

manta2 +™ 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 - without battery	2.8 lbs	2.4 lbs	2.5 lbs	5.0 lbs	9.0 lbs	10.0 lbs
	2.2 lbs	-	-	-	-	-
Number of sensors	Any single sensor plus depth and temp option	Up to 6	Up to 3	Up to 7	Up to 11	Up to 13
Battery Pack	3 "D" cells	2 "D"	2 "D"	8 "C" cells	8 "C" cells	8 "C" cells
Operating Temperature	-5 to 50 C					
Depth Rating	250 m					
Communications	RS-232, SDI-12, USB or Bluetooth					
Sample Rate	4 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 ash - > 8,000,000 logged readings

Sensor Specifications

parameter	range	resolution	accuracy	comments	
temperature	water temperature	-5 to 50 C	0.1	never needs calibration	
pH/ORP	pH	0 to 14 units	0.1	0.1 within 10 C of calibration, 0.2 otherwise	refillable reference electrode; corrected for temperature; typical sensor life > 4 years
	ORP	-999 to 999 mV	1	20 mV	platinum ORP sensor is combined with pH sensor
turbidity	turbidity	0 to 40 FNU	4 digits with maximum of two decimals	2% of reading or 0.2	compensated for temperature; filtered for non-turbidity spikes; includes wiper to clean the optics
		40-400 FNU		2% of reading or 0.2	
		400-5000 FNU		2% of range	
	transmissivity	0 to 100% transmission	4 digits	linearity of 0.99R ²	WETLabs SeaStar; mounts alongside the Manta
optical dissolved oxygen	concentration	0 to 20 mg/l	0.01	0.1	compensated for temperature and salinity; EPA approved "lifetime" luminescence method; typical sensor cap life > 4 years
		20 to 30 mg/l	0.01	0.15	
		30 to 50 mg/l	0.1	5%	
	% 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	4 digits with maximum of one decimal	±0.5% of reading ±0.001	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 10 mS/cm		±1% of reading ±0.001	
		10 to 100 mS/cm		1% of reading	
		100 to 275 mS/cm		2% of reading	
	salinity	0 to 70 PSS		0.01	
total dissolved solids (TDS)	0 to 65 g/l	0.1	5% of reading	calculated from specific conductance	
pressure	depth	0 to 25 m	0.01	0.05	compensated for temperature and salinity; 0.05 m out of 25 m is 2" out of 100 feet; 0.4 m out of 200 m is a football length out of two football fields
		0 to 200 m		0.4	
	vented depth (level)	0 to 10 m	0.001	0.003m	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 500µg/l	6 digits with maximum of two decimals	linearity of 0.99R ²	highest-quality Turner Designs fluorometric sensors; fluorometers often require non-trivial calibration; custom optics available upon request
	chlorophyll a - red	0 to 500µg/l			
	rhodamine dye	0 to 1000 ppb			
	Phycocyanin (freshwater BGA)	0 to 40,000 ppb			
	Phycocerythrin (marine BGA)	0 to 750 ppb			
	CDOM/fDOM	0 to 1250 or 0 to 5000 ppb			
	CDOM/fDOM custom	0 to 1250 or 0 to 5000 ppb			
	optical brighteners	0 to 15,000 ppb			
	tryptophan	0 to 20,000 ppb			
	fluorescein dye	0 to 500 ppb			
refined oil	0 to 10,000pb				
crude oil	0 to 1500 ppb				
ion-selective electrodes (ISE's)	ammonium	0 to 100 mg/l as nitrogen	0.1	5% or 2 mg/l	corrected for ionic strength (via conductivity readings); the accuracy specification relies on non-trivial maintenance practice and frequent calibration near the temperature of measurement; ammonium and nitrate require tip replacement every 3 - 6 months
	nitrate	0 to 100 mg/l as nitrogen			
	chloride	0 to 18,000 mg/l			
	sodium	0 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/sm2	4 digits	5% of reading	LiCor spherical sensor

Warranty

Manta+ Multiprobe	3 years *	Underwater cables	2 years
Amphibian2 Handheld	2 years	Bluetooth Module	3 years
Optical DO Cap	3 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