Description

This sensor is a fluid level sensor with four discreet level probes, the output is sent over Modbus protocol. The sensors are completely sealed and suit for harsh locations, exposed to chemicals or explosive environment. The unit uses ultrasonic waves to detect the presence of fluid between the sender/receiver pair. The sensors never need to be calibrated.Also, there are no moving parts that can get clogged up.

Specifications and features

- Power: 24Vac or dc and gnd, less than 1 W power consumption.
- Max voltage: 28V on any conductor, continuous
- Temperature: -40C to +70C
- Wiring: 4 conductors, 2 conductors for power and 2 for communications.
- Working mode:
  The sensors used in RS485 modbus mode which allow more functionalities such as alarms or temperature reading for example.
- RS485 Communications: Modbus RTU Protocol, 19.2kbaud.
- Pressure: Sensor shall be rated to 100psi continuous; 200 psi for short durations.

Modbus Poll Operations
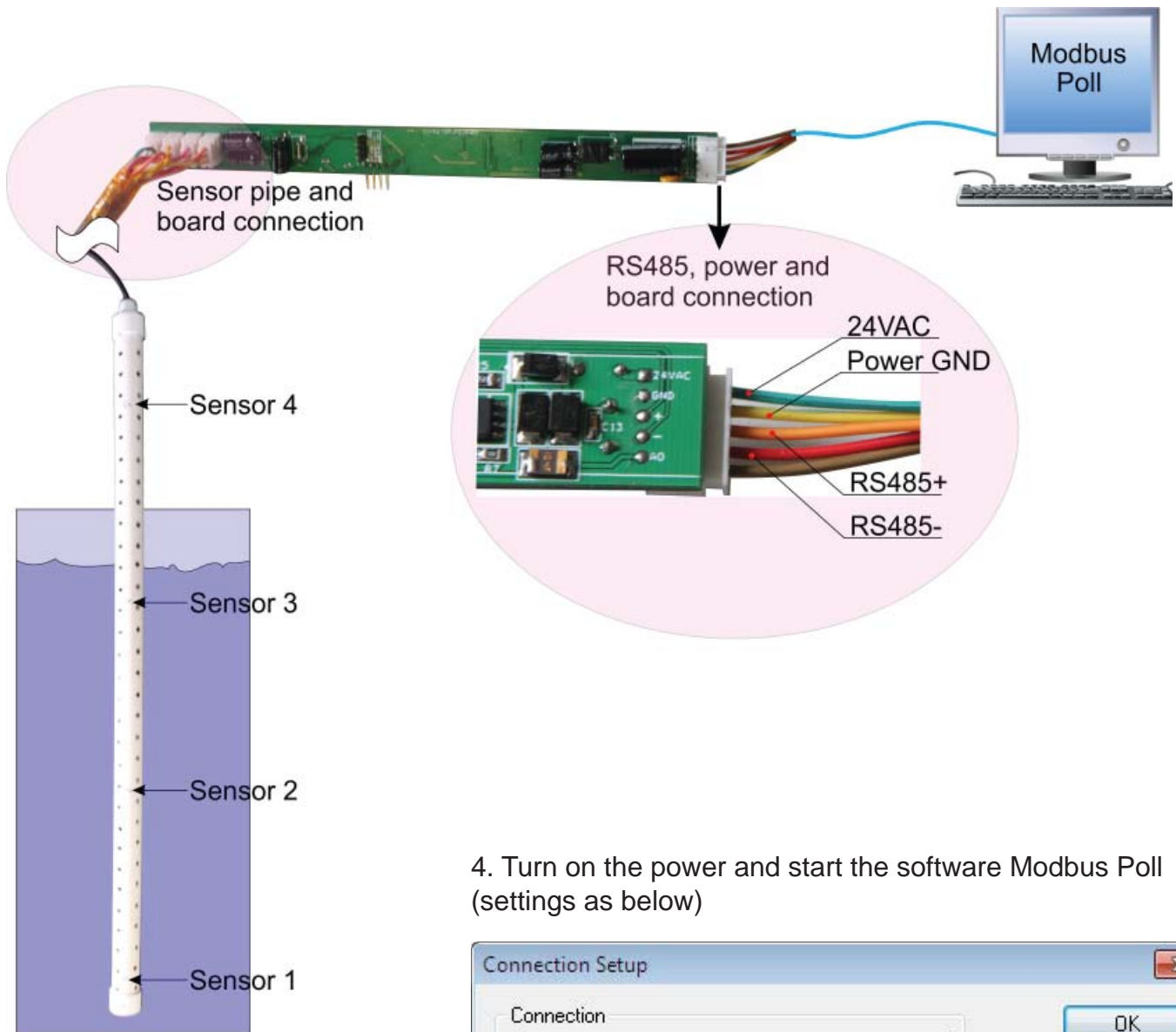
Here following the procedure to explain how to connect this unit to a computer and read using Modbus Poll software.

