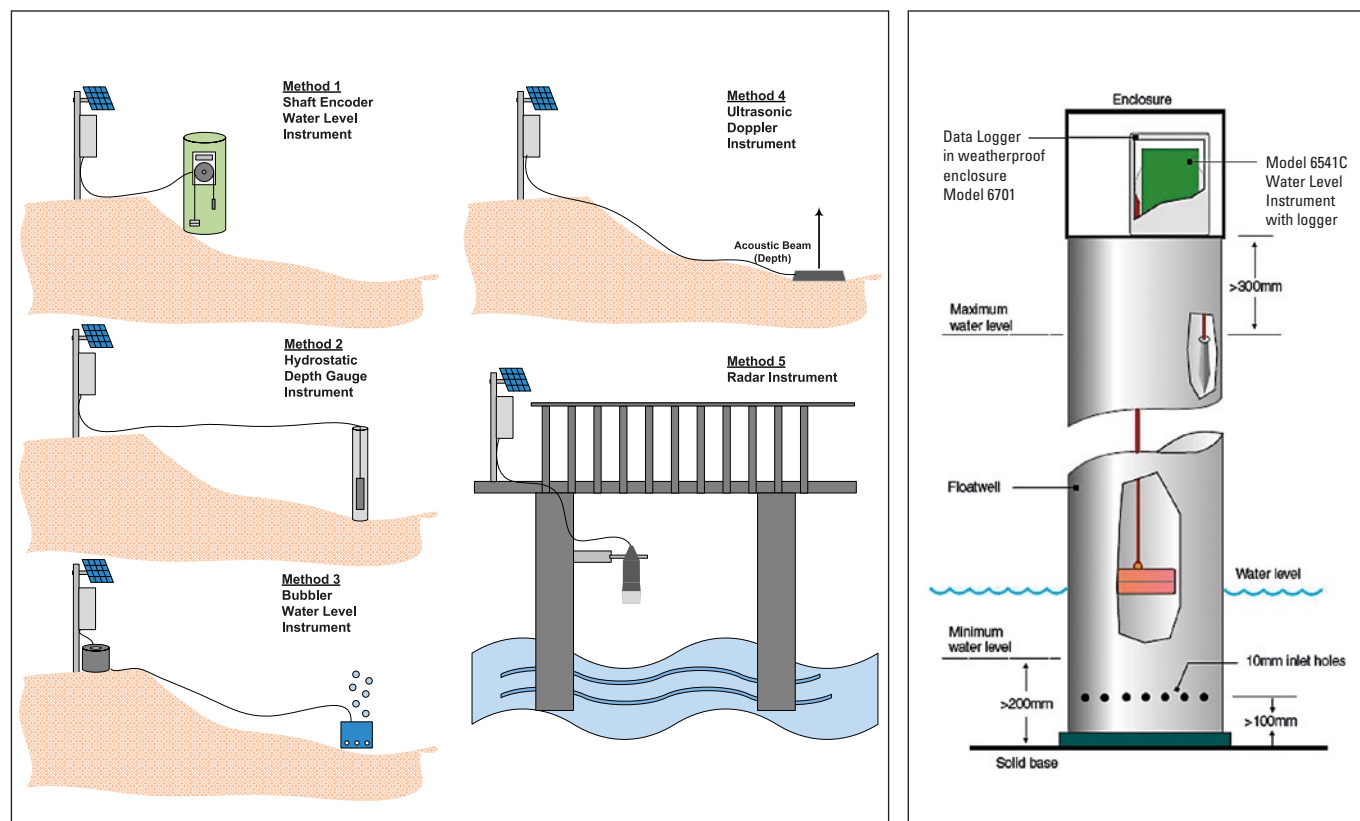


WATER LEVEL MONITORING



APPLICATION BACKGROUND

Water level can be measured using any one of the methods below:

The measurement methods include:

- **Method 1** - a still well or still pipe with a shaft encoder with a float and beaded float line system.
- **Method 2** - a pressure sensor which is immersed into the stream or river.
- **Method 3** - the more complex pressure bubbler system which allows for a small open tube to be immersed into the stream or river with a gas pump or gas cylinder to inject small bubbles into the open tube and measure water depth by measuring the back pressure required to force bubbles out of the tube in the water.
- **Method 4** - Measuring depth using Ultrasonics Doppler Instrument 6527.
- **Method 5** - Measuring depth using Radar.

There are many measuring methods available, but still the most common method is a shaft encoder float and wheel system.

This method requires a large well or a smaller pipe to be installed on the stream, river bank or on a bridge structure, to provide a stable, not disturbed by flow or wind, measurement environment.

A small float, a float line and a counter weight system will respond to depth/level changes in stream or river. That response causes rotation of the shaft of a wheel. Shaft rotation is measured very accurately by optical encoder and the data is simultaneously displayed and recorded in the data logger within the instrument.

