OceanWorks International

USA +1 281 598 3940
CAN +1 604 415 0088
www.oceanworks.com

SIIM - 3000SC

Scientific & Environmental

Overview

The OceanWorks SIIM-3000SC Subsea Instrument Interface Module (SIIM) provides a software configurable power and communications interface between a wide range of instruments and a subsea node or shore station. The SIIM-3000SC is a proven design successfully deployed on several cabled observatory projects. In this latest version, the key development is the ability to reconfigure both the voltage and communication interface of each instrument port in software without breaching the SIIM pressure boundary. Software configuration of instrument ports enables a single design to be used across an observatory providing easy sparing and on deck reconfiguration for new instruments.

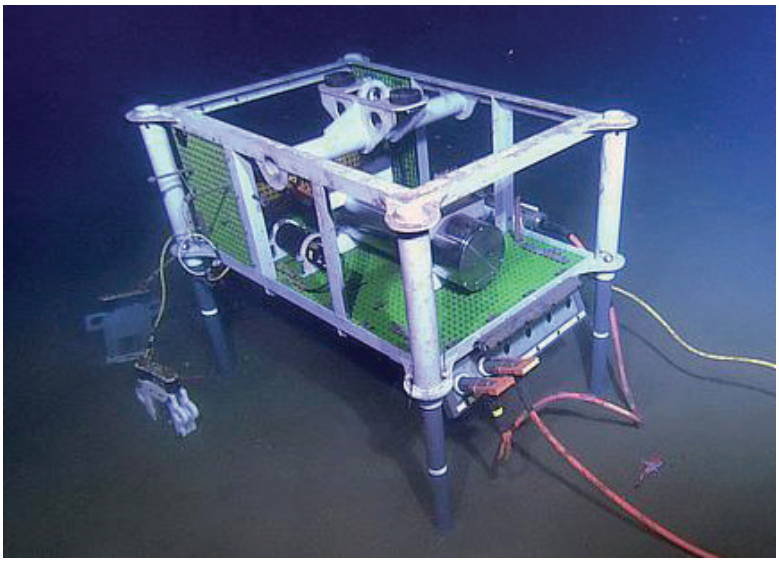
Application

- Environmental / Scientific Cabled Observatories
- Oil Field Instrumentation
- Tsunami Warning
- Renewable Energy
- Ocean Bottom Seismic
- Port and Coastal Security

Features

The SIIM-3000SC provides a total of ten instrument interface ports. Eight ports are considered low voltage, low power (12 to 48VDC, 60 to 240W) and two are high power (375VDC at 1875W). Each of the eight low power instrument ports can supply up to 5A of current at software selectable voltages from 12 to 48VDC. Each low power port is powered from an isolated DCDC converter with a linear regulated output. This provides an efficient, variable supply with a very low noise output. Each low power port also supports either 100BaseT Ethernet, or EIA232, 485 and 422 serial communications protocols which can be selected in software. When a port is off, all of the power and communications signals are galvanically isolated from the connected instrument.

Line Insulation Monitors (LIM) are included on each low power port. The LIM will detect if a fault to seawater occurs on connected cables or instrument. If required, the LIM can be taken out of circuit via a software command.



Interface

- STANAG 1450 Interface A and B Available
- USN SRC 1-1/4” 15 TPI
- Customer specific

Standard Testing

- Pressure boundary hydro-static test
- 120 hour operational salt water immersion test

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Specifications

Input (from Observatory Node or Shore Station)

- Input range 300VDC to 400VDC, nominal 375VDC
- Over voltage and transient protected
- Communications options (select on build)
  - 1000BaseLX SM fiber optic Gigabit Ethenet
  - 100BaseT Copper Ethernet
- Wet-mate connector standard or Dry-mate connector systems available

Communications & Telemetry

- Telnet command interface.
- UDP hotel data interface (at selectable rates up to 10Hz) SNTP time stamped.
- Per port, voltage, current and LIM telemetry (no LIM on high power ports).

Mechanical

- 1050mm x 332mm dia. (excl. mating connectors)
- 150kg in air weight

  100% titanium pressure vessel with dual o-ring seals
- Vibration qualified to IEC60068 (Part 2, Section 64,Table A.1 & A.2 Category 2)

Output (to Instruments)

- Two high power ports with the following features;

  Dry-mate connectors standard (hybrid and wet-mate connectors optional)

  375VDC at 5A maximum current

  Soft start allows user defined periods of 1A, 2A and 5A current limiting

  Software selectable current and voltage trips

  Short circuit tolerant
- Eight low power ports with the following features

  Dry-mate connectors standard (hybrid and wet-mate connectors optional)

  Each port features software configured 12 to 48VDC at 5A maximum current

  Line Insulation Monitoring (LIM) up to 10MΩ

  Isolated DCDC converter per port

  Linear regulated, very low noise output

  Software selectable current, voltage and LIM trips

  Output short circuit tolerant

  Communications options (software selectable) -100BasetT Copper Ethernet, or Isolated serial (EIA232, 422 or 485)
- Supports TTL PPS and NEMA 0183 time code

Environment

- 3000msw operating depth
- -20°C to +50°C Transport
- -3°C to +20°C Operational

Options

- Custom interfaces, port voltages, communications protocol, cables and connectors can be all be incorporated into a SIIM design if required.
- Wet mate instrument ports can be fitted. With the flexibility to change the power supply voltage and communications protocols from Ethernet to Serial in software, a new instrument could be added to an observatory without the need to recover the SIIM platform.
- Gigabit 1000BaseLX fiber optics communications can be provided as a dedicated option to specific ports.
- Extended burn-in testing.
- SIIS and ISO 13628-6 standard