

Handling Instructions

MYTHEN Detector Modules

Version: V3



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1. Document History

1.1. Current document

<i>Version</i>	<i>Date</i>	<i>status</i>	<i>prepared</i>	<i>checked</i>	<i>released</i>
3	11.11.2015	released	DJ	AM	AM

1.2. Changes

<i>Version</i>	<i>Date</i>	<i>Changes</i>
1.0	01.03.2010	First released version
1.1	05.03.2012	Document extension to entire MYTHEN product family
2.0	01.09.2012	Released
2.1	12.06.2013	Adapted CD
2.2	06.12.2013	Adapted 4.1 and 4.3
3	11.11.2015	New postal address

2. How to use this documentation

Before you start to operate the MYTHEN detector system please read the User Manual and the Technical Documentation included in the documentation package carefully.

This document has been designed for the MYTHEN detector systems.

2.1. Address and Support

DECTRIS Ltd.
Taefernweg 1
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Switzerland
Phone: +41 56 500 21 02
Fax: + 41 56 500 21 01

Website:

- www.dectris.com → support → Technical Notes → MYTHEN
- www.dectris.com → support → FAQ
- www.dectris.com → support → Problem Report

Email:







- support@dectris.com

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



Do not ship the system back before you receive the necessary transport and shipping information!

2.2. Explanation of Symbols

Symbol	Description
	Important or helpful notice
	Caution. Please follow the instructions carefully to prevent equipment damage or personal injury.
	DC-current
	AC-current
	Ground
	Functional earth

2.3. Explanation of Terms

Term	Description
GUI	G raphical U ser I nterface
DCS1	D etector C ontrol S ystem for 1 detector module
DCS6	D etector C ontrol S ystem for up to 6 detector modules
DCS24	D etector C ontrol S ystem for up to 24 detector modules
Detector module	The smallest fully functional unit of the detector (1280 channels).
ESD	E lectrostatic S ensitive D evice
MCB	M odule C ontrol B oard
ROC	R ead O ut C hip

2.4. Disclaimer

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

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

DECTRIS Ltd. 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 Ltd. it is prohibited to integrate the protected contents published in these applications into other programs or other Web sites or to use them by any other means.

DECTRIS Ltd. reserves the right, at its own discretion and without liability or prior notice, to modify and/or discontinue this application in whole or in part at any time, and is not obliged to update the contents of the manual.

3. Warnings



Please read these warnings before operating the detector system.

- DO NOT TOUCH THE ENTRANCE WINDOW OF THE DETECTOR.
- Place the protective cover on the entrance window of the detector when it is not in use.
- The detector is not specified to withstand direct beam at a synchrotron. Such exposure will damage the exposed channels.
- The detector system should have enough space for proper ventilation. Operating the detector outside the specified ambient conditions could damage the system.
- The air inlets and outlets of the detector control system should not be blocked.
- Power down the detector system before connecting or disconnecting any cable.
- Before connecting the power supply to the mains-supply, check the supply voltage with the label on the power supply. Using an improper main voltage will destroy the power supply and could damage the detector.
- Make sure the cables are connected and properly secured.
- Avoid pressure or tension on the cables.
- Opening the detector, the detector control system or the power supply housing without explicit instructions from DECTRIS Ltd. will void the warranty.
- The embedded Linux operating system on the detector control system has customized software for controlling the MYTHEN detector system. Do not make any changes to the Linux operating system without explicit instructions from DECTRIS Ltd.

4. Handling Instructions

Make sure that all persons are trained in handling Electrostatic Sensitive Devices.

Before handling the detector modules make sure that all requirements for handling Electrostatic Sensitive Devices are fulfilled. This includes ESD certified laboratory equipment (e.g. tools, tables, chairs, ...) as well as ESD labeled working clothes.

4.1. Detector Module

The detector module consists of the MCB, which is populated with electronic components. Additionally the readout chips and the sensor are glued on the MCB.



The sensor is extremely fragile and sensitive to every kind of touching. Contacting the sensor must be avoided under any circumstance at all times.

The channel by channel connection between the sensor channels and the readout electronics of each channel is done by a single wire-bond. The readout chip is connected to the MCB by wire-bonds as well. The diameter of these aluminum wires is in the range of 18 micrometers.



The wire-bonds are extremely fragile and sensitive to all kinds of touching. Contacting the wire-bonds must be avoided under any circumstance at all times.

