

Leveline

Water Level • Temperature • Conductivity • Salinity
Full range now in titanium



 **AQUAREAD**
water monitoring instruments

Leveline® - Community Trade Mark Registration No. 011713823

Leveline-CTD® - Community Trade Mark Registration No. 0161873380

LevelLine

Self contained water level and temperature logger with replaceable battery

The LevelLine is a self-contained data-logging device that records water level and temperature continuously during its deployment. It features a highly accurate pressure sensor and a temperature thermistor, which are powered for up to 10 years by an internal 3.6V lithium battery.

Discover LevelLine

Explore the LevelLine's key features:

Set up Options

Use PC or GPS LevelLine Meter
Planned start date / duration
Logging rate
Event trigger levels & rate
GPS deployment coordinates

Corrosion Resistant

Rugged titanium body
for corrosion resistance

Market Leading Internals

500,000 data set logging memory
10 recordings per second
Fastest logging rate

Tough

Delrin Nose Cone



High Accuracy

Highly accurate pressure and
temperature sensors
Various depth ratings available
up to 100m

Comms

USB cable

SDI-12 / Modbus direct output
QuickDeploy Key to start logger
GPS LevelLine Meter connection

Telemetry available

Discreet telemetry system
available for concealed deployments

Years of Battery Life

Internal lithium battery for up to 10 years operation
Battery is replaceable when expired
Not enough? Then use external 6-24v power supply from
batteries or solar panel

Capture the water level data as quickly as 10 times per second and store up to 500,000 data records on the instrument's built-in memory. All this technology is neatly sealed within a small, corrosion resistant, titanium housing (22 x 186mm) that can be deployed to measure either absolute pressure (ABS, non vented) or gauge pressure (GAUGE, vented) to depths of up to 100m.

See back pages for Sensor Specifications

LevelLine Deployment Examples

ABSOLUTE



GAUGE



TELEMETRY



REALTIME



LevelLine-Mini

Water level and temperature SDI-12 sensor

LevelLine-Mini

This mini water level and temperature sensor is also 22mm diameter and is made from the same corrosion resistant titanium as the larger LevelLine.

It outputs directly in SDI-12 or Modbus (RS-485) meaning you can connect it to any SDI-12 ready logging device as well as our AquaTelemetry system. It has no internal power or memory, it's simply a sensor that will send data to your chosen logging device.

The LevelLine-Mini is available as either gauge or absolute versions.

LevelLine-Mini Features:

- Corrosion resistant titanium body
- Features a Delrin nose cone
- Uses the same Piezoresistive pressure sensor found in the LevelLine for highest accuracy
- Impressive accuracy of 0.05% FS
- Various cable lengths available to suit every deployment
- SDI-12 / Modbus output as standard
- Sensors come with a 2 year warranty



LevelLine & LevelLine-Mini

Mechanical Specification

| | LevelLine (Gauge & Abs) | LevelLine-Mini |
|----------------------|-----------------------------|-----------------------------|
| Dimensions (L x Dia) | 186 x 22mm | 87 x 22mm |
| Material | Titanium | Titanium |
| Memory and battery | Yes | No |
| Output options | SDI-12, Modbus, Proprietary | SDI-12, Modbus, Proprietary |

LevelLine Accessories

Accessories designed to make your monitoring project simpler

GPS LevelLine Meter

Embed the LevelLine's GPS Coordinates using the GPS LevelLine Meter

The hand-held GPS LevelLine Meter takes the features of the QuickDeploy key and builds on them:

- Embed the GPS coordinates in the LevelLine's memory as it is deployed, so that it appears as part of the dataset upon retrieval
- Download data from multiple LevelLine loggers
- Full on-site logger set up, data retrieval / storage
- Make deployment changes in the field
- View live level data; ideal for pumping situations
- Measure barometric air pressure and add a salinity value for auto compensation
- View live level, conductivity, salinity and temperature when used with a LevelLine-CTD
- Calibrate the conductivity using a custom calibration value when used with a LevelLine-CTD



See exactly where the LevelLine logger came from, in Google Earth with the completely unique GPS embedding feature

There are various other accessories available for the LevelLine such as desiccant housings for use with vented cables and special cable adapters allowing direct connection to telemetry devices



QuickDeploy Key

Simply plug the QuickDeploy key into the logger's connector as the unit is deployed to:

- Zero the depth sensor to measure absolute depth from the start
No need for any data correction during the analysis stages after the deployment saving you time and simplifying the analysis process
- Initiate your pre-programmed logging scheme at the exact instant of deployment and check the battery and memory levels are ok

Use the LED indicator as a final sanity check for both battery and memory it could save you from a costly failed deployment

LevelLine-EWS

Early flood warning system for the whole community, utilising simple SMS messaging

The LevelLine-EWS system is an automated alert system that will notify you of rising water levels any time of the day or night via SMS, giving you vital time to safeguard any assets that may be at risk from flooding



LevelLine-EWS deployed along a shallow riverside

LevelLine-EWS

This cost effective and extremely simple system requires no regular maintenance and no annual subscriptions. The water level sensor measures changes in water level and temperature and the telemetry device will send SMS alerts to up to 50 phone mobile numbers when pre-set alert levels are reached.