APPLICATION DETAIL

The Unidata Model 6541 Precision Water Level instrument can achieve operating accuracy and resolution of 0.2mm. This accuracy is maintained for the service life of the instrument without calibration or maintenance, apart from battery changes.

The 6541 instrument has the range to monitor surface and underground waters, and the precision to monitor rainfall and evaporation. The very low mechanical friction and inertia of the instrument means that it can produce data with high precision and accuracy. Unidata Precision Water Level Instruments have been installed at over 5000 sites.

The power consumption of this instrument is tiny, only a few micro amps is needed to operate it, so it can be run on a single battery pack for more than a year.

The 6541 instrument is normally “connected” to the water surface by a float system. On installation, the instrument is set to display the water level. An optical encoder is mounted on the input shaft so, as the water level changes, the input shaft and encoder rotate. The rotation of the encoder is continuously monitored so the instrument tracks water level changes. These changes update the LCD display.

Choice of encoding wheel diameter, length of float line and type of float will depend on the site conditions and measurement objectives.

A Water Level Instrument can be equipped with an internal micrologger that can store measured data or connected to a Neon Remote Logger to provide a temporary store of the data until it is transmitted to a central Neon sever on a regular basis.

When connected with a Neon Remote Logger you can monitor data recorded by the instrument and check the health of the site, all from a web browser on the internet.

This can be done over cellular or satellite communication links. Using telemetry decreases the need for time consuming site visits.

When you use one of the telemetry options you may need to provide external power such as a solar panel, external battery, and regulator.





TYPICAL CONFIGURATION

APPLICATION SPECIFIC INSTRUMENTS/INPUTS

Options	Unidata Part Number	Description
Water Level Instrument	6541C-11	WLI with 500mm Pulley & Alk Batt Metric
Float	6541F-115	WLI Float Assembly - Cylinder 115mm (other options available)
Float Line	6541D-M	WLI Beaded Float line Metric

NEON TELEMETRY - NRL / RTU / FIELD UNITS

Options	Unidata Part Number	Description
Ethernet	3016A-000 / 3008A-000	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Ethernet & 3G/4G	3016A-C00 / 3008A-C00	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Ethernet & 3G/4G and LoRa	3016A-CLO / 3008A-CLO	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Equatorial Orbit Satellite-Inmarsat	3016A-001 / 3008A-001	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Equatorial Orbit Satellite-Inmarsat & 3G/4G	3016A-C01 / 3008A-C01	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Low Earth Orbit Satellite - Globalstar	3016A-00G / 3008A-00G	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Satellite - Iridium Short Burst Data	3016A-00R / 3008A-00R	Neon Remote Logger-16 or 8 Analog Ch / Touch Screen Display
Standalone RTU/NRL - Industrial	3004A-00 / 3004A-0L	Neon Remote Logger-4 Analog Ch with or without Touch Screen Display
Cellular RTU/NRL 3G/4G - Industrial	3004AC0 / 3004A-CL	Neon Remote Logger-4 Analog Ch with or without Touch Screen Display
M – Series Standalone RTU/NRL	3004A-M000 / 3004A-M0B0	Neon Remote Logger-4 Analog Ch with or without Li Battery
M – Series Cellular RTU/NRL 3G/4G	3004A-MC00 / 3004A-MCB0	Neon Remote Logger-4 Analog Ch with or without Li Battery
M – Series LoRa RTU/NRL	3004A-ML00 / 3004A-MLB0	Neon Remote Logger-4 Analog Ch with or without Li Battery
M – Series Ethernet RTU/NRL	3004A-MEBL	Neon Remote Logger-4 Analog Ch, Li Battery & LCD are optional
M – Series Microsatellite RTU/NRL	3004A-MHBL	Neon Remote Logger-4 Analog Ch, Li Battery & LCD are optional
M – Series Iridium Short Burst Data RTU/NRL	3004A-MIBL	Neon Remote Logger-4 Analog Ch, Li Battery & LCD are optional

NEON APPLICATION SOFTWARE - CUSTOMER SERVER

Options	Unidata Part Number	Description
Neon Applications Software	2302A	Neon Server Software Licence Incl 5 NAL
Neon Applications Software	2302A-10	Additional 10 NRT Access Licence
Neon Applications Software	2302A-20	Additional 20 NRT Access Licence
Neon Applications Software	2302A-50	Additional 50 NRT Access Licence

NEON HOSTING SERVICE - UNIDATA SERVER

Options	Unidata Part Number	Description
Neon Hosting Service	2301A	Neon Data Initial Subscription Setup Fee
Neon Hosting Service	2301A-01	Neon Data Service Fee for 1-50 NRT
Neon Hosting Service	2301A-02	Neon Data Service Fee for 51-100 NRT
Neon Hosting Service	2301A-10	Neon Data Service Fee Metering

DATALOGGER MANAGEMENT SOFTWARE

Options	Unidata Part Number	Description
Starlog V4 Management Software	6308A-AUE	STARLOG V4 Full Licence Key