sensor 1   sensor 2   sensor 3   sensor 4
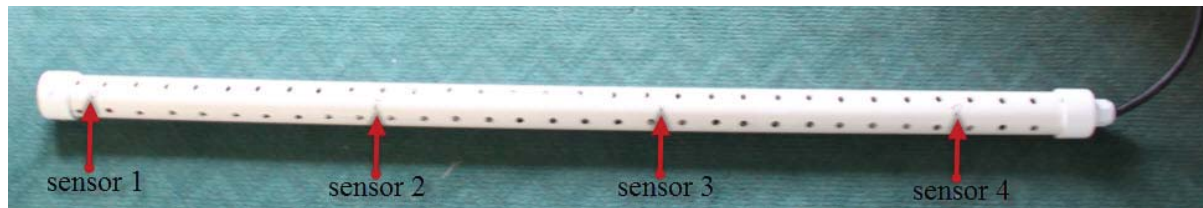
2. Plug in the four sensor wire connectors to the board. There are three wires in each connector, two wires with the same color are the sensor where the third one is the ground.
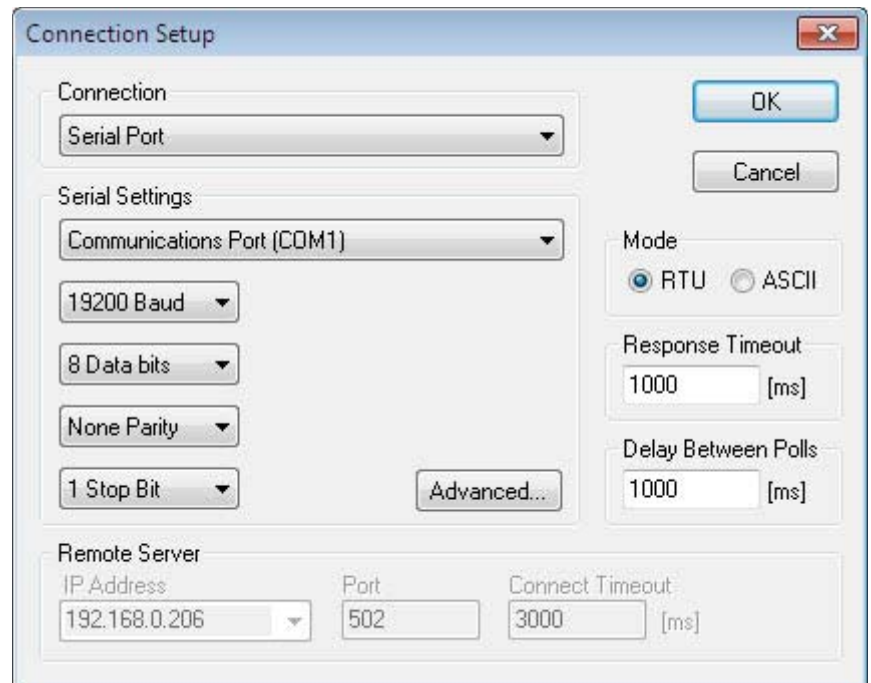

