



AquaPlus Package

optical dissolved oxygen • conductivity • TDS
• SSG • resistivity • salinity • temperature

Optical Dissolved oxygen water quality monitoring package

Combined optical dissolved oxygen, conductivity and temperature sensor for portable field use. Package comes complete with 3m cable, GPS meter and carry case

Why Optical?

Traditionally, DO measurement in portable field equipment has been done using membrane covered detectors known as Clark Cells. This type of cell suffers from problems including membrane fouling, calibration instability and worst of all, oxygen consumption. During measurement, a Clark Cell will consume oxygen making it necessary to have a constant flow of water over the cell.

Optical technology eliminates all these problems allowing high precision, membrane-free, long-term stability along with infrequent calibration and immunity to fouling by sulphides and other gases.

The Aquaread AquaPlus is the only Optical DO system that measures salinity directly. This allows for automatic salinity compensation giving you the highest accuracy in any type of water.

The Tech Behind AquaPlus

The Aquaread AquaPlus works on the principle of Dynamic Luminescence Quenching. A gas-permeable material known as a luminophore is excited with short bursts of blue light, which causes molecules in the luminophore to emit red photons. By measuring the delay of the returned red photons with respect to the blue excitation, the level of dissolved oxygen present can be determined.

AquaPlus Mechanical Specification

Protection Class	IP68 (permanent immersion)
Immersion Depth	Min 75mm. Max 100m**
Operating Temperature	-5 °C - +70 °C
Dimensions (L x Dia)	250mm x 24mm
Weight	400g

AquaPlus with the sleeve removed reveals the combined dissolved oxygen, conductivity & temperature sensors. The end cap is replaceable however you can expect more than 2 years life from one cap

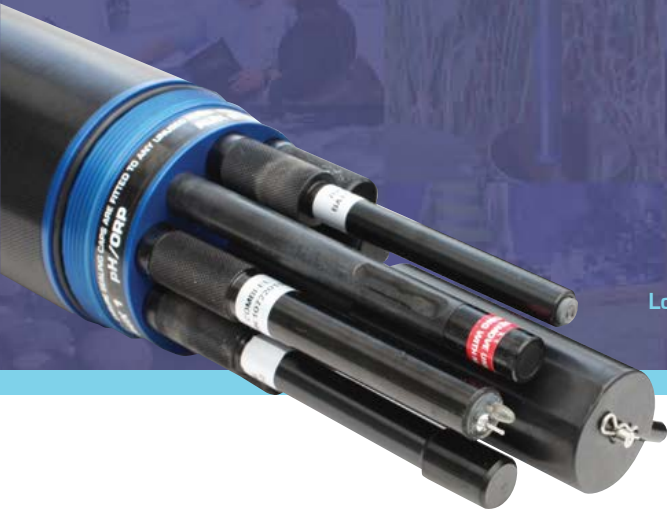


**100m submersion for period of 1 week, 30m submersion suitable for permanent deployment.

AP-7000 Aquaprobe Package

pH • ORP • conductivity • TDS • SSG • resistivity • salinity
• optical dissolved oxygen • temperature • depth

Long term monitoring made easy with the AP-7000's effective self cleaning system



Record up to 17 water quality parameters
over long periods of unmanned monitoring using the AP-7000

AP-7000 Package

The AP-7000 comes pre-loaded with a selection of sensors:

pH • ORP • conductivity • TDS • SSG • Res • salinity
• optical dissolved oxygen • temperature • depth

See back pages for Sensor Specifications

Package comes complete with Aquaprobe, GPS Aquameter, 3m cable
and accessories. Various cable lengths are available;
10, 20 and 30m as standard

There are an additional 6 ports allowing you to add much more:



All 6 Aux ports can be fitted with either an
optical sensor or an ISE from the list below

ISE Electrode Options:

Ammonium / Ammonia,
Chloride,
Nitrate,
Fluoride,
Calcium.

Optical Electrode Options:

Turbidity,
Chlorophyll,
Blue Green Algae,
Rhodamine,
Fluorescein,
Refined Oil,
CDOM / FDOM.

