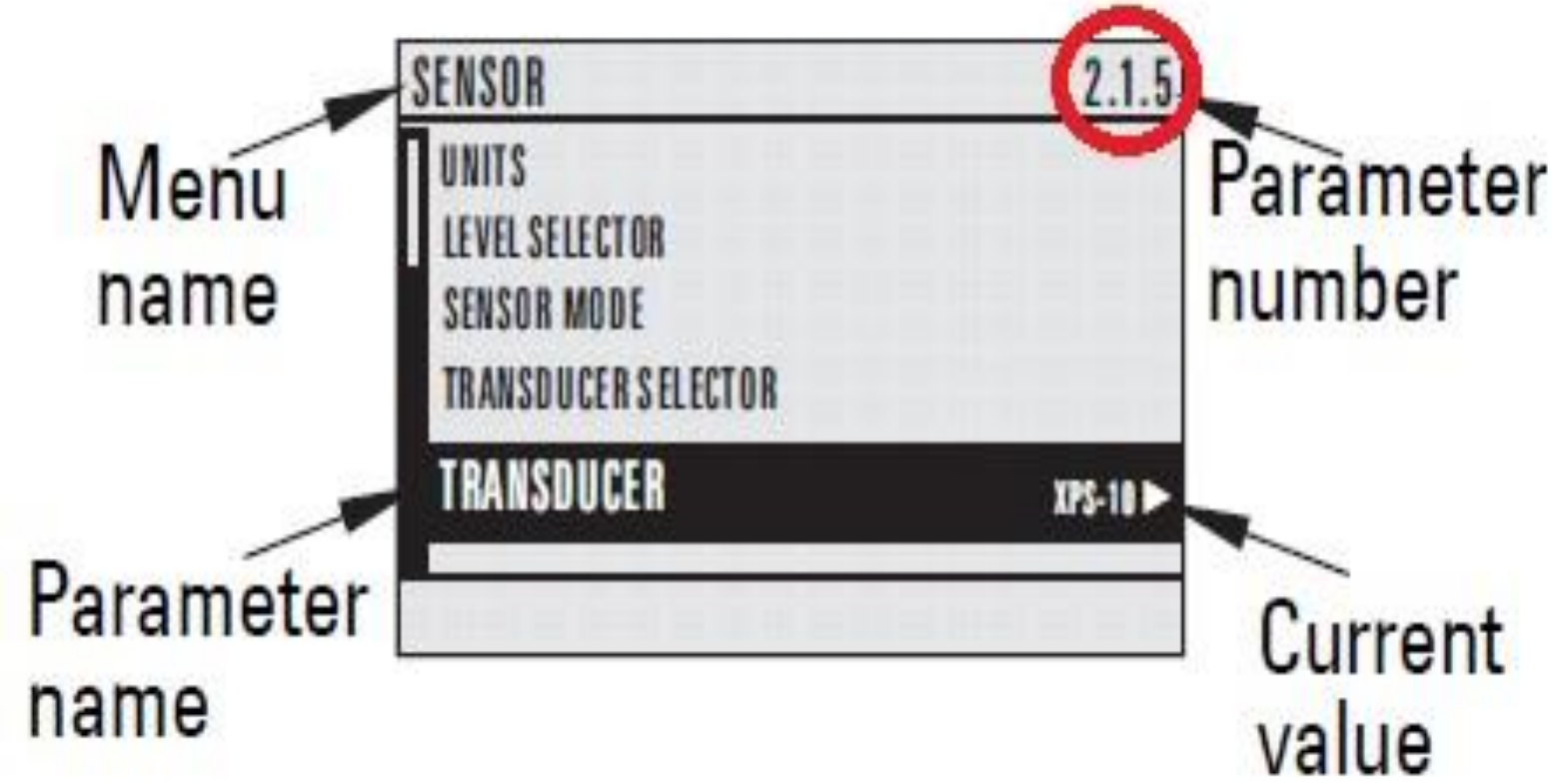
In this example the 415U-2 is setup as a Modbus RTU Master. This will allow the device to call registers from the Siemens Multiranger and store them locally.

For the data rate and data format, the standard settings are used, as mentioned above.

Unless specified, the default rate at which the 415U-2 will pull and store the Modbus registers (scan rate) and the amount of time the that the 415U-2 allows for the Multiranger to respond to requests before it cancels the request (response timeout) can be left at the default 1000 milliseconds.

This example pulls the mA Input Holding register (41090) of the Siemens Multiranger and stores it locally in its own Holding register (40001). (see above illustration)

To setup the Modbus and serial settings on the Siemens Multiranger, navigate to the device's parameter number 4 in the integrated menu. (parameter number can be located in the top right of the integrated screen, see below)



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Under parameter 4, the following items are available:

4.1. Communications Port Selector

Sets the communications port index for all parameters applicable to this sub-menu.

Options	*Communications Port 1
	Communications Port 2

4.2. Device Address

Sets the unique identifier of the MultiRanger on the network.

Index	Communications Port
Options	Range: 0 to 9999

4.3. Communications Timeout

Sets the maximum time allowed between receiving a request and transmitting the response.

Index	Communications Port
Values	Range: 0 to 60 000 milliseconds
	Preset: 5 000 milliseconds

4.4. Protocol

Sets the communications protocol used between the MultiRanger and other devices.

Index	Communications Port
Options	Communications Port disabled
	Dolphin protocol
	Modbus ASCII slave serial
	*Modbus RTU slave serial

4.5. Serial Baud Rate

Sets the communication rate with the master device.

Index	Communications Port
Values	4.8 kbaud
	9.6 kbaud
	*19.2 kbaud (preset for Port 2)
	*115.2 kbaud (preset for Port 1)

4.6. Parity

Sets the serial port parity.

Index	Communications Port
Options	*No parity
	Odd parity
	Even parity

4.7. Data Bits

Sets the number of data bits per character.

Index	Communications Port
Values	Range: 5 to 8

4.8. Stop Bits

Sets the number of bits between the data bits.

Index	Communications Port
Values	Range: 1 to 2
	Preset: 1

The details to match would be the Communications port selector (communications port 2); Device address (1); Protocol (Modbus RTU slave serial); serial baud rate (9.6 kbaud); parity (no parity); stop bits (1); data bits (8). For the example in this document, a slave address of 1 is used. Additional settings are left as default.

Result: This configuration results in a RS485 connection between the 415U-2 and multiranger 200.

The 415U-2 polls the Input registers of multiranger 200 every second and stores them locally for wireless distribution to any other 415U-2's that could be connected to a SCADA/PLC/RTU system.