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PR No. 1000035014 (Rfx No. 6100001502)
Detailed Technical Specifications for Add-on components for existing Cryogenfree Dilution Refrigerator

A. QBoard:

1. Modular sample holder system for spin-Qubit chips and super conducting circuits with 48 DC channels and up to 1Ghz capable 16 high frequency channels.
2. Motherboard with 2 51-Pin nano D connectors.
3. Bias tees for all RF lines
4. Room for mounting tank circuit resonators.
5. Daughterboard with 0.5 mm chip cavity for placing samples and gold-plated bottom cavity for superior grounding.
6. Custom jumper cable, 51 pin female nano-D to 2x25 pin female micro-D titanium shell, nonmagnetic, PTFE wires, customer specifies length and mating.
7. Grounding plate for wire bonding should be included
8. Interposer for use of the grounding plate should be provided.

B. QFilter:

1. 24 channel low-pass filter comprised of one low frequency (RC) filter board and one radio frequency (RF) filter board for optimum performance.
2. 25-pin micro-D connectors, pin-out compatible with most dilution refrigerators.
3. Typically reduces electron temperatures to 5-10mK above the mixing chamber temperature.
4. Designed for easy mounting on or below the mixing chamber plate in dilution refrigerators.
5. High conductivity copper enclosure, with non-magnetic gold plating.
6. Compatible with low temperatures and high magnetic fields.
7. Non-magnetic, shielded, titanium connectors.

C. Low Frequency low pass filter bank (RC)

1. One reactive 7-pole Pi and two dissipative RC filter stages, individually shielded.
2. Transmits below 65 kHz.
3. Total resistance (room temp.): 1700±10 Ω. Isolation to ground and other channels ≥ 2 GΩ. Maximum current 6mA.
4. Maximum voltage 10V at room temperature, 150V below 4K.

D. Radio Frequency low pass filter bank (RF)

1. Three reactive 7-pole Pi filter stages, individually shielded.
2. Transmits below 225 MHz.
3. Total resistance (room temp.): 2.0±0.5 Ω. Isolation to ground and other channels ≥ 2 GΩ. Maximum current 10mA at cryogenic temperatures. Maximum voltage 10V at room temperature,150V below 4K E.

E. Warranty: One year from the date of successful installation/commissioning of equipment.