Aquaprobe PC KIT available

You are now able to connect your Aquaprobe direct to your
PC Via the Aquaprobe PC-KIT's USB interface. Using the
provided software you can take live readings, log data direct
to your hard drive and calibrate probes with fully recorded
calibration reports



AP-7000 Aquaprobe Package

pH • ORP • conductivity • TDS • SSG • resistivity • salinity
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Long term monitoring made easy with the AP-7000's effective self cleaning system

AP-7000 Self Cleaning System

Easy and cost effective to maintain

The self cleaning system on the AP-7000 cleans every sensor installed on the probe including pH and conductivity. Over time the brushes can become fouled particularly during long deployments so the wiper arm is designed to be easily removed for quick and simple brush replacement:

Top right: Remove the pin from the top of the cleaning arm

Right: Slide out the cleaning arm

Bottom right: slide out the brushes and quickly replace



Various Logging options

See next page for more details on logging options

GPS Aquameter



AquaLogger-7000



BlackBox



AP-7000 Mechanical Specification

Protection Class	IP68 (permanent immersion)
Immersion Depth	Min 75mm. max 100m *
Operating Temperature	-5 °C - +70 °C
Dimensions (L x Dia)	440mm x 77mm
Weight	1350g

* 100m submersion for period of 1 week, 30m submersion suitable for permanent deployment, depth measurement up to 100m.

Water Quality Specifications

Standard Parameters	Dissolved Oxygen	Range	0 – 500.0% / 0 – 50.00 mg/L
		Resolution	0.1% / 0.01mg/L
		Accuracy	0 - 200%: ± 1% of reading, 200% - 500%: ± 10%
	Depth AP-2000/ AP-5000	Range	± 0 – 60.00 m (60m max displayed depth, max probe immersion 100m)
		Resolution	1cm
		Accuracy	± 0.5% FS
	Depth AP-7000	Range	± 0 – 99.99 m
		Resolution	1cm
		Accuracy	± 0.2% FS
	Conductivity (EC)	Range	0 – 200 mS/cm (0 - 200,000 µS/cm)
Resolution		3 Auto-range scales: 0 – 9999 µS/cm, 10.00 – 99.99 mS/cm, 100.0 – 200.0mS/cm	
Accuracy		± 1% of reading	
TDS*	Range	0 – 100,000 mg/L (ppm)	
	Resolution	2 Auto-range scales: 0 – 9999mg/L, 10.00 – 100.00g/L	
	Accuracy	± 1% of reading	
Resistivity*	Range	5 Ω • cm – 1 MΩ • cm	
	Resolution	2 Auto-range scales: 5 – 9999 Ω • cm, 10.0 – 1000.0 KΩ • cm	
	Accuracy	± 1% of reading	
Salinity*	Range	0 – 70 PSU / 0 – 70.00 ppt (g/Kg)	
	Resolution	0.01 PSU / 0.01 ppt	
	Accuracy	± 1% of reading	
Seawater Specific Gravity*	Range	0 – 50 ot	
	Resolution	0.1 ot	
	Accuracy	± 1.0 ot	
pH	Range	0 – 14 pH / ± 625mV	
	Resolution	0.01 pH / ± 0.1mV	
	Accuracy	± 0.1 pH / ± 5mV	
ORP	Range	± 2000mV	
	Resolution	0.1mV	
	Accuracy	± 5mV	
Temperature (non freezing)	Range	-5°C – +50°C (23°F – 122°F)	
	Resolution	0.01°C / 0.1°F	
	Accuracy	± 0.5 °C	

* Readings calculated from EC and temperature electrode values

ISE	Ammonium	Range	0 – 9,000mg/L (ppm)
		Resolution	2 Auto-range scales: 0.00 - 99.99 mg/L, 100.0 – 8,999.9 mg/L
		Accuracy	± 10% of reading or 2ppm (whichever is greater)
	Ammonia [†]	Range	0 – 9,000mg/L (ppm)
		Resolution	2 Auto-range scales: 0.00 - 99.99 mg/L, 100.0 – 8,999.9 mg/L
		Accuracy	± 10% of reading or 2ppm (whichever is greater)
	Chloride	Range	0 – 20,000mg/L (ppm)
		Resolution	2 Auto-range scales: 0.00 - 99.99 mg/L, 100.0 – 19,999.9 mg/L
		Accuracy	± 10% of reading or 2ppm (whichever is greater)
	Fluoride	Range	0 – 1,000mg/L (ppm)
Resolution		2 Auto-range scales: 0.00 - 99.99 mg/L, 100.0 – 999.9 mg/L	
Accuracy		± 10% of reading or 2ppm (whichever is greater)	
Nitrate	Range	0 – 30,000mg/L (ppm)	
	Resolution	2 Auto-range scales: 0.00 - 99.99 mg/L, 100.0 – 29,999.9 mg/L	
	Accuracy	± 10% of reading or 2ppm (whichever is greater)	
Calcium	Range	0 – 2,000mg/L (ppm)	
	Resolution	2 Auto-range scales: 0.00 - 99.99 mg/L, 100.0 – 1,999.9 mg/L	
	Accuracy	± 10% of reading or 2ppm (whichever is greater)	

