

## Cryo cooler – Services Interface

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| Interface Document: LN-MPIA-FDR-INT-502  |   | Issue: 1.2                                    |
| Relevant Documents: LN-MPIA-FDR-CRY-002  |   |   |
| Brief Description: Services of cooling water, power and Ethernet for the Cryo-cooler |   |   |
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### Interface Description

This Document describes the interface between the Stirling cryo-cooler and the services which are: cooling water, electrical power and Ethernet connection.

### Interface Specification

- Cooling water-glycol:

The cryo-cooler will be placed on level 4 below the telescope platform under the right mirror. The cooler will have its own cooling water connection.

|                               |  |
|-------------------------------|--|
| Connector                     | Swagelock Quick connector<br>Series SS-QTM8-D and SS-QTM8-B<br>(LBTO standard) |
| Maximum required flow rate    | 15 l/min   |
| Temperature                   | 6°C  |
| Heat dissipation to be cooled | 12,000 W from cooler<br>2,000 W from electronics/ frequency converter          |

- Electrical power connection:

|                                  |                        |
|----------------------------------|------------------------|
| Rated power, electronics         | 14 kW                  |
| Mains voltage                    | 208 V/ 3phase AC 60 Hz |
| Maximum rate current             | 35 A                   |
| Power supply cable cross section | 5 x 16 mm <sup>2</sup> |

- Ethernet connection

The cryo-cooler can be operated remotely. Only a low data rate will be required. The connection should be integrated in the telescope instrument LAN. The protocol is tbd. A library will be provided by the manufacturer of the cooler.

|           |                   |
|-----------|-------------------|
| Data rate | $\geq 10$ Mbits/s |
| Protocol  | tbd               |