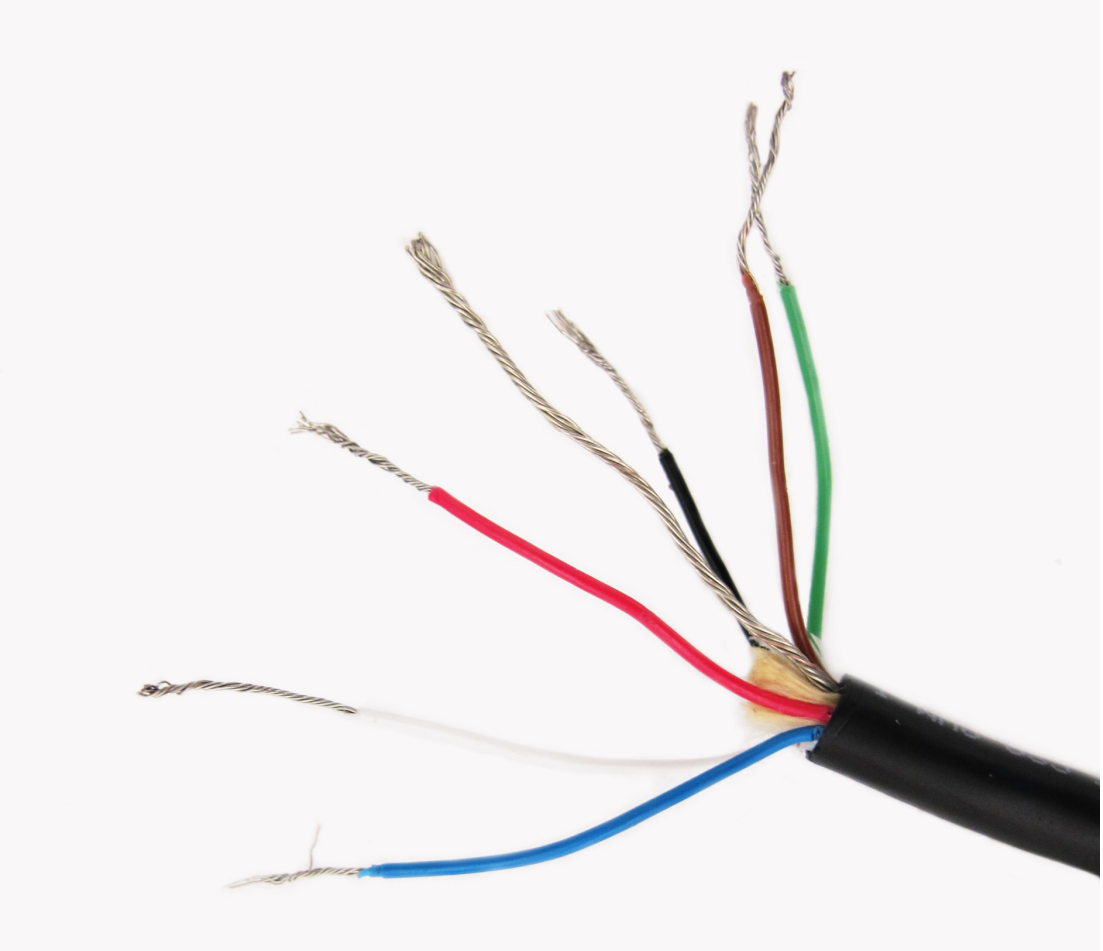
Innovations in **Water Monitoring**

Information Sheet

RuggedCable® System Stripped &Tinned



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0051822 | rev. 001 | 09/2016

Overview

Connects an Aqua TROLL directly to a controller or logger for communication via:

- Analog (4-20 mA)
- RS485 Modbus
- SDI-12
- RS232 Modbus (with a customer-supplied converter*)

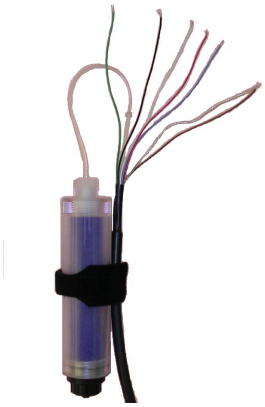
Twist-Lock connector mates with probe body. Stripped & tinned wires on opposite end for wiring to PLC or logger. Vented cable includes removable high-volume outboard desiccant to protect cable vent tube from condensation in high-humidity environments.

