

TS210 THERMISTOR STRING

QUICK START GUIDE



Figure 1: NexSens TS210 Thermistor String.

Overview

The NexSens TS210 Thermistor String features a series of connected sensors containing integral titanium thermistors secured in protective housings. Each sensor is accurate to $\pm 0.075^{\circ}\text{C}$. Readings stabilize within 60 seconds due to the thermistors direct contact with water. Temperature data is transmitted on a RS-485 Modbus RTU string bus for integration with data loggers and SCADA systems. The sensors are connected via marine-grade cable with a braided Kevlar core and can be suspended vertically in a water column or horizontally along a stream or riverbed. The string is powered by 4-28 VDC for operation on a 12 or 24 VDC power supply.

What's Included

- (1) TS210 thermistor string
- (1) Calibration certificate

Sensor Information

Power: 5-24 VDC

Protocol: Modbus-RTU

Baud Rate: 19200

Parity: N81

Default Starting Address: 1*

Format: Big Endian

Timeout: 500 ms

*On a TS210 string, the nodes will be addressed in increasing numerical order.

Table 1: Modbus-RTU Register Information

Function 0x04 (Read input registers)			
Registers	Data Type	Data Size	Purpose
0x0006,0x0007	Float	2 Registers	Requests the temperature recorded in $^{\circ}\text{C}$

Ex. 01, 04, 00, 06, 00, 02, 91, CA

- Requests the temperature reading from address 1.

Table 2: Wiring Table for UW-FLxR Cable

Receptacle Pin	Wire Color	TS210 Signal
1	Green	RS485-A
2	Blue	RS485-B
3	Brown	Pass-Through
4	Red	12VDC
5	White	Pass-Through
6	Yellow	Pass-Through
7	Black	GND
8	Orange	Pass-Through

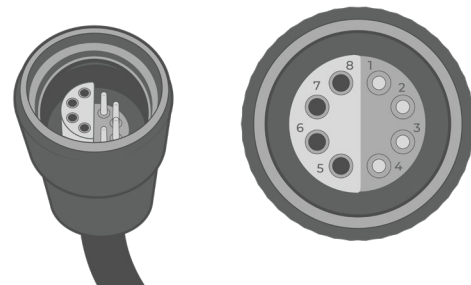


Figure 2: UW-FLxR receptacle cable pinout.

Note: The UW-Receptacle to flying lead cable is a separate accessory that may be purchased for integration with a third-party Modbus controller. It is not needed to connect the temperature string to a NexSens X2-Series data logger.

NexSens Data Logger Connection

- ① Setup your data logger on WQData LIVE by:
 - a. Following the included data logger quick start guide with your order.
 - b. Visiting the NexSens Knowledge Base
 - nexsens.com/knowledge-base-v2

- ② Plug the string into an open sensor port on the data logger for autodetection.

- ③ After the next logger reading:
 - a. Confirm that all temperature nodes on the string have been recognized.
 - b. Ensure that each show valid temperature readings.
 - c. Gather a few readings before deployment.

IMPORTANT - BEFORE FIELD DEPLOYMENT: Ensure to connect a UW-plug on the last node of the string to prevent water intrusion.

For additional information, please reference the TS210 Resource Library on the NexSens Knowledge Base.

nexsens.com/ts210kb