



# DECTRIS MYTHEN<sup>®</sup>2

## Vacuum Specifications

Version 1

DECTRIS Ltd.  
5405 Baden-Daettwil  
Switzerland  
[www.dectris.com](http://www.dectris.com)

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## Document History

### Current Document

Version	Date	Status	Prepared	Checked	Released
1	21.01.2021	released	LG	LW, NP	LG

## 1. General Information

### 1.1. Contact and Support



Address: DECTRIS Ltd.  
Taefernweg 1  
5405 Baden-Daettwil  
Switzerland

Phone: +41 56 500 21 02  
Fax: +41 56 500 21 01

Homepage: <http://www.dectris.com/>  
Email: [support@dectris.com](mailto:support@dectris.com)


Should you have questions concerning the system or its use, please contact us via telephone, e-mail or fax.

### 1.2. Explanation of Symbols

Symbol	Description
	Important or helpful notice
	Caution. Please follow the instructions carefully to prevent equipment damage or personal injury.

### 1.3. Warranty Information

Should your detector require warranty service, contact DECTRIS® for further information. Before shipping the system back, please contact DECTRIS® to receive the necessary transport and shipping information. Make sure that the original packaging is used when returning the system.

	Do not ship the system back before you receive the necessary transport and shipping information.
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When returning the detector system for repair, be sure to fill out and include the service form at the back of this document to provide the support division with the necessary information.

#### **1.4. Disclaimer**

DECTRIS® has carefully compiled the contents of this manual according to the current state of knowledge. Damage and warranty claims arising from missing or incorrect data are excluded.

DECTRIS® bears no responsibility or liability for damage of any kind, also for indirect or consequential damage resulting from the use of this system.

DECTRIS® is the sole owner of all user rights related to the contents of the manual (in particular information, images or materials), unless otherwise indicated. Without the written permission of DECTRIS® it is prohibited to integrate the protected contents in this publication into other programs or other websites or to use them by any other means.

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## 2. DECTRIS MYTHEN®2 Vacuum Specifications



Only detectors purchased with optional vacuum warranty may be operated in vacuum. Warranty voids otherwise!  
When using the detector in vacuum strictly follow the in-vacuum instructions given in this document.  
To see if a detector has a vacuum warranty check whether the vacuum warranty option is included in the order confirmation.

### 2.1. Vacuum Conditions

TABLE 1: VACUUM CONDITIONS OF THE DECTRIS MYTHEN®2 SYSTEM.

Recommended Pressure	Ambient or $< 10^{-2}$ mbar <div><div><div>1 bar</div><div><math>10^{-2}</math> mbar</div></div><div><div><math>10^5</math> Pa</div><div>1 Pa</div></div></div> <p>Avoid pressures between <math>10^{-2}</math> and atmospheric pressure The typical reachable vacuum is <math>10^{-3}</math> mbar. The outgassing rate and content are not specified.</p>
Recommended Module Temperature	23 – 28°C For optimal data quality, the module temperature should lay in the indicated range. It is recommended to log the temperature during measurements with the Socket Client Command “-get temperature”. For more information: Socket Client Specifications.
Heat to dissipate	2 W It is recommended to dissipate the heat via the backside of the module.
<div></div>	Please be aware that the integrated combined temperature and humidity sensor of the module reports an error message for relative humidity values during vacuum operation. The temperature value is displayed correctly. All error codes can be found in the Socket Interface Specifications.

## 2.2. Recommended Data Flange

For optimal data transfer during vacuum operation, a hermetic USB 3.0 A jack to USB 3.0 A jack is recommended. A feedthrough with these specifications can be purchased for example at RHSeals (Product Number: CCUSB3.0FS16-MS610V0).

## 2.3. Vacuum Operation



Follow the procedure below during all vacuum operations to prevent damage from condensation and electrical discharges.

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Prior to pumping down (and venting):  
Always make sure the detector is SWITCHED OFF and WARMED UP to room temperature to prevent damage through electrical discharge or condensation.

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### 2.3.1. Pumping Down the Vacuum Chamber

- Mount the MYTHEN2 modules properly inside the vacuum chamber. Please check that sufficient cooling and temperature monitoring of the modules are possible (See table 1).
- Connect the cable and eventual cooling tubes\* inside and outside the vacuum chamber. (More details about connecting the MYTHEN2 detector system: User Manual)
- Connect the DCS4 with your computer system and make sure the communication with the module can be established.
- Make sure the power switch on the DCS4 is OFF.
- Close the vacuum chamber and start to pump down.
- Keep the module at room temperature until the pressure has dropped below  $1 \times 10^{-2}$  mbar to prevent condensation on the sensor.
- After the pressure inside the vacuum chamber is below  $1 \times 10^{-2}$  mbar, switch on the DCS4.

### 2.3.2. Start-up Procedure

- Switch on the DCS4.
- Let the module temperature stabilize for at least 30 min (details: table 1).
- Connect via Socket interface and monitor the temperature of the modules during operation (see table 1)
- Start your acquisition procedure.

### 2.3.3. Turning-off Procedure

- Turn OFF the DCS4 power switch.
- The MYTHEN2 module can be kept under vacuum.

### 2.3.4. Venting the Vacuum Chamber

- Turn OFF the DCS4 power switch.
- If colder, warm up the modules to room temperature for at least 30 min to prevent condensation inside the vacuum chamber.
- Use dry air or nitrogen to vent the chamber

\*Not provided by DECTRIS



### 3. Appendix

#### 3.1. Referenced Documents

All the following documents are available through DECTRIS®. Homepage (<https://www.dectris.com/support/manuals-docs/overview>).

TABLE 2: REFERENCED DOCUMENTS.

Term	Description
Socket Interface Specifications	socket_interface_specifications-mythen2-mai_2020.pdf
DECTRIS MYTHEN®2 Vacuum Specifications	DECTRIS_MYTHEN2_Vacuum_Specifications.pdf

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