

DSG-RICH R&D Meeting

Date: May 24, 2021

Time: 11:00AM – 12:00PM

Attendees: Mary Ann Antonioli, Aaron Brown, Pablo Campero, Brian Eng, George Jacobs, Tyler Lemon, Marc McMullen, and Amrit Yegneswaran

1. RMC

Peter Bonneau, Brian Eng, Tyler Lemon, and Marc McMullen

- Additional terminals will be added for unused analog output, analog input, and digital input/output channels to allow future use

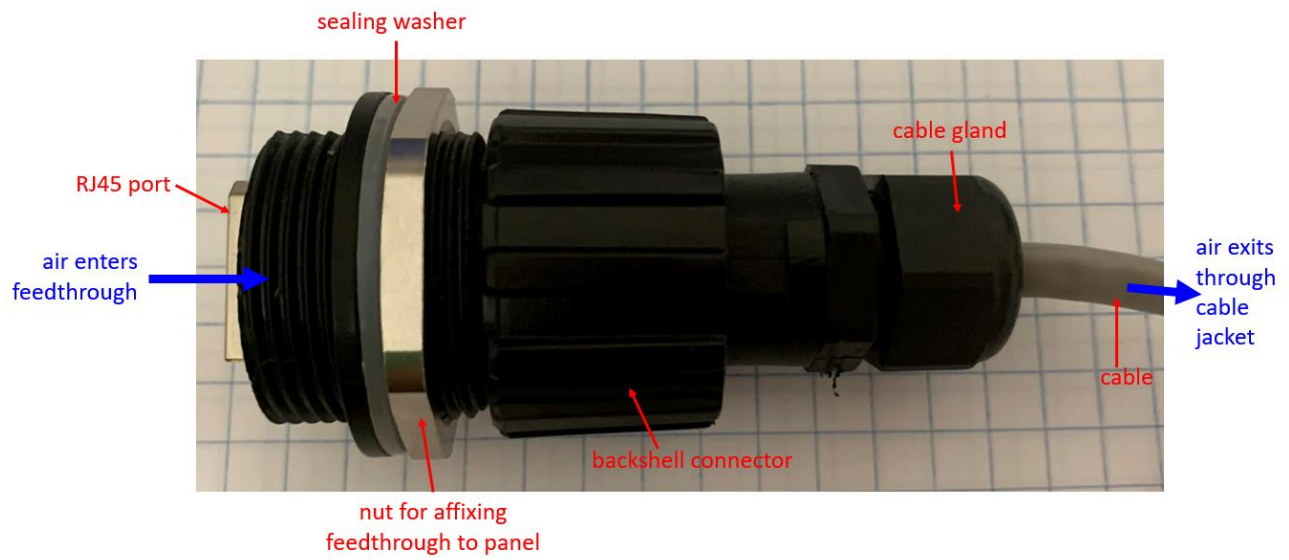
2. Items needed to buy for RICH-II and detector support

- A more complete list and cost estimate will be generated
- For completing assembly in FY2022:
 - New air-cooling panel
 - Easidew hygrometer
 - EEL 124 N₂ panel
 - N₂ dewars for EEL
 - One interlock chassis
 - One RMC
 - One backplane PCB
 - 24 SHT35 sensor PCBs
 - Cabling and connectors
 - 12 feedthroughs to N₂ volume
 - 12 bulkhead connectors for patch panel at detector
 - Cleanroom supplies
 - Supplies to make detector shell gas tight
- For support of two RICH detectors through FY2025:
 - Backup N₂ bottle packs
 - UPS
 - Spares