You can also send the device an SMS message requesting the current level or configuration settings and receive a reply straight away, meaning you can check the level at any time of the day or night for added peace of mind.



EWS Features

- System consists of the AquaTelemetry unit and the small LevelLine-Mini, suspended on a 10m rugged cable.
- Water level measurements are logged at regular intervals, datasets sent via email once a day
- The AquaTelemetry system is held securely to the mounting point using a metal bracket - the system is tamper proof.
- Aquaread offer an installation and set up service that includes all fixings and tubing, to ensure the systems is set up effectively.
- Full training can be provided to key contacts allowing them to maintain the system and to add new contacts for alerts etc.



LevelLine-CTD

Water level and temperature logger that incorporates a 4 ring conductivity sensor

One of the questions raised when monitoring water level is, “what is causing the changes that I am recording?” Monitoring the conductivity can give an indication of the source of the water causing the water level to change. This is particularly useful in salt water intrusion studies in coastal regions.



LevelLine-CTD with nose cone fitted

LevelLine-CTD

The LevelLine-CTD incorporates our tried and tested 4 ring conductivity sensor under the extended nose cone. It includes many of the great features of the original LevelLine such as the titanium body, huge 500,000 data point memory and an internal lithium battery. The built-in conductivity sensor allows the device to calculate salinity automatically.



The LevelLine-CTD is available in both absolute and gauge versions depending on your requirements. In addition to the conductivity measurement, the device also calculates the water's salinity in real time.

The conductivity sensor on the device requires occasional calibration, this can be performed within the LevelLink software or by using the GPS LevelLine Meter. Choose your own single point concentration for calibration, its quick and simple.

LevelLine-Mini-CTD

Water level, temperature, conductivity and salinity SDI-12 sensor

LevelLine-Mini-CTD



The LevelLine-Mini-CTD adds conductivity and salinity measurements to the small SDI-12 ready sensor. Like the standard LevelLine-Mini, the CTD version is housed in a titanium body making it suitable for deployment in both fresh and salt waters. It also features the same titanium connector as the larger LevelLine loggers. The connector allows the unit to be connected to your PC or to the GPS LevelLine Meter to calibrate the conductivity sensor.

The LevelLine-Mini-CTD is available in both absolute and gauge versions. If your chosen datalogger / telemetry device includes a built-in air pressure sensor, we recommend the absolute version as the logging device can utilise the air pressure reading for compensation. If an air pressure sensor is unavailable then the gauge version is best suited for telemetric logging.

Gauge sensors require vented cables and desiccant cartridges to remove any moisture from the vent to prevent blocking and inaccurate compensation.

LevelLine-CTD & LevelLine-Mini-CTD

Mechanical Specification

| | LevelLine-CTD | LevelLine-Mini-CTD |
|----------------------|-----------------------------|-----------------------------|
| Dimensions (L x Dia) | 260 x 22 mm | 146 x 22mm |
| Material | Titanium | Titanium |
| Memory and battery | Yes | No |
| Output options | SDI-12, Modbus, Proprietary | SDI-12, Modbus, Proprietary |

LevelLine-Baro & LevelLink

Barometric compensation can be applied within the LevelLink PC application

LevelLine-Baro

The LevelLine-Baro is used to capture changes in barometric air pressure that can be used to compensate measurements collected from multiple absolute LevelLine loggers to give highly accurate level data.



One LevelLine-Baro
required for a 10km radius

Data collected from a centrally located
LevelLine-Baro can compensate multiple
absolute LevelLine loggers

LevelLink PC Application

The LevelLink PC application is used to both set up the logging regime and to analyse data post deployment. A LevelLine-PC-KIT is required for connection to your PC.

