pH Sensors

Overview:
pH sensors can be installed 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. The pH electrodes have a limited usable life of around two years. Ongoing routine calibrations are required every three months to keep the sensor reading correctly.

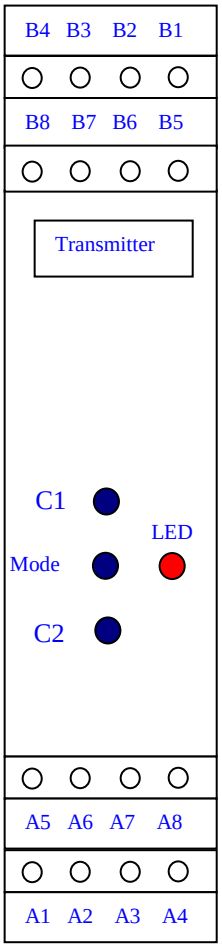
Check data:
At a minimum shall be collected once a month. This can be in conjunction with a SOE run. When collecting check data, the pH needs to be tested in the field with a calibrated meter (E.g. YSI Pro). The pH changes with storage and transport, so samples can not be tested by a laboratory. Handheld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

Calibration & Data Processing:
Please refer to sections 11.22 & 11.42 of this manual.

Installation of Wedgewood pH Sensors:
The sensor itself has a 25 mm threaded connection and fits standard 25 mm pipe fittings. The standard cable has a plug which plugs directly onto the sensor allowing for easy replacement and calibration.

Wiring: MV3010 –pH

B1	**24 volt +**	**red**	**A1**	**Screen**	
B2	**24 volt -**	**black**	**A2**	**Measuring Electrode**	**black**
B3	**4-20mA earth**	**green**	**A3**	**Guard**	
B4			**A4**	**Reference Electrode**	**black**
B5	**Temp 4-20mA to logger**		**A5**	**Bridged to A6**	
B6	**pH 4-20mA to logger**	**black**	**A6**	**Thermistor NTC30K**	**Green**
B7			**A7**	**Thermistor NTC30K**	**White**
B8			**A8**	**Thermistor NTC30K**	**Yellow**
				Not used(Power for 4-20mA)	**Brown**



- 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 output: 0 – 20 mA
Measured Value: pH
Measurement Range: 0 – 14
Logger Multiplier: 0.007
Logger Offset: 0.000

pH Sensors

Configuring the pH Transmitter: (MV3010)
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]

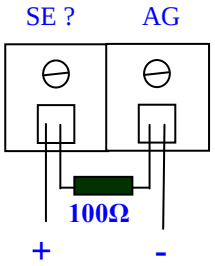
Configure the sensor as follows:
Controller output: 0 – 20 mA
Measured Value: pH
Measurement Range: 0 – 14

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 buffer 4.00
C2: Set to buffer 7.00
*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:
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 code:

```
25:  Volt (SE) (P1) ;                          -WTW pH (0 - 20 mA)
 1: 1       Reps
 2: 5       2500 mV Slow Range
 3: ?       SE Channel                  -Channel as per the logger
 4: 8       Loc [ pH_Now    ]
 5: 0.007   Multiplier
 6: 0.0     Offset
```