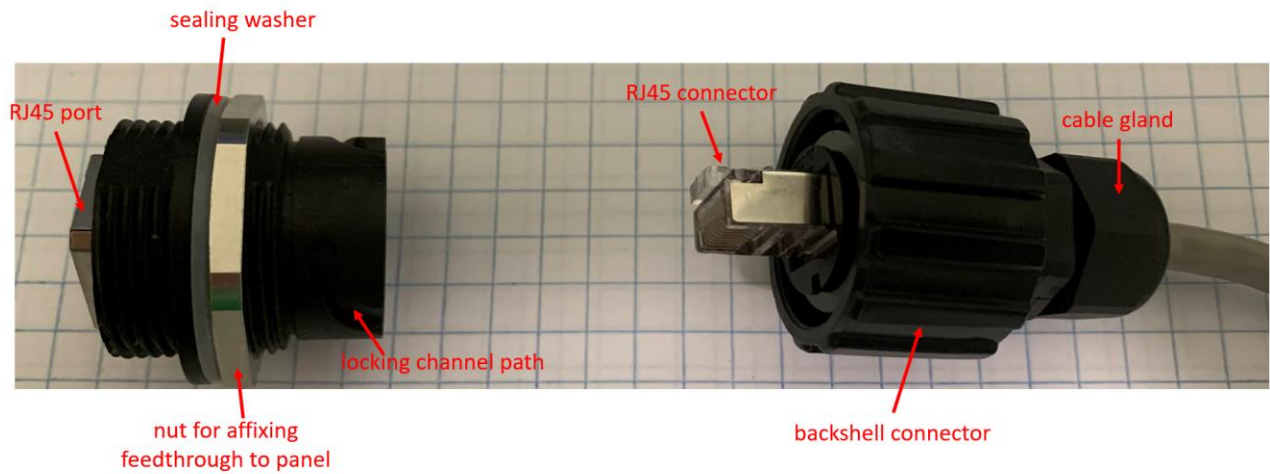
3. Interlock cable feedthroughs

Tyler Lemon

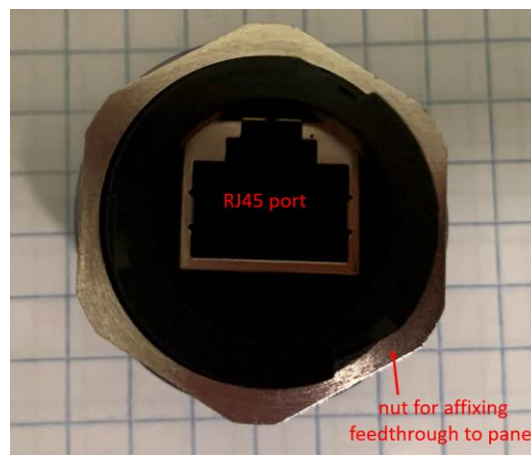
- Twelve sensor PCBs will be inside N₂ volume, thus their cabling will need to pass from outside to inside the detector through a gas-tight feedthrough
- Procured possible feedthrough to test its gas-tightness
 - Two parts needed—RJ45 feedthrough coupler and backshell connector
 - Possible leak through cable jacket cut at RJ45 connector
 - Solution could be to seal around connector with RTV
 - Will perform further tests to see if feedthrough can be sealed



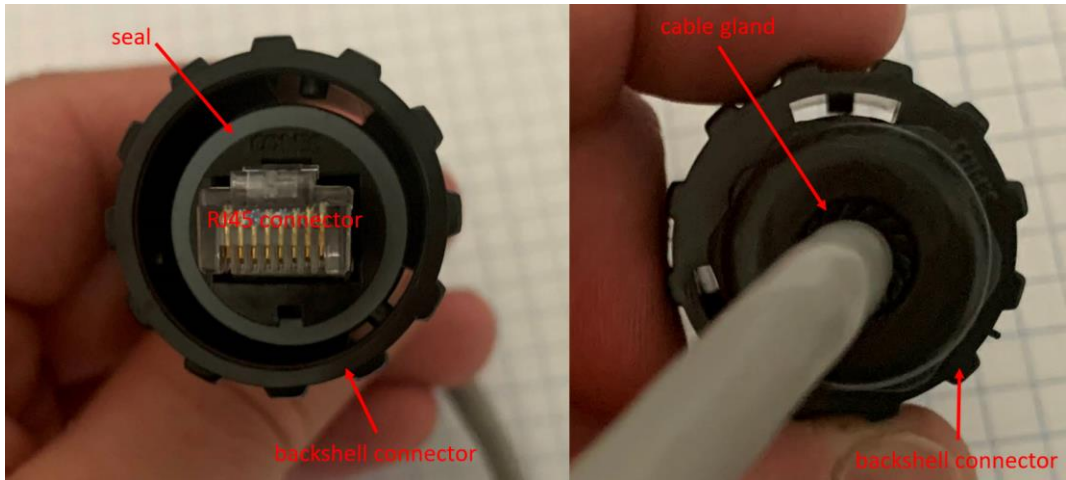
Cable feedthrough assembly with backshell connected



Cable feedthrough assembly with backshell disconnected



Front of RJ45 feedthrough. Feedthrough by itself is not gas-tight; it leaks significantly through RJ45 port



Left: Front of backshell with RJ45 connector and seal
Right: Back of backshell with cable gland



Dashed, red arrow shows path of suspected leak from one side of feedthrough to other