Cable Specifications

Jacket options	TPU (Thermoplastic Polyurethane) Tefzel® (ETFE fluoropolymer)
Vent options	Vented (includes outboard desiccant), non-vented
Conductors	6 conductors, 24 AWG, polypropylene insulation
Diameter	Cable, 6.7 mm (0.265 in); Connector, 18.5 mm (0.73 in)
Minimum bend radius	2X cable diameter (13.5 mm, 0.54 in)
Break strength	127 kg (280 lb)
Max. recommended cable lengths	SDI-12 61 m (200 ft) Modbus 1259 m (4000 ft) 4-20 mA 1259 m (4000 ft)
Desiccant pack	Clear acrylic, nylon, HDPE membrane
Desiccant	approx. 22 g silica gel, type 4

RuggedCable® System Legend	
Signal	**Color**
Gnd/Return	BLACK
Ext Power	RED
4-20 mA	BROWN
RS485(-)	GREEN
RS485(+)	BLUE
SDI-12	WHITE

Connections



Refer to wiring diagrams on back of sheet. Trim back and insulate unused wires. The shield should be wired to a chassis ground or earth ground.

Power Connections. The Red wire provides power for all Aqua TROLL modes. The 4-20 mA current loop output can be continuous in Modbus or SDI-12 mode as long as Modbus device register 49507 is set to 1. The analog signal must be enabled in WinSitu 5 before it can be used.

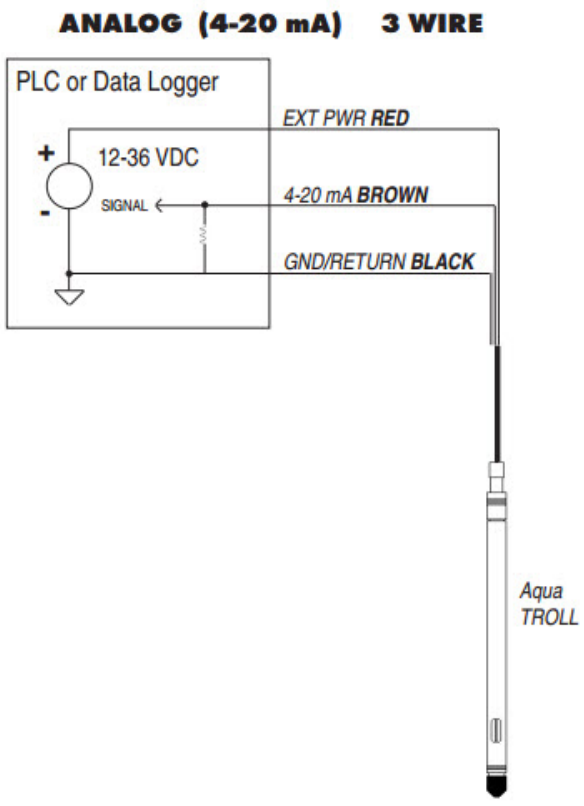
Communications. The device automatically switches between Modbus and SDI-12 modes depending on which of the two interfaces has activity. Modbus and SDI-12 cannot be used at the same time — whichever one is currently in use will block communication on the other. Modbus has priority over SDI-12.

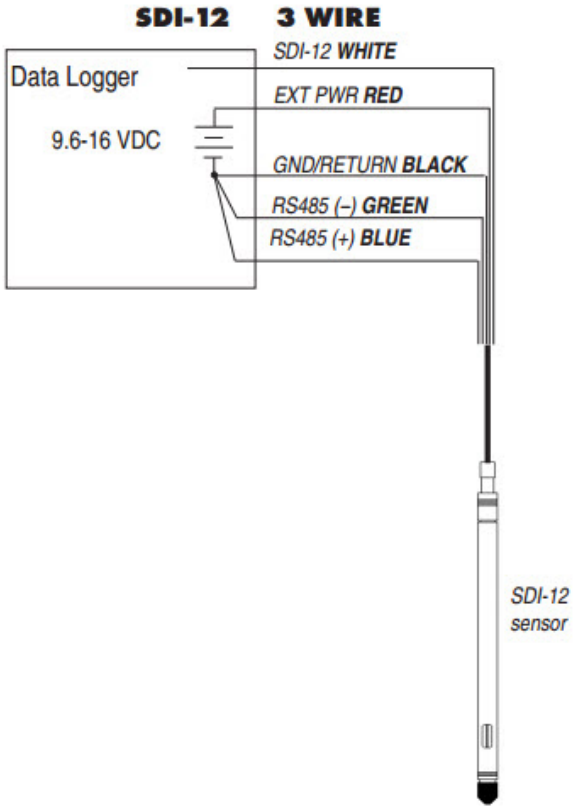
To communicate with the Aqua TROLL using Win-Situ® 5 software through a serial COM port: Cable can be wired to a port-powered RS485-RS232 converter* for temporary connection to a serial port on a PC.