White
Yellow
Pink
Orange
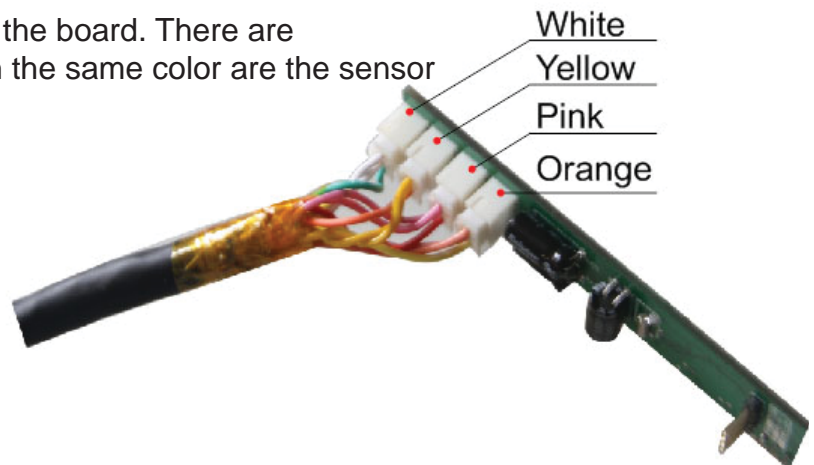
3. There are four conductors, 2 conductors for power and 2 for communications RS485. Connect the wires to PC using the USB-RS485(provided)

Modbus Poll

Sensor pipe and board connection

RS485, power and board connection

24VAC
Power GND
RS485+
RS485-

Sensor 4

Sensor 3

Sensor 2

Sensor 1

Sensor 1,2,3 submerge into water

4. Turn on the power and start the software Modbus Poll (settings as below)

Connection Setup

Connection
Serial Port

Serial Settings
Communications Port (COM1)
19200 Baud
8 Data bits
None Parity
1 Stop Bit   Advanced...

Remote Server
IP Address   Port   Connect Timeout
192.168.0.206   502   3000   [ms]

OK
Cancel

Mode
⦿ RTU   ⦾ ASCII

Response Timeout
1000   [ms]

Delay Between Polls
1000   [ms]

5. Insert the pipe in the liquid environment, when the sensor 1 is submerged, the value on register 160 will change from 0 to 1. When sensor 2 is submerged, register 161 will change from 0 to 1. Same for sensor 3 and sensor 4. The result is displayed as below on the screen shot.

Modbus Poll - [Mbpoll1]

File   Edit   Connection   Setup   Functions   Display   View   Window   Help

05 06 15 16 22 23 101

Tx = 131304: Err = 355: ID = 255: F = 03: SR = 1000ms
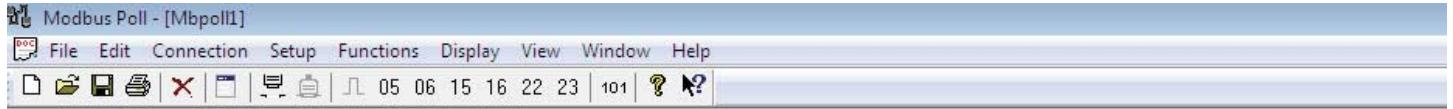
	00100	00110	00120	00130	00140	00150	00160	00170	00180	00190
0	0	0	0	1	1	0	1	1	1	1
1	1	1	62	1	1	0	1	1	1	1
2	0	1	0	1	1	1	1	1	1	1
3	0	1	4	1	1	1	0	1	1	1
4	0	1	0	1	1	1	1	1	1	1
5	0	1	1000	1	1	1	1	1	1	1
6	0	1	0	1	1	1	1	1	1	1
7	0	1	0	1	1	1	1	1	1	1
8	0	1	0	1	1	1	1	1	1	1
9	0	1	0	1	1	1	1	1	1	1