

## CABLE MONITOR

- ✓ Save vessel and personnel costs with fast automated testing
- ✓ Measure directly subsea for repeatable, reliable test results
- ✓ Track asset health from factory floor to subsea hook-up
- ✓ Safe for divers and SCMs, high-voltage permits not required



## Identify faulty components within existing fields during fault-finding operations and prove the health of new components during construction campaigns

The C-Kore Cable Monitor can be used for both fault-finding and construction campaigns. Compared to downlines or platform-led testing it is fast and simple to deploy to get accurate data on the health of subsea assets. By measuring directly subsea substantial vessel time and cost savings are made, allowing more faults to be found and fixed with shorter campaigns.

When installing new equipment the Cable Monitor should be fitted as early as possible, ideally just after factory FAT of umbilicals or equipment. It then remains in place during load-out, transit, lay and wet-storage, taking scheduled automated measurements. This eliminates the delays and costs associated with manual measurement. As the unit is deployed along with the equipment, the second end of umbilicals are not deployed blind and asset health can be confirmed all the way to the point of hook-up.

The unit is powered by a high-capacity rechargeable battery for stand-alone operation. Simple user configuration is possible with a plug-and-play USB connection to choose what the unit will test and when. Every result is data-logged, with internal storage allowing years of data to be gathered.

### KEY FEATURES



#### Insulation Resistance

**Detect breakdowns in insulation due to degradation or damage.** Measurement up to 10G $\Omega$  with innovative low-voltage technology.



#### Continuity Resistance

**Identify breaks or prove continuity for signal and power transmission.** High-precision measurement from 1M $\Omega$  down to 0 $\Omega$ .



#### Capacitance

**Discover wiring errors and determine cable lengths.** Proven on cables over 100km in length.



#### Physical Shock

**Measures impacts, acceleration and orientation changes.** Logs shocks up to 200G in all 3 axis.



#### Temperature

**Monitor environmental conditions during storage and transit.** Accurate measurement over complete temperature range.



#### Voltage

**Detect galvanic voltages and residual charge.** Automatic flagging of voltage readings.

# TECHNICAL SPECIFICATION

## Insulation Resistance Measurement

Range:		1kΩ to 10GΩ
Accuracy (Typ):	≤0.5%	1kΩ to 1GΩ
	≤2.5%	1GΩ to 10GΩ
Accuracy (Max):	≤ 40°C	≤1% 1kΩ to 1GΩ
		≤5% 1GΩ to 10GΩ
	≤ 60°C	≤3% 1kΩ to 1GΩ
		≤15% 1GΩ to 10GΩ

## Continuity Resistance Measurement

Range:		0Ω to 1MΩ
Accuracy (Typ):	≤0.5%	0Ω to 1MΩ
Accuracy (Max):	≤2%	0Ω to 1MΩ

## Capacitance Measurement

Range:		1nF to 99uF
Accuracy (Typ):	≤1%	10nF to 99uF
Accuracy (Max):	≤2%	10nF to 99uF

## Physical Information

<b>Compatibility:</b>	Standard availability for ODI Nautilus and Siemens DigiTRON connectors. ROV and Diver varieties. Available in 4, 7 and 12 pin versions. Other connector types by request, including Siemens Mini-CE.
<b>Operating Depth:</b>	Dependent on connector type, see interface drawing for details. Typically 3000msw, unless limited by measurement connector.
<b>Handling:</b>	C-Kore uses entirely standard wet mate connectors and can be handled in the same manner as these items.
<b>Installation:</b>	Can be connected prior to dispatch from manufacture of new umbilicals, jumpers or modules and remain in place, monitoring the system, until immediately prior to connection make-up. Alternatively, the tool can be connected/disconnected at any time and be used by a diver or ROV as a hand-held test instrument.

## Measurement Circuits

<b>Number of Inputs:</b>	From 2 to 13 (factory-programmable) including measurement to seawater
<b>Input protection:</b>	Voltage measurement and safe discharge for inputs charged up to 150V.  Fuse protection for inputs charged from 150V to 1kV.
<b>Measurement Safety:</b>	Low energy / low voltage measurement system. This eliminates any hazard to personnel while in use and prevents the test energy from further damaging faulty connectors or sensitive subsea electronics.
<b>Test Voltage:</b>	3.3VDC Max
<b>Test Current:</b>	10.3mA Max
<b>Self-Test:</b>	Calibration check of all measurement circuits, input circuits and system state check prior to each measurement routine.
<b>EMC Protection:</b>	Detection and compensation of electromagnetic interference on inputs.

<b>Operating Temperature:</b>	Recommended: 0°C to +40°C Maximum dependant on connector type: Teledyne ODI Nautilus ROV: -10°C to +50°C Siemens DigiTRON ROV: -5°C to +60°C
<b>Storage Temperature:</b>	Recommended: 0°C to +25°C Maximum dependant on connector type: Teledyne ODI Nautilus ROV: -20°C to +50°C Siemens DigiTRON ROV: -20°C to +50°C
<b>Size:</b>	Dependent on connector type, see interface drawing for details.  <b>Example dimensions for 7-Way ROV Plug variants:</b> Teledyne ODI Nautilus: 331 x 258 x 118 (mm) Siemens DigiTRON: 355 x 258 x 124 (mm)
<b>Weight (in air):</b>	Dependent on connector type, see interface drawing for details.  <b>Example weights for 7-Way ROV Plug variants:</b> Teledyne ODI Nautilus (Titanium): 5 kg Siemens DigiTRON (Stainless Steel): 7 kg

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