Connecting the TrueShot™ UIM to a Digi EZ-Mini Serial to Ethernet Converter

Introduction

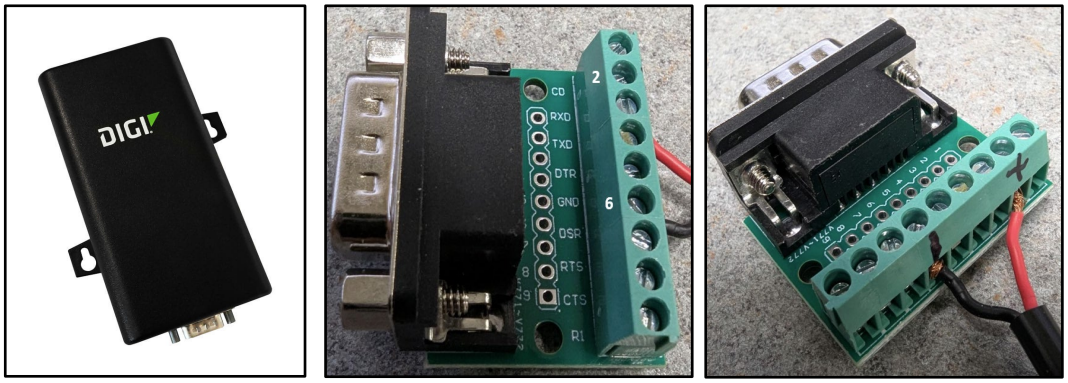
This document discusses wiring connections and software settings required to connect a TMCO TrueShot™ UIM (2, 3 or 4-path) gas ultrasonic meter to the Digi-Mini Serial to Ethernet converter electronic volume corrector (EVC) using the UIM RS485 serial output. Traditionally the Serial output from the TrueShot is an RS485 Modbus format. However, TrueShot also supports Serial to Ethernet converters such as the Digi EZ-Mini. This document discusses configuring both the Digi EZ-Mini and the TrueShot to provide Serial to Ethernet communications.

The Digi EZ-Mini

Manufacturer: Digi International

Model: EZ01-MAD0-GLB

Figure 1 – Digi ES Mini Terminals



Digi Connections:

Serial connector pinout: Connect EZ Mini

The Connect EZ Mini has a DB9 serial connector. The table below contains the pinout information.

DB-9 pin	EIA-232	EIA-422	EIA-485 Half-duplex
1	DCD	CTS-	Not used
2	RxD	RxD+	Data+
3	TxD	TxD+	Not used (Reserved)
4	DTR	RTS-	Not used

DB-9 pin		EIA-232	EIA-422	EIA-485 Half-duplex
5		GND	GND	GND
6		DSR	RxD-	Data-
7		RTS	RTS+	Not used
8	1	CTS	CTS+	Not used
9	2 3	RI	TxD-	Not used (Reserved)
Shell	4	GND		

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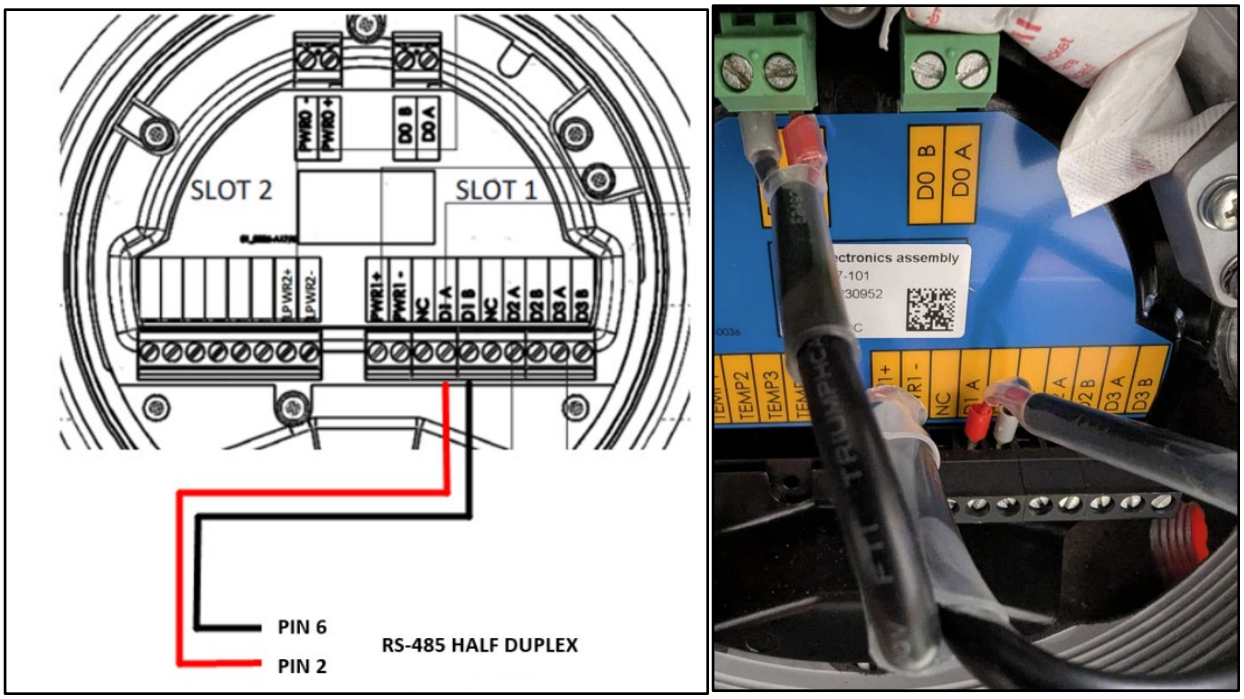
TrueShot USM:

RS-485 half duplex.

In RS-485 half-duplex communication, only one device can transmit at a time, meaning data can only travel in one direction at a time. This configuration typically uses a single twisted pair of wires, with one wire for transmit and one for receive, or potentially a three-wire system with a ground wire.

Modbus is a serial communications protocol widely used in industrial automation for connecting devices like PLCs, sensors, and controllers. It operates on a master-slave architecture where a master device initiates communication with one or more slave devices. All TrueShot Modbus address listings are available from www.tmcousa.com.

Figure 2 – TrueShot Terminals and wiring to Digi EZ-mini



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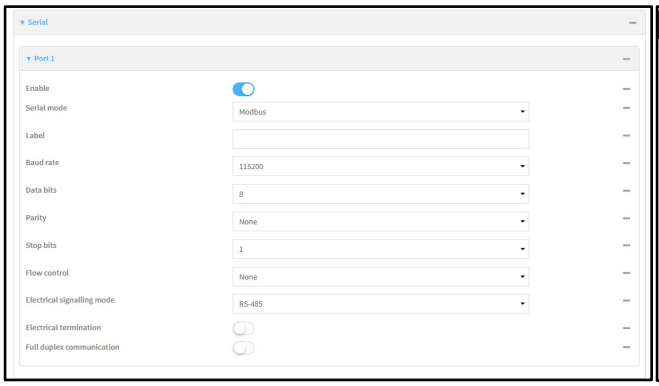
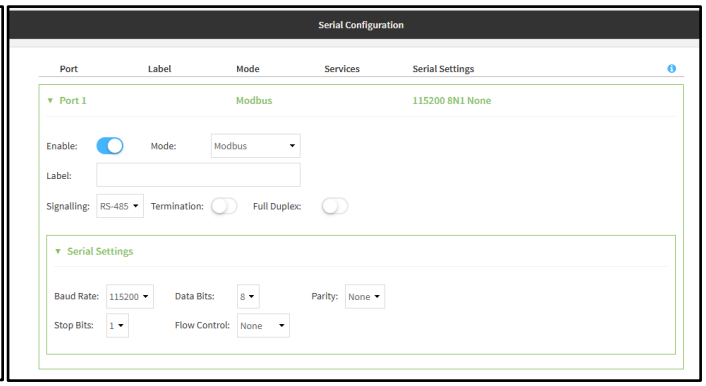
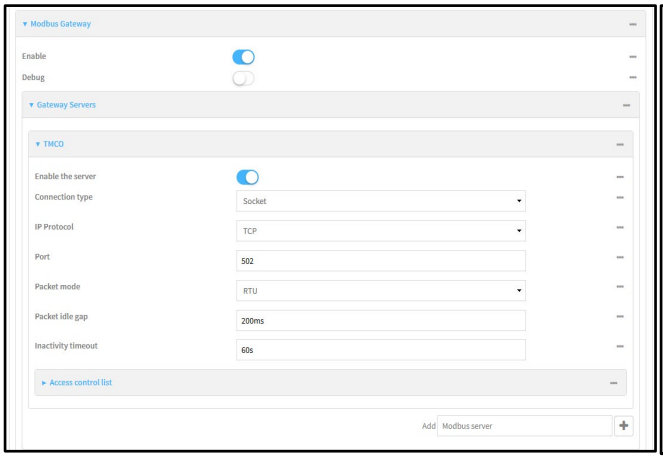
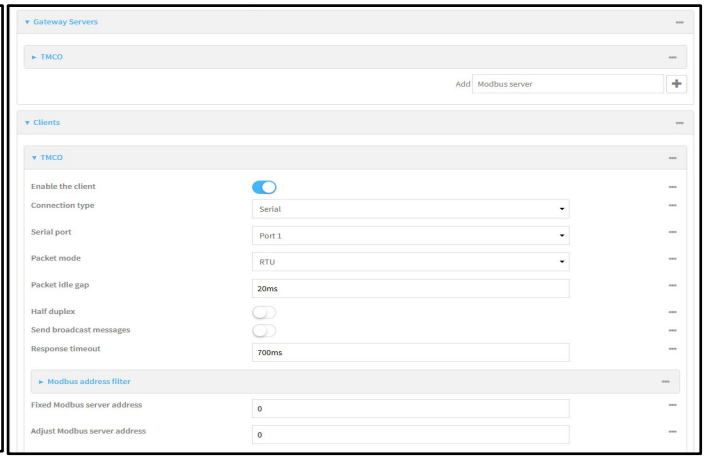
Digi EZ-Mini Settings:









Digi EZ-Mini configuration instructions:

Set the Serial port mode set to Modbus

https://docs.digi.com/resources/documentation/digidocs/90002409/#os/serial-port-modbus-mode.htm?Highlight=Modbus

Setup the Modbus gateway for Modbus TCP using port 502.

https://docs.digi.com/resources/documentation/digidocs/90002409/#os/modbus-gateway-c.htm?Highlight=Modbus%20gateway

Now configure the serial port for Modbus RTU client. Make sure that you have half-duplex enabled, and you may also need to enable termination.

https://docs.digi.com/resources/documentation/digidocs/90002409/#os/modbus-gateway-config-t.htm?Highlight=Modbus%20client

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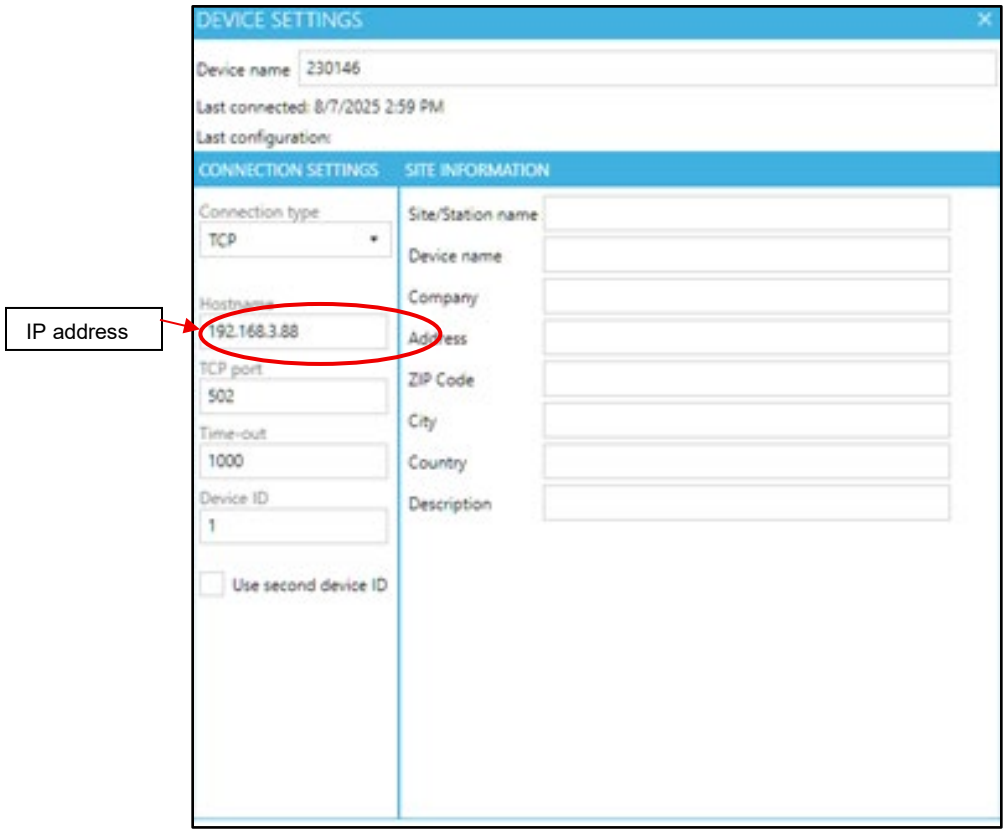
TrueShot TIM Software settings: