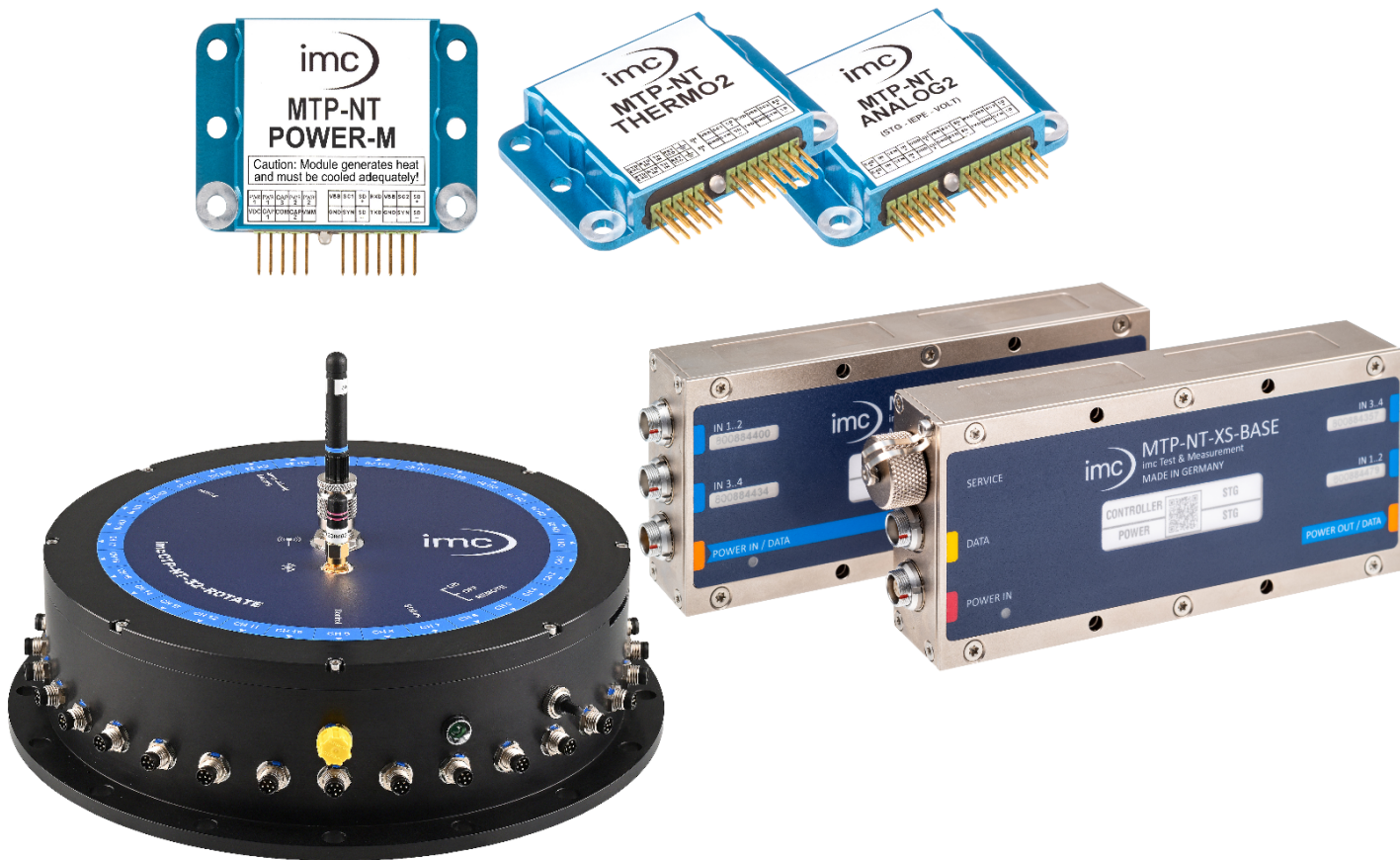


imc NTConfig

Manual

1st Edition - 10.12.2025



Disclaimer of liability

The contents of this documentation have been carefully checked for consistency with the hardware and software systems described. Nevertheless, it is impossible to completely rule out inconsistencies, so that we decline to offer any guarantee of total conformity.

We reserve the right to make technical modifications of the systems.

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Open Source Software Licenses

Some components of imc products use software which is licensed under the GNU General Public License (GPL). Details are available in the About dialog.