† Ammonium electrode required. Readings calculated from ammonium, pH and temperature values.

Optical	Turbidity	Range	0 – 3000 NTU
		Resolution	2 Auto-range scales: 0.0 - 99.9 NTU, 100 - 3000 NTU
		Accuracy	± 5% of auto-ranged scale
	Chlorophyll	Range	0 – 500.0 µg/L (ppb)
		Resolution	2 Auto-range scales: 0.00 - 99.99 µg/L, 100.0 - 500.0 µg/L
		Repeatability	± 5% of reading
	Phycocyanin (freshwater BGA)	Range	0 – 300,000 cells/mL
		Resolution	1 cell/mL
		Repeatability	± 10% of reading
	Phycerythrin (marine BGA)	Range	200 cells/mL
Resolution		1 cell/mL	
Repeatability		± 10% of reading	
Rhodamine WT Dye	Range	0 – 500 µg/L (ppb)	
	Resolution	2 Auto-range scales: 0.00 - 99.99 µg/L, 100.0 - 500.0 µg/L	
	Accuracy	± 5% of reading	
Fluorescein Dye	Range	0 – 500 µg/L (ppb)	
	Resolution	2 Auto-range scales: 0.00 - 99.99 µg/L, 100.0 - 500.0 µg/L	
	Accuracy	± 5% of reading	
Refined Oil	Range	0 – 10,000 µg/L (ppb) (Napthalene)	
	Resolution	0.1 µg/L	
	Repeatability	± 10% of reading	
CDOM / FDOM	Range	0 – 20,000 µg/L (ppb) (Quinine Sulphate)	
	Resolution	2 Auto-range scales: 0.0 – 9,999.9 µg/L, 10,000 – 20,000 µg/L	
	Repeatability	± 10% of reading	

The accuracy figures quoted throughout this document represent the equipment's capability at the calibration points at 25°C. These figures do not take into account errors introduced by variations in the accuracy of calibration solutions and errors beyond the control of the manufacturer that may be introduced by environmental conditions in the field. Accuracy in the field is also dependent upon full calibration and minimal time between calibration and use.

Water Level 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	22.2mm (0.875 in)	22.2mm (0.875 in)	22.2mm (0.875 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	Stainless Steel body, Delrin nose cone	Stainless Steel 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; 10 years or 5M readings	3.6V lithium; 10 years or 5M readings	N/A
	External power	6 - 30 VDC	6 - 30 VDC	6 - 30 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), 200m (656 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), 200m (656 ft)
	Range (Gauge)	10.0m (32.8 ft) 50.0m (164 ft), 200m (656 ft)	20.0m (65.6 ft) 100m (326 ft)	N/A	N/A
	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 1)	±0.05% FS		±0.1% FS	±0.05% FS
	Accuracy (FS) (See note 2)	±0.1% FS		±0.2% FS	±0.1% FS
	Resolution	0.005% FS or 1mm whichever is greater		0.1mb	0.005% FS or 1mm whichever is greater
	Units of measure	Pressure: psi, kPa, bar, mbar, mmHg, inHg, cmH2O, inH2O, Level: in, ft, mm, cm, m		Pressure: psi, kPa, bar, mbar, mmHg, inHg, cmH2O, inH2O.	Pressure: psi, kPa, bar, mbar, mmHg, inHg, cmH2O, inH2O, Level: in, ft, mm, cm, m

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	Celsius	Celsius

Notes: 1) Across factory-calibrated pressure range at a constant temperature. 2) Across factory-calibrated pressure and temperature ranges