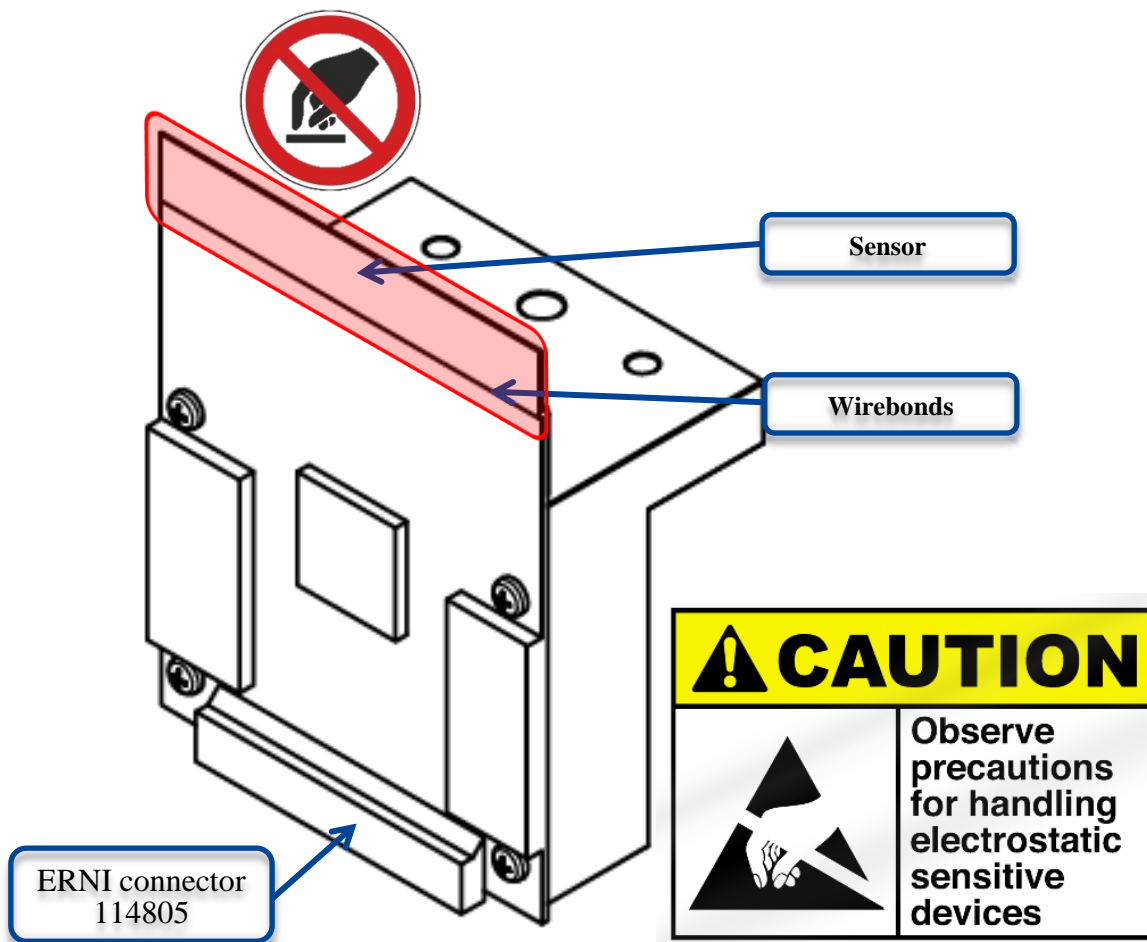


Figure 1 Handling precaution for not CE certified MYTHEN module.

The detector modules are connected to the detector control system by data cables. The data cable is pushed on the ERNI connector (see Figure 1).



Be aware of:

- **connector polarity**
- **deforming connector pins by accident**
- **connecting detector module if DCS is powered off**

4.2. Transport Box

The modules are shipped in an ESD transport box. Before opening the metal cover of the box one has to know that the wire-bonds of the detector module are located just below the cover.



The wire-bonds are not protected against touching. Open the metal cover of the transport box as carefully as possible.



Figure 2 Module transport box.

The module is fixed in the transport box by screw(s). The screws are located either on the back or in the side of the box.



When releasing these screw(s), hold the module by hand to prevent that the sensor or the wire-bonds are contacted.

4.3. Connecting the Detector Module to the Detector Control System

The detector modules are connected to the detector control system by the data cables provided. The data cable is pushed on the ERNI connector (see Figure 1).

For more information concerning

- Detector module
- Detector control system (DCS1, DCS6, DCS24)
- Data cables

see the Technical Documentation MYTHEN Detector System available at DECTRIS Ltd.(see 2.1 for support).



Be aware of:

- **connector polarity**
 - **deforming connector pins by accident**
 - **connecting detector module if DCS is powered off**
-



Use only the DECTRIS Ltd. delivered data cables.



The data cable should be pushed onto the DCS1 or DCS6 with the screws, rather than forcefully pushed on.



The data cable should be pushed onto the DCS24 carefully, rather than forcefully pushed on.

5. Appendix

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5.2. Referenced Documents

All the following documents are available through DECTRIS Ltd. homepage.

https://www.dectris.com/technical_mythen.html#main_head_navigation

Term	Description
Firmware Update Guide	Firmware_Update-MYTHEN-V1_6.pdf
Module Handling Instructions	Handling_Instructions-MYTHEN-V2_1.pdf
Linux Installation Guide	Linux_Installation-HowTo_MYTHEN-V1_3.pdf
Network Settings	Network_Settings-MYTHEN-V1_3.pdf
Quick Start Guide	QuickStart-MYTHEN-V2_1.pdf
Socket Interface Specifications	Socket_Interface_Spec-MYTHEN-V3.0.0-V1_1.pdf
Technical Documentation	Technical_Documentation-MYTHEN-V1_1.pdf
Trigger Notes	Trigger_Note-MYTHEN-V2_1.pdf
User Manual	User_Manual-MYTHEN-V2_1.pdf