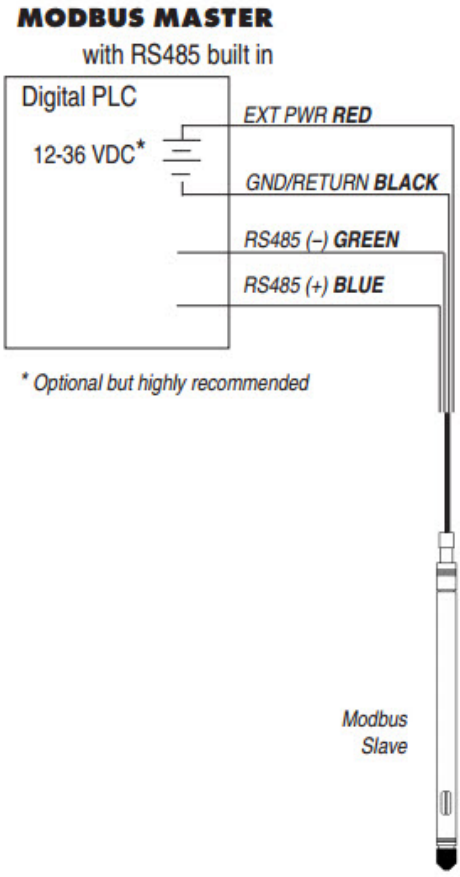
*Such as B&B Electronics Model 485SD9TB. See diagrams below.

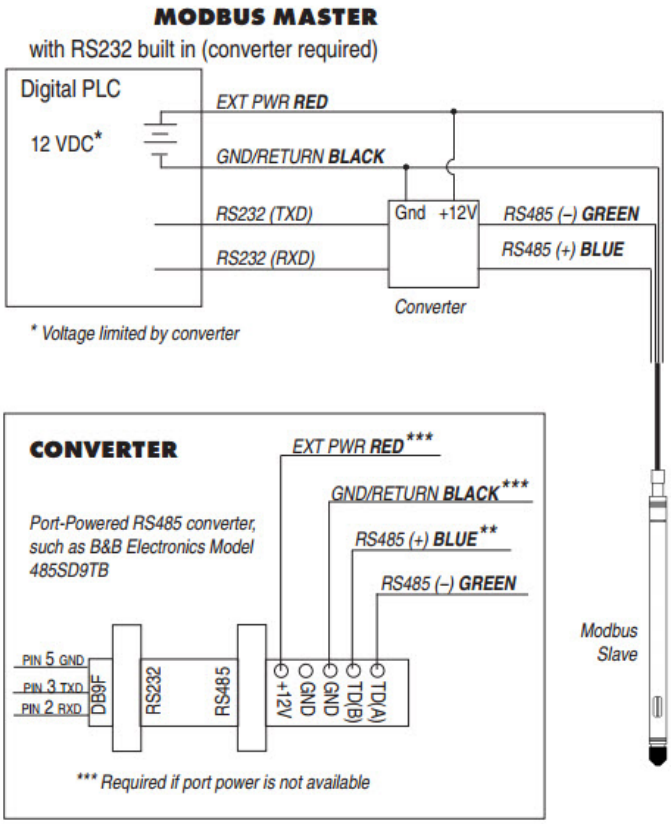
TIP: *The desiccant may be removed from the vent tube, if needed, for better access to the conductor wires. Pull the vent tube extender off the cable vent tube to remove. After connecting and trimming wires, attach desiccant vent tube to cable vent tube and secure desiccant to cable with hook-and-loop strap, as shown in the photo above.*

Diagrams






MODBUS MASTER
with RS485 built in
Digital PLC
12-36 VDC*
EXT PWR RED
GND/RETURN BLACK
RS485 (–) GREEN
RS485 (+) BLUE
* Optional but highly recommended
Modbus Slave


MODBUS MASTER
with RS232 built in (converter required)
Digital PLC
12 VDC*
EXT PWR RED
GND/RETURN BLACK
RS232 (TXD)
RS232 (RXD)
Gnd +12V
RS485 (–) GREEN
RS485 (+) BLUE
Converter
* Voltage limited by converter
Modbus Slave

CONVERTER
Port-Powered RS485 converter, such as B&B Electronics Model 485SD9TB
EXT PWR RED***
GND/RETURN BLACK***
RS485 (+) BLUE**
RS485 (–) GREEN
PIN 5 GND
PIN 3 TXD
PIN 2 RXD
DB9F
RS232
RS485
+12V
GND
GND
TD(B)
TD(A)
*** Required if port power is not available