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Conductivity Sensors

Overview:

Conductivity sensors can be installed down a groundwater bore, directly in the river or in a pump rig. The sensor element needs to be installed in such a way as it can be easily removed for calibration / sensor replacement. Ongoing routine calibrations are required every three months to keep the sensor reading correctly. Conductivity requires temperature

Check data:

At a minimum shall be collected once a month. This can be in conjunction with a SOE run. When collecting check data, the conductivity needs to be tested in the field with a calibrated meter (E.g. YSI Pro). The conductivity changes with storage and transport, so samples can not be tested by a laboratory. Handheld meters require calibration on the day of testing.

Calibration & Data Processing:

Please refer to sections 11.23 & 11.43 of this manual.

Installation of WTW conductivity Sensors:

We have two different sensor electrodes with slightly different wiring:

Wiring: **MV3025 –Conductivity LRD325** (most pump rigs use this version)

B1	24 volt +	red	A1	Potential Electrode u1	Grey
B2	24 volt -	black	A2	Current i1 (Ring)	Pink
B3	4-20mA Sensor earth	white	A3	Current i2 (Ring)	Green
B4			A4	Potential Electrode u2	Yellow
B5	Temp 0-20mA to logger	green	A5	Thermistor NTC30K	Brown
B6	Cond 0-20mA to logger	blue	A6	Bridged to A5	
B7			A7	Thermistor NTC30K	White
B8			A8	Bridged to A7	
				Not Used (shield)	Blue

Wiring: **MV3025 –Conductivity Tetracon 325**

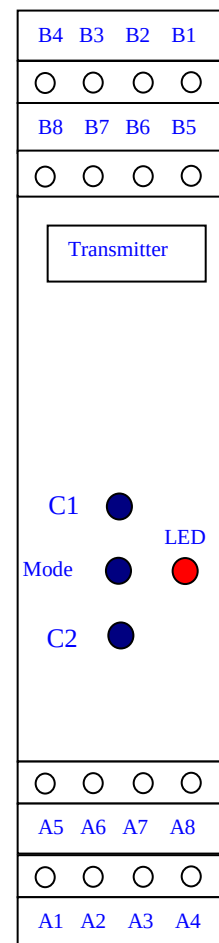
B1	24 volt +	red	A1	Potential Electrode u1	Blue
B2	24 volt -	black	A2	Current i1 (Ring)	White
B3	0-20mA Sensor earth	white	A3	Current i2 (Ring)	Grey
B4			A4	Potential Electrode u2	Pink
B5	Temp 0-20mA to logger	green	A5	Thermistor NTC30K	Brown
B6	Cond 0-20mA to logger	blue	A6	Bridged to A5	
B7			A7	Thermistor NTC30K	Yellow
B8			A8	Bridged to A7	
				Not Used (shield)	Green

- Note: The terminal numbering on the top and bottom of the transmitter are not logical. The top is numbered B4, B3, B2, B1. The Bottom is A1, A2 A3, A4.
- Note: Require a 24 volt DC power supply.

Horizons Standard settings:

Controller outputs: 0 – 20 mA

Measured Value: Conductivity: 0 – 2000 μ S Temperature 0 – 50 degrees



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Configuring the Conductivity Transmitter: (MV3025)

Connect to the transmitter using the serial to RS232 (headphone) socket. Start up the DinModule Software: (\\Hydrology\\Hydrology Sites\\General Site Information\\Software\\Programs\\DinModule\\DinModule.exe).

Click on the [Setup Measurement] button and assign a default logging file. (Any file will do).
Click [Configuration]

Configure the sensor as follows:

Controller output: 0 – 20 mA

Measured Value: Conductivity

Measurement Range: 2000 μ S

Measured Value: Temperature

Measured Range: 0 – 50 degrees

Note it is possible to calibrate these sensors without a laptop, so it is best to setup this feature at the time of installation.

C1: Set to Solution 148 μ S

C2: Set to Solution 1413 μ S

*Refer to calibration section 11.22 of this manual for calibration procedures.

Logger:

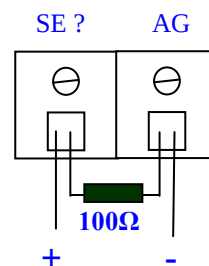
The transmitter does not require an optical isolator. Take care to get the polarity correct when wiring the 0-20 mA output into the logger.

Logger wiring Conductivity:

Positive from the controller output (B6) to the logger SE port.

Negative from the controller output (B3) to the logger AG port

100 ohm resistor bridge between the SE port and AG.



Logger wiring Conductivity Temperature:

Positive from the controller output (B5) to the logger SE port.

Negative from the controller output (B3) to the logger AG port

100 ohm resistor bridge between the SE port and AG.

Logger code:

1: Volt (SE) (P1) ; -WTW Cond (0 - 20 mA)

1: 1 Reps

2: 5 2500 mV Slow Range

3: ? SE Channel -Channel as per the logger

4: 8 Loc [CT_Now]

5: 1.0 Multiplier

6: 0.0 Offset

2: Volt (SE) (P1) ; -WTW Cond Temperature (0 - 20 mA)

1: 1 Reps

2: 5 2500 mV Slow Range

3: ? SE Channel -Channel as per the logger

4: 8 Loc [CT_dg_Now]

5: 0.025 Multiplier

6: 0.0 Offset