

Ultrasonic Clamp-on Flowmeter UFM-300

Cable Wiring Connections

Version 1.0



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1.0 Introduction

Modbus RTU Slave functionality is implemented on the Sonic Driver™ clamp-on Ultrasonic Flowmeter UFM-300.

The UFM implements Modbus commands 03, 04, 06 and 16.

Meter settings are fully configurable on the UFM using a Windows based program running on a PC or laptop or an Android App running on a Smart device or mobile phone. In addition, a full range of flow measurements and diagnostics can be read from the meter.

Once installed and commissioned the device can continue to be used locally or it can be simply unplugged and connected to a control room system, e.g. BEMS or Cloud based monitoring applications over RS485.

2.0 Cable Wiring Connections

The UFM-300 comes with 2 multicore cable connectors, one on each end of the meter case, see figure (1).



Figure (1) Cable Connectors.

2.1 Cable Type

The black cable connected to the left is 3 core for DC power. Molex, Sensor Cables / Actuator Cables, NC-3P-FE-ST-2M-PUR-NUT, manufacturer part number 1200868045.

The yellow cable connected to the right is 4 core for communications. Molex, Sensor Cables / Actuator Cables NC 4P FE ST 5M PUR 0.25, manufacturer

part number 1200868157.

Cables can be purchased from for example Mouser at <https://www.mouser.co.uk/> with Mouser part numbers 538-1200868045 and 538-1200868157 respectively.

2.2 Cable Colours

The meaning of each colour is given in table (1) and (2).

Colour	Meaning	Function
Black	5 Vdc*	Power Supply
Blue	12 to 24 Vdc*	Power Supply
Brown	Ground	Power Supply

Table (1) Power Cable Colour Meanings

***Under no circumstances connect 12 to 24 Vdc to 5 Vdc.**

Colour	Meaning	Function
Brown	5 Vdc*	Power Supply
Blue	A	Modbus RTU
White	B	Modbus RTU
Black	Ground	Modbus RTU

Table (2) Data Cable Colour Meanings

***Under no circumstances connect 12 to 24 Vdc to 5 Vdc.**

Physical connection to the 2-wire Modbus is via the blue and white wires 'A' and 'B' respectively.

Note that some equipment manufacturers label their terminals in other ways, e.g. '+' and '-' so the exact order that these 2 wires are connected may be reversed.

3.0 USB to RS485 connection

To connect the UFM to a PC or Smart device or mobile phone a USB to RS485 converter cable is required.

A suitable converter is available for example from TechnoFix UK, <https://shop.technofix.uk/index.php?route=product/search&search=rs485> , see figure (2).

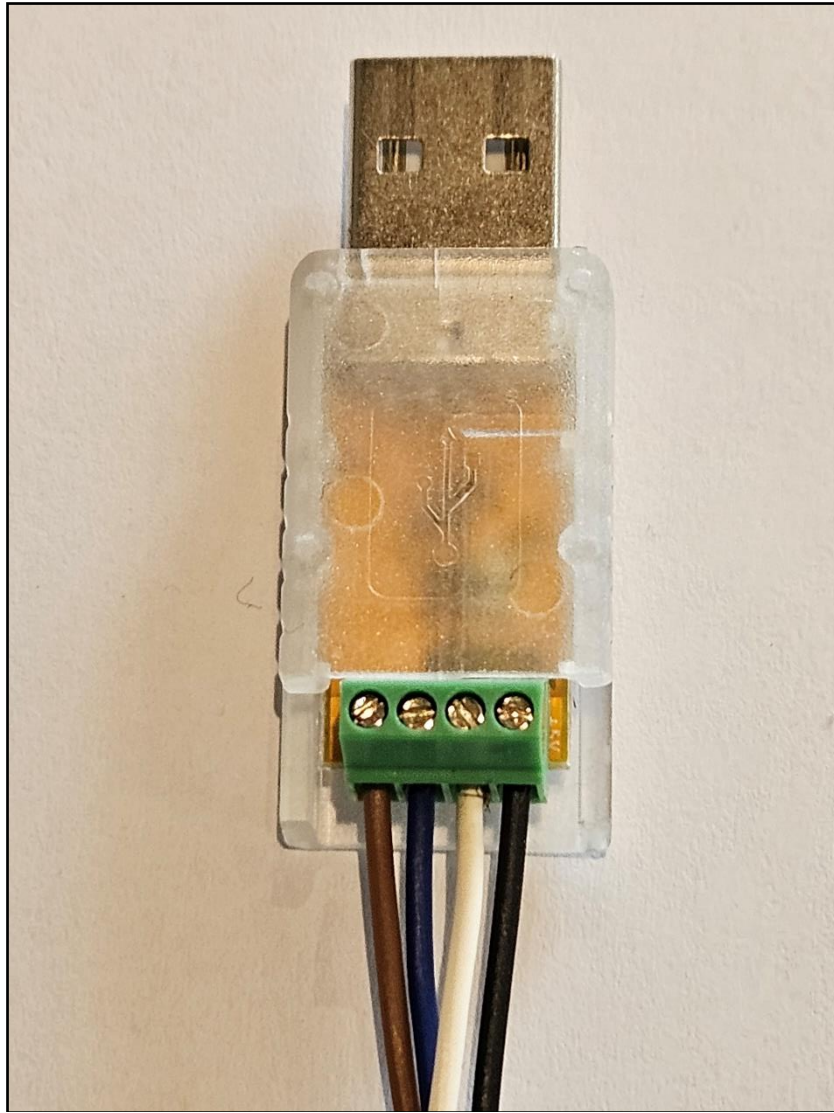


Figure (2) USB to RS485 converter.

Wired as per table (2) to the yellow cable connected to the right of the UFM in figure (1).

In this case the UFM is powered from the converter, the other power cable does not necessarily need to be connected, only when the converter is disconnected.

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