If you wish to receive a copy of the GPL sources used, please contact our tech support.

Notes regarding this document

The manual for imc NTConfig is available both as an e-book, chm and/or in PDF format.

What is the best way to read the imc NTConfig documents?

Setting up

Before installing the software, start by reading the setting up description. This contains important tips for achieving problem-free installation.

Manual - complete documentation

The manual serves as reference material and describes how to operate the software.

Special notes



Warning

Warnings contain information that must be observed to protect the user from harm or to prevent damage to property.



Note

Notes denote useful additional information on a particular topic.



Reference

A reference in this document is a reference in the text to another text passage.

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1 General

1.1 Before you start

Dear user.

1. The software you have obtained, as well as the associated manual are directed toward competent and instructed users. If you notice any discrepancies, we request that you contact our [tech support](#) ⁵.
2. Updates during software development can cause portions of the manual to become outdated. If you notice any discrepancies, we request that you contact our tech support.
3. Please contact our tech support if you find descriptions in the manual which you believe could be misunderstood and thereby lead to personal injury.
4. Read the license agreement. By using the software, you agree to the terms and conditions of the license agreement.



Note

Notes on the descriptions and the screenshots

- The help may also contain parts **shared imc software components**. These parts may differ from the rest of the help in terms of style and structure. All help files are equipped with a full text search functionality and have an index.
- The screen shots appearing in this documentation were created with a **variety of Windows versions** and their appearance may thus differ from that of your installed program.

1.2 Tech support

If you have problems or questions, please contact our tech support:

Phone: (Germany): **+49 30 467090-26**
E-Mail: hotline@imc-tm.de
Internet: <https://www.imc-tm.com/service-training/>

Tip for ensuring quick processing of your questions:

If you contact us **you would help us**, if you know the **serial number of your devices** and the **version info of the software**. This documentation should also be on hand.

- The device's serial number appears on the nameplate.
- The program version designation is available in the About-Dialog.

Product Improvement and change requests

Please help us to improve our documentation and products:

- Have you found any errors in the software, or would you suggest any changes?
- Would any change to the mechanical structure improve the operation of the device?
- Are there any terms or explanations in the manual or the technical data which are confusing?
- What amendments or enhancements would you suggest?

Our [tech support](#) ⁵ will be happy to receive your feedback.

1.3 Service and maintenance

Our service team is at your disposal for service and maintenance inquiries:

Phone: (Germany): **+49 30 629396-333** (Mon.-Fri.: 9.00 - 12.00 and 13.00 - 17.00)

E-Mail: imc-service@axiometrixsolutions.com

Internet: <https://www.imc-tm.com/service>

Service and maintenance activities include, for example calibration and adjustment, service check, repairs.

1.4 Legal notices

Quality Management



imc Test & Measurement GmbH holds DIN EN ISO 9001 certification since May 1995 and DIN EN ISO 14001 certification since November 2023. You can download the CE Certification, current certificates and information about the imc quality system on our website:

<https://www.imc-tm.com/quality-assurance/>.

imc Warranty

Subject to the general terms and conditions of imc Test & Measurement GmbH.

Liability restrictions

All specifications and notes in this document are subject to applicable standards and regulations, and reflect the state of the art well as accumulated years of knowledge and experience. The contents of this document have been carefully checked for consistency with the hardware and the software systems described. Nevertheless, it is impossible to completely rule out inconsistencies, so that we decline to offer any guarantee of total conformity. We reserve the right to make technical modifications of the systems.

The manufacturer declines any liability for damage arising from:

- failure to comply with the provided documentation,
- inappropriate use of the equipment.

1.5 imc Software License Agreement

imc Test & Measurement GmbH

Voltastr. 5

13355 Berlin, Germany

Trade register: Berlin-Charlottenburg HRB 28778

Managing directors: Frank Mayer, Michael Jürgen Bülter, Michael John Flaherty

imc Test & Measurement GmbH

Terms and Conditions

Governing the Use of imc Test & Measurement GmbH Software

As of: July 9th, 2025

§ 1 Objects of the Agreement

- (1) In addition to the "General Terms and Conditions Governing imc Test & Measurement GmbH Deliveries and Services to Customers", these terms and conditions apply to all contracts concluded with imc Test & Measurement GmbH (hereinafter referred to as "imc") which involve the transfer of rights of use to any software developed by imc (standard software, software created or adjusted specifically for the Customer, which is recorded on the machine-decodable data carriers such as data files, databases and database material, updates, upgrades, releases, etc., including corresponding documentation, information and materials, hereinafter referred to as "Software").
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If the Software used is a free trial version, then the following additional limitations apply:

- (1) The trial version only entitles the user to test the Software. In particular, commercially productive utilization is not permitted.
- (2) The rights of use granted expire after the elapse of a period stated in the product description.

