

SEACON

SEACON ADVANCED PRODUCTS, LLC PRODUCT DATASHEET

HIGH PRESSURE, HIGH TEMPERATURE (HPHT) DOWN-HOLE, DRY-MATE CONNECTOR SERIES



HPHT down-hole connector series

KEY FEATURES

- Over 70 units sold
- Optical, Electrical and Hybrid (electro/optical) versions available
- 2-channel optical only version
- 2-channel electrical only version
- 4-channel hybrid (2 optical, 2 electrical)
- Maximum operating pressure: 10,000psi
- Maximum operating temperature: +125°C
- Primary metal-to-metal sealing
- Inconel® 625 body material
- All less than 1" in diameter
- ¼" OD, 10,000psi WP 316LSS tube
- Field installable termination
- Linear splice box to facilitate field installation
- Maximum optical attenuation: 0.3dB
- Maximum optical back-reflection: -50dB
- Maximum voltage: 600 VAC
- Maximum current: 2.5 amps

DESIGN RATINGS

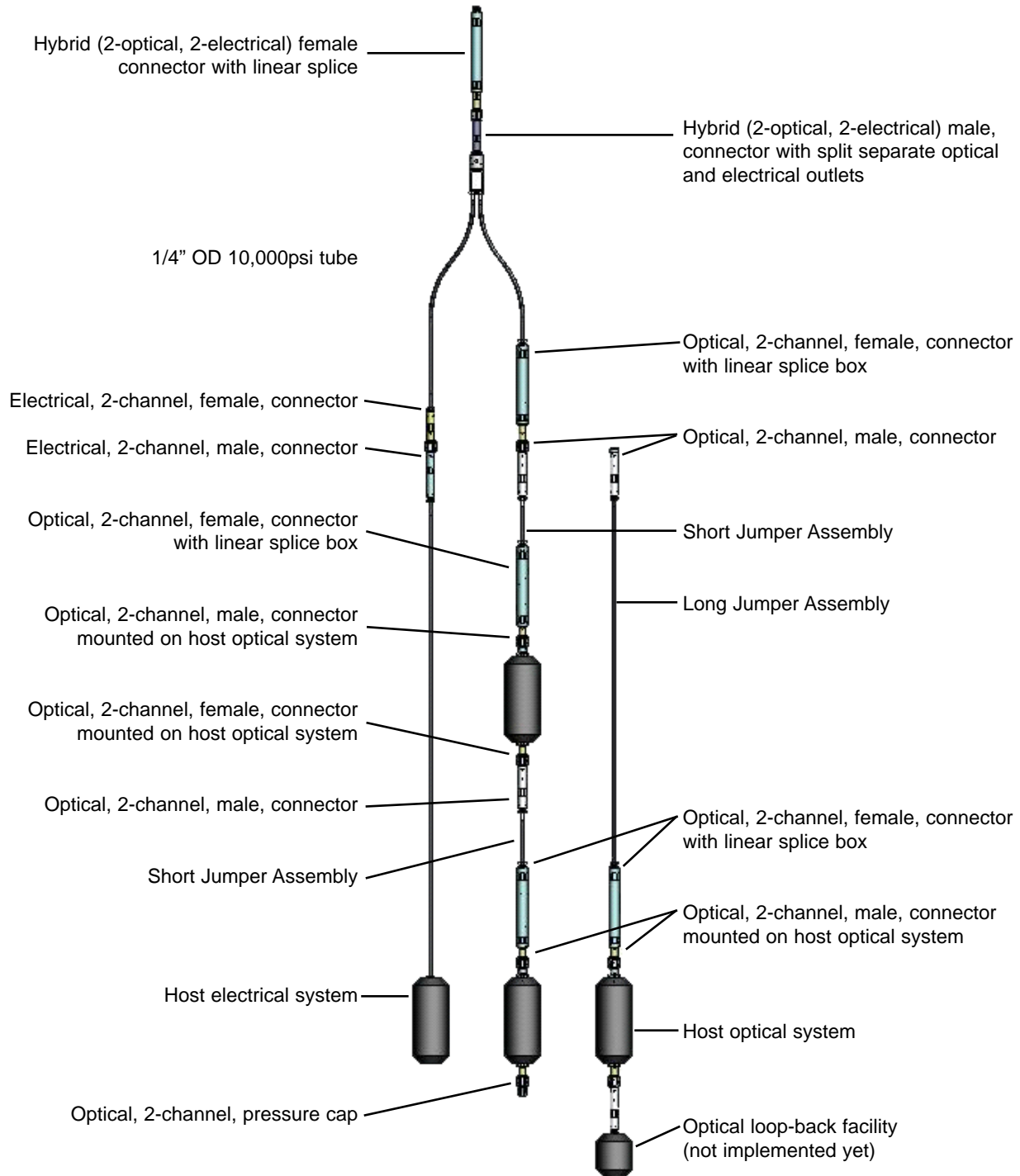
- Design life: 25 years
- Maximum operating pressure: 10,000 psi
- Maximum test pressure: 16,500 psi
- Minimum operating temperature: 0°C
- Maximum operating temperature: +125°C
- Minimum storage temperature: -40°C
- Maximum storage temperature: +85°C
- Maximum optical attenuation: 0.3dB
- Maximum back reflection: -50dB
- Maximum voltage: 600 VAC
- Maximum test voltage: 2,500 VDC
- Maximum current: 2.5 amps

