Manta+™ Multiprobe Specifications

	Trimeter	Manta+20	Manta+25	Manta+30	Manta+35	Manta+40
Diameter	1.85"	1.95"	2.45"	2.95"	3.5"	4.00"
Length - w/o Battery Pack	13.5"	19"	19"	19"	19"	19"
- Add Internal Battery Pack	22"	27"	27"	27"		
Weight - with IBP	2.8 lbs	2.4 lbs	2.5 lbs	5.0 lbs	9.0 lbs	10.0 lbs
- without battery	2.2 lbs	1.8 lbs	2.2 lbs	3.6 lbs	5 lbs	6.2 lbs
Number of sensors	Any single sensor plus depth and temp option	Up to 6	Up to 6	Up to 7	Up to 11	Up to 13
Battery Pack	3 "D"	3 "D"	3 "D"	8 "C"	6 "C"	6 "C"
Operating Temperature	-5 to 50 C					
Depth Rating	200 m, Max depth for ISE and TDG sensors is 15 meters					
Communications	RS-232, SDI-12, USB or Bluetooth					
Sample Rate	1 Hz					
Data Memory	>1,000,000 logged readings					

Amphibian2 Handheld Display

Size	3.6" W x 7.25" L x 1.5" D
Weight	1.3 lbs
Operating System	Microsoft® Windows Embedded Handheld 6.5.3
IP Rating	IP68
Memory and Data Storage	512MB RAM; 8 GB - > 8,000,000 logged readings

Sensor Specifications

sensor	parameter	range and units	resolution	accuracy	comments
temperature	temperature	-5 to 50 C	0.01	±0.1	calibration not required
pH/ORP	pH	0 to 14 units	0.01	±0.1 within 10 C of calibration; 0.2 otherwise	refillable reference electrode; corrected for temperature; typical sensor life >6 years; optional ORP sensor is combined with pH sensor
	ORP	-999 to 999 mV	0.1	±20 mV	
turbidity	turbidity	0 to 1000 FNU	0.01	±0.3 FNU or ±2% of reading w.i.g.	filtered for non-turbidity spikes; includes wiper to clean the optics; FNU and NTU are interchangeable
		1000 to 4000 FNU		±4% of reading	
transmissivity	transmissivity	0 to 100% transmission	0.01	linearity of 0.99 R^2	transmissometer mounts externally to Manta
dissolved oxygen (optical sensor)	concentration	0 to 20 mg/l	0.01	±0.1	compensated for temperature and salinity; EPA approved "lifetime" luminescence method; typical sensor cap life > 6 years
		20 to 30 mg/l	0.01	±0.15	
		30 to 50 mg/l	0.01	±5% of reading	
	% saturation	0 to 500% saturation	0.1	corresponds with the accuracy of the concentration reading	
conductivity	specific conductance, µS/cm	0 to 5000 µS/cm	0.1	±0.5% of reading or ±1 w.i.g.	corrected for temperature; four easy-to-clean graphite electrodes; optional sensor provides ±0.5% of reading accuracy to 100 mS/cm.
	specific conductance, mS/cm	0 to 100 mS/cm	0.001	±1% of reading ±0.001	
		100 to 275 mS/cm	0.001	±2% of reading	
	salinity	0 to 70 PSU	0.01	±2% of reading	calculated from conductivity and temperature, PSU is equivalent to ppt
	total dissolved solids (TDS)	0 to 65 g/l	0.1	±5% of reading	
pressure	depth	0 to 25 m	0.01	±0.05	compensated for temperature and salinity
		0 to 200 m		±0.4	
	vented depth	0 to 10 m	0.001	±0.003	compensated for temp, salinity, barometric pressure
	barometric pressure	400 to 900 mm Hg	0.1	±1.5	included with depth sensor
	total dissolved gas (TDG)	400 to 1,400 mm Hg	0.1	±1	compensated for temperature; maximum depth 15m
fluorometers	chlorophyll a - blue	0 to 500 µg/l	0.01	linearity of 0.99 R^2	highest-quality fluorometric sensors; fluorometers often require non-trivial calibration; custom optics available upon request
	chlorophyll a - red	0 to 500 µg/l			
	rhodamine dye	0 to 1000 ppb			
	Phycocyanin (freshwater BGA)	0 to 4500 ppb			
	Phycoerythrin (marine BGA)	0 to 750 ppb			
	CDOM/FDOM	0 to 1500/3000 ppb			
	optical brightener	0 to 2500 ppb			
	tryptophan	0 to 5000 ppb			
	fluorescein dye	0 to 500 ppb			
	PTSA	0 to 650 ppb			
	refined oil	0 to 20 ppm			
	crude oil	0 to 1500 ppb			
ion-selective electrodes (ISE's)	ammonium	0 to 100 mg/l as nitrogen	0.1	±10% of reading or 2mg/L w.i.g.	corrected for ionic strength (via conductivity readings); the accuracy specification relies on non-trivial maintenance practice and frequent calibration near the temperature of measurement; sensors require periodic tip replacement
	nitrate	0 to 100 mg/l as nitrogen			
	chloride	0.5 to 18,000 mg/l			
	sodium	0.05 to 20,000 mg/l			
	calcium	0 to 40,000 mg/l			
	bromide	0 to 80,000 mg/l			
PAR	photometric PAR	10,000 µmol/cm2	0.1	±5% of reading	LiCor spherical sensor
CO2	carbon dioxide	0 to 2000 ppm	0.1	±3% of full scale	other ranges available

Warranty

Manta+ Multiprobe	3 years *	Underwater cables	3 years
Amphibian2 Handheld	2 years	Leapfrog Bluetooth	3 years (battery – 90 days)
Optical DO Cap	3 years	Turbidity Wiper	2 years

FOR BEST ACCURACY, ALWAYS CALIBRATE NEAR THE ANTICIPATED FIELD READINGS, AND NEAR THE TEMPERATURE OF THE ANTICIPATED FIELD READINGS.
*All sensors included except ISE's (Ammonia/nitrate/chloride);
pH sensor included in 3 year warranty
Specifications indicate typical performance and are subject to change. See www.waterprobes.com for current specifications.