LevelLink Features

- Set up the logging regime including location ID, logging frequency, start date and duration
- Import and display data from a LevelLine, LevelLine-CTD or GPS LevelLine Meter
- Import and display data from a LevelLine-Baro
- Various compensation options including baro and salinity
- Calibrate the conductivity sensor on the LevelLine-CTD
- Export data as Google Earth file where GPS data is available
- Export data as a spreadsheet for manipulation
- Store and save data sets to your PC



Specifications

| | | LEVELINE (Abs & Gauge) | LEVELINE - BARO | LEVELINE- MINI |
|---------|-----------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| General | Temperature ranges (non freezing) | Operational: -20-80° C (-4-176° F) Storage: -40-80° C (-40-176° F) Compensated: -20-80° C (-4-176° F) | Operational: -20-80° C (-4-176° F) Storage: -40-80° C (-40-176° F) Compensated: -20-80° C (-4-176° F) | Operational: -20-80° C (-4-176° F) Storage: -40-80° C (-40-176° F) Compensated: -20-80° C (-4-176° F) |
| | Diameter | 22mm (0.866 in) | 22mm (0.866 in) | 22mm (0.866 in) |
| | Length | 186mm (7.32 in) | 186mm (7.32 in) | 87mm (3.43 in) |
| | Weight | 150g (5.3oz) | 160g (5.6oz) | 120g (4.2oz) |
| | Materials | Titanium body, Delrin nose cone | Titanium body, Delrin nose cone | Titanium body, Delrin nose cone |
| | Output options | Modbus/RS485, SDI-12, Aquaread proprietary | Modbus/RS485, SDI-12, Aquaread proprietary | Modbus/RS485, SDI-12, Aquaread proprietary |
| | Battery type & life | 3.6V lithium; up to 10 years (see note 1) | 3.6V lithium; up to 10 years (see note 1) | N/A |
| | External power | 6 - 24 VDC | 6 - 24 VDC | 6 - 24 VDC |

| | | | | |
|--------|------------------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|-----------------------------|
| Memory | Size | 8.0 MB | 2.0 MB | N/A |
| | Data Records | 500,000 | 150,000 | N/A |
| | Log types | Linear, Event & User-Selectable Schedule with Future Start, Future Stop, Deploy Start and Real Time View | Linear, Event & User-Selectable Schedule with Future Start, Future Stop, Deploy Start and Real Time View | N/A |
| | Fastest logging rate & Modbus rate | 10 per second | 1 per minute (logging) 5 per second (Modbus) | 10 per second (Modbus Rate) |
| | Fastest SDI-12 output rate | 1 per second | 1 per second | 1 per second |
| | Real-time clock | Accurate to 1 second/24-hr period (± 6 minutes/year) | Accurate to 1 second/24-hr period (± 6 minutes/year) | N/A |

| | | | | | | | |
|-----------------|-------------------------------|--------------------------------------------------------------------------------------------------------------|----------------------------------|------------------------------------------------------------------------------------------|--|--------------------------------------------------------------------------------------------------------------|----------------------------------|
| Pressure Sensor | Type / Material | Piezoresistive; ceramic | | Piezoresistive; ceramic | | Piezoresistive; ceramic | |
| | Range (Absolute) | 10.0m (32.8 ft) 50.0m (164 ft), | 20.0m (65.6 ft) 100m (326 ft) | 0 to 16.7 psi; 0 to 1.15 bar | | 10.0m (32.8 ft) 50.0m (164 ft), | 20.0m (65.6 ft) 100m (326 ft) |
| | Range (Gauge) | 10.0m (32.8 ft) 50.0m (164 ft), | 20.0m (65.6 ft) 100m (326 ft) | N/A | | 10.0m (32.8 ft) 50.0m (164 ft), | 20.0m (65.6 ft) 100m (326 ft) |
| | Maximum pressure | Max 2x range, Burst 2.5x range | | Max 2x range, Burst 2.5x range | | Max 2x range, Burst 2.5x range | |
| | Accuracy @ 15° C (see note 2) | ±0.05% FS | | ±0.1% FS | | ±0.05% FS | |
| | Accuracy (FS) (see note 3) | ±0.1% FS | | ±0.2% FS | | ±0.1% FS | |
| | Resolution | 0.002% FS or 1mm whichever is greater | | 0.1mb | | 0.002% FS or 1mm whichever is greater | |
| | Units of measure | Pressure: mbar (psi, kPa, bar, mmHg, inHg, cmH2O, inH2O, Level: in, ft, mm, cm and m available in LevelLink) | | Pressure: mbar (psi, kPa, bar, mbar, mmHg, inHg, cmH2O and inH2O available in LevelLink) | | Pressure: mbar (psi, kPa, bar, mmHg, inHg, cmH2O, inH2O, Level: in, ft, mm, cm and m available in LevelLink) | |

| | | | | |
|--------------------|--------------|---------------------------------------------|---------------------------------------------|---------------------------------------------|
| Temperature Sensor | Accuracy | ±0.1° C | ±0.1° C | ±0.1° C |
| | Resolution | 0.01° C | 0.01° C | 0.01° C |
| | Output Units | Celsius (fahrenheit available in LevelLink) | Celsius (fahrenheit available in LevelLink) | Celsius (fahrenheit available in LevelLink) |

Notes: 1) Dependent on logging rate. 2) Across factory-calibrated pressure range at a constant temperature. 3) Across factory-calibrated pressure and temperature ranges