QUALITY

- SEACON Advanced Products, LLC operate a Quality Management System certified to ISO 9001:2008, ISO 14001:2004 and OHSAS 18001:2007.



TYPICAL SYSTEM LAYOUT





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CONNECTOR CONFIGURATIONS

The list of connectors configurations are as follows:

Hybrid - 2 Electrical and 2 Optical Channels

- 7938-101 - HPHT, hybrid, 2E, 2F, down-hole, male connector with split separate optical and electrical outlets
- 7938-102 - HPHT, hybrid, 2E, 2F, down-hole female connectors with pressure barrier and linear splice box

Optical Connectors - 2 channel

- 7936-101 - HPHT, 2-channel, optical, bulkhead mounted, down-hole, male connector, with pressure barrier
- 7936-102 - HPHT, 2-channel, optical, bulkhead mounted, down-hole female connector with pressure barrier
- 7936-103 - HPHT, 2-channel, optical, down-hole, male in-line connector
- 7936-104 - HPHT, 2-channel, optical, down-hole female in-line connector with linear splice box
- 7938-105 - HPHT, 2-channel, optical, down-hole, male pressure cap (for female connector)
- 7938-106 - HPHT, 2-channel, optical, down-hole female in-line connectors with pressure barrier and linear splice box

Hybrid - 2 Electrical and 2 Optical Channels

- 7937-101 - HPHT, 2-channel, electrical, down-hole, female connector with glass-to-metal seal pressure barrier
- 7937-102 - HPHT, 2-channel, electrical, down-hole male connector with glass-to-metal seal pressure barrier

FIELD MAINTENANCE

- The HPHT Connectors are designed for field installation and maintenance
- The Linear Splice Box is a unique feature designed to facilitate the final optical fiber length adjustment required for field installation
- Connectors are design for rear-termination of fiber, wires and tube
- Primary seals are metal-to-metal that can be easily energized on site

BENCH & PRODUCTION TESTING SUMMARY

- Optical insertion loss
- Optical back-reflection
- Electrical insulation resistance
- Electrical continuity
- Shell continuity
- Proof voltage test, 2000 VDC for 5 minutes
- Production Hyperbaric 10,000 psi (as required)



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QUALIFICATION TESTING SUMMARY

- Pressure Testing - 15,000 psi, 5-cycles and 1 hour hold, Optical and electrical performance monitored during test
- Optical insertion loss and back-reflection
- Electrical insulation resistance and contact resistance
- Proof voltage
- Shock (single axis)
 - 3 shocks in a horizontal direction
 - 3 shocks in a vertical direction
 - Shock profile is a half-sine period of 11ms at 30g.
- Vibration (3-axis) - Vibrate in x-axis, y-axis and z-axis, vibration profile:
 - A double sweep from 5 Hz to 150 Hz and back to 5 Hz
 - 5 Hz to 25 Hz: ± 2 mm displacement
 - 25 Hz to 150 Hz: 5g acceleration
 - Sweep rate maximum 1 octave/minute
 - Optical and electrical performance monitoring during the vibration and verified after completion of the vibration
- High-temperature testing
 - 2 weeks at 125°C and then 5-cycles between ambient, monitoring optical and electrical performance
- Low-temperature testing
 - 20°C to ambient, verify functioning afterwards
- Outside 50-mate test, monitoring optical and electrical performance to monitor degradation

TRACK RECORD & RELIABILITY DATA

Connectors have been delivered to customers but the operational sample population is still too small to extrapolate any significant statistical data for reliability.

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