X2change™ Sensors

Conductivity

Sound Velocity

Pressure

Turbidity

And More.....

X2change™ is the industry's leading family of field-swappable sensor heads. Each sensor head contains its own embedded calibration and can be moved from instrument to instrument without impacting accuracy. Changing sensors is easy: simply unscrew one sensor head and replace it with another.

Key Benefits:

- ***Zero Down Time*** - With X2 series sensors, recalibrated sensors are sent to the instrument instead of sending the instrument to the recalibration centre.
- ***Reduce Logistical Costs*** - With X2 series small sensor heads are shipped instead of heavy instruments.
- ***Increased Flexibility*** - Field-swappable sensor heads enable any organization - big or small - to become a virtual recalibration centre by stocking spare calibrated sensor heads.
- ***One Instrument, Multiple Applications*** - the ability to change sensor type on any instrument to suit specific application requirements. This means instrument duplicates (identical instruments dedicated to different pressure ranges, seperate instrument for Turbidity, pH, Chlorophyll, etc) become a thing of the past.
- ***Improved absolute pressure accuracy -*** You may choose the best full scale pressure range to suit your deployment depth.

X2change™ sensor heads are used exclusively with X2•Series / Orange Line instrumentation. Total flexibility of instrument model, sensor type, and sensor range ensures that the right instrument is always available. Please refer to the X2•Series brochure for a list of instruments, applications, and specifications.

Sound Velocity / CTD / Multiparameter / Biofouling Control / Deployment Systems

	Max Depth (m)	Range	Precision (+/-)	Accuracy (+/-)	Resolution	Response Time	Notes
Conductivity & Temperature	6000 [1]	C: 0-90 mS/cm [2] T: -5 - 45 °C	C: 0.003 mS/cm T: 0.003 °C TMP: 0.003 °C	C: 0.01 mS/cm [6] or 0.003mS/cm [6] T: 0.005 °C or 0.002 °C	C: 0.001 mS/cm T: 0.001 °C	C: 25 ms T: 100 ms	Combined Conductivity & Temperature
Sound Velocity	6000 [1]	1375-1625 m/s	0.006 m/s	0.025 m/s	0.001 m/s	20 ms	
Sound Velocity & Temperature	6000 [1]	SV: 1375-1625 m/s	0.006 m/s T: 0.003 °C	SV: 0.025 m/s T: 0.005 °C	SV: 0.001 m/s T: 0.001 °C	SV: 20 ms T: 550 ms	Combined Sound Velocity & Temperature
Pressure Sensor	100 - 6,000	0-100 dBar to 0 to 6,000 dBar	0.03% FS	0.05% FS	0.02% FS	10 ms	Piezo-Resistive
Turbidity Powered by Turner	200	0-1500 NTU [4]	0.5% reading or 0.1 NTU [5]	2% reading or 0.2 NTU [5]	0.01 NTU	<0.7 s	
	600	0-3000 NTU [4]	0.04% NTU [5] or 0.1 NTU [5]	Linearity 0.99 R [2]	0.01 NTU	<0.7 s	Wiper-equipped
Chlorophyll Powerd by Turner	600	0-500 µg/L	± 0.05% FS	Linearity 0.99 R [2]		200 ms	A & B Red Excitation A & B Blue Excitation High CDOM
Dissolved Oxygen Powerd by JFE Rinko FT	2000 6000	0 to 425 µmol L^{-1} (1)		±2% of measured value or ±2.0 µmol L^{-1} (calibration range: 3 to 30 °C)	0.01 µmol L^{-1}	< 1 s	
pH Powered by Idronaut	1500 6000	0 to 14	± 0.05% FS	± 0.1			KCl Reference: Ideal for fast response profiling applications NaCl Reference: Idealfor fast response in situ applications
Phycoerythrin (BGA)	600	0 to 750 ppb	± 0.05% FS	Linearity 0.99 R [2]		200 ms	X2 Series optical sensors are powered by Turner
CDOM/FDOM		0-1250 ppb					
Flourescein		0-500 ppb					
Rhodamine		0-1000 ppb					
Crude Oils		>10000 ppb					
Refined Fuels		>100 ppm					
Tryptophan		0-5000 ppb					
Optical Brighteners		0-5000 ppb					

Additional Sensors in both X2Change and Cabled Configurations are available upon request.
All specifications subject to change without notice.

[1] Survivable to 11000 m. Inquire for specifications.
[2] Will over-range to 100 mS/cm. Inquire for specifications.
[3] Will over-range to 60 °C. Inquire for specifications.
[4] Digital auto-ranging
[5] Whichever is greater
[6] Stability is +/-0.003 mS/cm/month when combined with UV UVUV•Xchange™

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