

From: Denis Klimov klimov@mbari.org 
Subject: Re: Geo-Sense Design Review
Date: May 8, 2024 at 8:02 PM
To: Alana Sherman alana@mbari.org



Hi Alana,

I had a look at the Green Tweed/Lancer, and see the "Light Loss" is specified in 3 places in the catalog (in the specifications section as well as in the text) and "Back Reflection" is specified in 1 place (in the text), see frame grab below.

Those values are a bit confusing. If 0.5 dB light reflection from the internal "Light Conduit" is indeed correct, this is more than others, $10^{(0.5/10)} = 1.12$ or 12% reflection back. Seems a bit much. But again, this is not coupling from one fiber directly into another, but from the fiber into light conduit (which provides seal and pressure tolerance), and then from light conduit back into another fiber.

Bulkhead Feedthrough

Greene Tweed offers a series of FC-DRY™ HP PBF (permanent bulkhead feedthroughs) and ST-DRY™ HP PBF in standard, short, and right-angle configurations to provide optimum feedthrough choices for a variety of applications.

The FC-DRY™ HP hermetic, self-sealed PBF uses a threaded coupling while the ST-DRY™ HP hermetic, self-sealed PBF connectors feature a bayonet twist-lock (j-slot) for durable connections and exceptional performance. The design is based on the hermetic joining of an internal light conduit to zirconia ferrules, ensuring precision alignment to cable connectors. Light loss and back reflection are below 0.5 dB per connector.

All FC-DRY™ HP PBFs and ST-DRY™ HP PBFs are made from 316 series stainless steel with precision-machined zirconia ferrules. Once installed, the PBFs are hermetically sealed with or without connections. Connection and disconnection can be made without degradation of seal integrity.

The design is based on the hermetic joining of an internal light conduit to zirconia ferrules, ensuring precision alignment to cable connectors.

Features and Benefits

Compatibility

- Universal threaded coupling (FC)
- Universal bayonet twist-lock (j-slot) connection (ST)
- Works with single mode and multi-mode fibers

Environmentally Sealed

- 100% leak tested
- No signal degradation
- Hermeticity seal meets or exceeds 1E-7 cc/sec helium leak rate at 1 atm differential pressure.
- Permanent feedthrough is hermetically sealed with or without connectors
- Effective sealing action eliminates damage from moisture or particulate
- Tested up to 500 mate/de-mate cycles

Temperature- and Humidity-Resistant

- Clarity of signal
- Tested from -55°C to 85°C (-67°F to 185°F) and subjected to stringent heat/humidity with 0.5 dB maximum insertion loss

Waterproof

- No water penetration to affect signal

Specifications

- Ferrules and alignment sleeves are precision-machined zirconia
- 316 stainless steel construction (ruggedized)
- Typical light loss is less than 1.0 dB (0.5 dB/connection)

cheers,

Denis Klimov

From: "Alana Sherman" <alana@mbari.org>
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Sent: Wednesday, May 8, 2024 1:38:55 PM
Subject: Re: Geo-Sense Design Review

Just a reminder that our review is tomorrow at 9 am in Harbor View or on Zoom.
Here is where you can find review materials:

\\atlas\ProjectLibrary\902401_GeoSense\Project.Presentations\Project.PowerPoint Slides\System Design Review

From: "Alana Sherman" <alana@mbari.org>
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Sent: Monday, May 6, 2024 10:38:31 AM
Subject: Geo-Sense Design Review

Hi all,

Our engineering review for the Geo-Sense project will be held on Thursday, May 9, at 9 am. We will meet in the Harbor Conference Room for those of you onsite. For those joining remotely, please use this Zoom link:

<https://mbari.zoom.us/j/84915731021?pwd=RUJiUVNNZnlnZlJZN1d5a0ZlWC9nUT09>

I will send out a folder with review materials prior to Thursday. Thanks for your participation,

Alana

Alana Sherman

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