Specifications

| | | LevelLine-CTD | LevelLine-Mini-CTD |
|-------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| GENERAL | Temperature ranges | Operational: -20-80° C (-4-176° F) Storage: -40-80° C (-40-176° F) Compensated: -20-80° C (-4-176° F) | Operational: -20-80° C (-4-176° F) Storage: -40-80° C (-40-176° F) Compensated: -20-80° C (-4-176° F) |
| | Diameter | 22mm | 22mm |
| | Length | 260mm | 146mm |
| | Weight | 250g | 210g |
| | Materials | Titanium body, Delrin nose cone | Titanium body, Delrin nose cone |
| | Output options | Modbus/RS485, SDI-12, Aquaread proprietary | Modbus/RS485, SDI-12, Aquaread proprietary |
| | Battery type & life | 3.6V lithium; up to 10 years (see note 1) | N/A |
| | External power | 6 - 24 VDC | 6 - 24 VDC |
| MEMORY | Size | 8.0 MB | N/A |
| | Data records | 500,000 | N/A |
| | Log types | Linear, Event & User-Selectable Schedule with Future Start, Future Stop, Deploy Start and Real Time View | N/A |
| | Fastest logging rate & Modbus rate | 1 per second | 1 per second |
| | Fastest SDI-12 output rate | 1 per second | 1 per second |
| | Real-time clock | Accurate to 1 second/24-hr period (± 6 minutes/year) | N/A |
| SENSOR | Type / Material | Piezoresistive; ceramic | Piezoresistive; ceramic |
| | Range (Gauge & Absolute) | 10.0M (32.8 ft) 50.0M (164 ft), 20.0M (65.6 ft), 100M (326 ft) | 10.0M (32.8 ft) 50.0M (164 ft), 20.0M (65.6 ft), 100M (326 ft) |
| | Maximum pressure | Max 2x range, Burst 2.5x range | Max 2x range, Burst 2.5x range |
| | Accuracy @ 15° C (note 2) | ±0.05% FS | ±0.05% FS |
| | Accuracy (FS) (note 3) | ±0.1% FS | ±0.1% FS |
| | Resolution | 0.002% FS or 1mm whichever is greater | 0.002% FS or 1mm whichever is greater |
| | Units of measure | Pressure: mbar (psi, kPa, bar, mbar, mmHg, inHg, cmH2O, inH2O, Level: in, ft, mm, cm and m available in LevelLink | Pressure: mbar (psi, kPa, bar, mbar, mmHg, inHg, cmH2O, inH2O, Level: in, ft, mm, cm and m available in LevelLink |
| Electrical Conductivity | Range | 0 - 200mS/cm (0 - 200,000µS/cm) | 0 - 200mS/cm (0 - 200,000µS/cm) |
| | Resolution | 1µS | 1µS |
| | Accuracy | ± 1% reading or ±1µS whichever is greater (see note 5) | ± 1% reading or ±1µS whichever is greater (see note 5) |
| Salinity (note 4) | Range | 0 - 70 PSU / 0 - 70 ppt (g/Kg) | 0 - 70 PSU / 0 - 70 ppt (g/Kg) |
| | Resolution | 0.01PSU / 0.01 ppt | 0.01PSU / 0.01 ppt |
| | Accuracy | ±1% reading or ± 0.1 unit if greater | ±1% reading or ± 0.1 unit if greater |
| Temperature sensor | Accuracy & resolution | ±0.1° C; 0.01° C | ±0.1° C; 0.01° C |
| | Units of measure | Celsius (fahrenheit available in LevelLink) | Celsius (fahrenheit available in LevelLink) |
| Warranty | Standard | 5 years on LevelLine and LevelLine-CTD | 2 years on all LevelLine-Mini versions |
| | Extended | Options Available | Options Available |

Notes: 1) Dependent on logging rate. 2) Across factory-calibrated pressure range at a constant temperature. 3) Across factory-calibrated pressure and temperature ranges. 4) Readings calculated from EC and temperature values. 5) At the calibration point at 25°C

A little space for your notes

Jot down the products you are interested in and give us a call to discuss your requirements on +44 (0) 1843 600 030

Notes...

AQUAREAD

water monitoring instruments



FS621752

EMS621753

Aquaread® - Community Trade Mark Registration No. 011713815
Aquaread® - Australia Trade Mark Registration No. 1436803
LevelLine® - Community Trade Mark Registration No. 011713823
Aquaprobe® - UK Trade Mark Registration No. 00003000628
Aquameter® - UK Trade Mark Registration No. 00003000627
LoggerLink® - UK Trade Mark Registration No. 3081814
LevelLine® - Community Trade Mark Registration No. 011713823
Leveline-CTD® - Community Trade Mark Registration No. 0161873380