§ 5 Conclusion

- (1) The law of the Federal Republic of Germany shall apply under exclusion of private international law. The provisions of the UN Convention on Contracts for the International Sale of Goods (CISG) do not apply.
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2 Introduction

Configuration software for MTP-NT modules

The imc NTConfig enables complete configuration of MTP-NT modules. Once the supply voltage has been applied, each module automatically performs the specified tasks (e.g., recording measured variables). The full performance of the MTP-NT modules can be easily accessed via a uniform interface.

Functionalities:

- **Configuration** of the measurement channels of the MTP-NT measurement modules
- **Management:** Support for all modules and management of settings in a database
- **Display** of current values, e.g., rectified input voltage
- **Synchronous acquisition** of measurement data across all modules

Available housings / devices



Fig. 1: MTP-NT-THERMO2 module

Each MTP-NT module has its own housing (smallest possible graduation). The metal housing is not completely closed. The measurement signals are connected, for example, via a touchable pin connector.



Reference

MTP-NT modules

Please refer to the description and application notes in a separate document: "*imc_MTP-NT_Manual*", which is freely available on the imc website.



Fig. 2: CTP-NT-ROTATE

A CTP-NT-ROTATE comprises up to 64 MTP-NT channels. The metal housing is completely sealed (Faraday cage) and forms an independent measuring system that is suitable for axial mounting. Connection is made via metal plugs with shielded cable connections.



Reference

CTP-NT-ROTATE

Please refer to the description and application notes in a separate document: "*CTP-NT64-Rotate-UM*", which is freely available on the imc website.



Fig. 3: MTP-NT-XS-BASE and a MTP-NT-EXT device

An MTP-NT-XS module comprises four MTP-NT modules. The completely enclosed metal housing (Faraday cage) forms an independent measuring system that is suitable for tangential mounting on rotating parts. Connection is made via metal plugs with shielded cable connections.



Reference

MTP-NT-XS

Please refer to the description and application notes in a separate document: "*imc_MTP-NT-XS_Manual*", which is freely available on the imc website.

3 Start of operation

3.1 Installation

The imc NTConfig Software is portable and does not need to be installed. Simply launch the .exe file downloaded from our website.



Reference

Download

You can download the latest released software version from our website, where you will also find further information.

<https://www.imc-tm.com/download-center/product-downloads/mtp-nt/software>

3.2 Handling

Dialog boxes and settings options are only displayed when the software is connected to a system. Offline operation or configuration without a connected system is not provided for.

The HW, FW1, and FW2 fields show the version numbers of the module's hardware and firmware, see e.g. Fig. 4 item. ①.

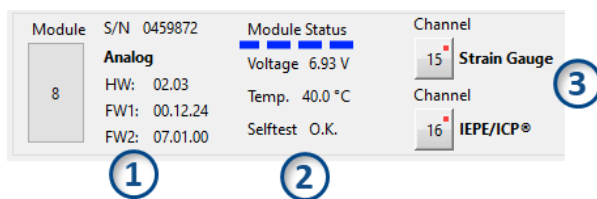


Fig. 4: General handling

The voltage value displayed in the "Module Status" column is the supply voltage measured by the module, Fig. 4 item. ②. The supply voltage for the modules of a measurement setup is specified using the "Output voltage setpoint" button, [Fig. 9 Pos. ④](#) ¹⁷.

The temperature values ("Temp.") Fig. 4 item. ② displayed for all modules are read once when the module configuration is read out and are not automatically updated later. Each time the configuration of a module is changed, the process is repeated: the module configuration and the temperature value are updated.

A red dot Fig. 4 item. ③ in the upper right corner of a button indicates a switchable function.



Note

If version 00.00.00 is displayed for FW1 and/or FW2, the module is not capable of measuring. In this case, please contact [imc Tech Support](#) ⁵.

4 Operating

4.1 Overview

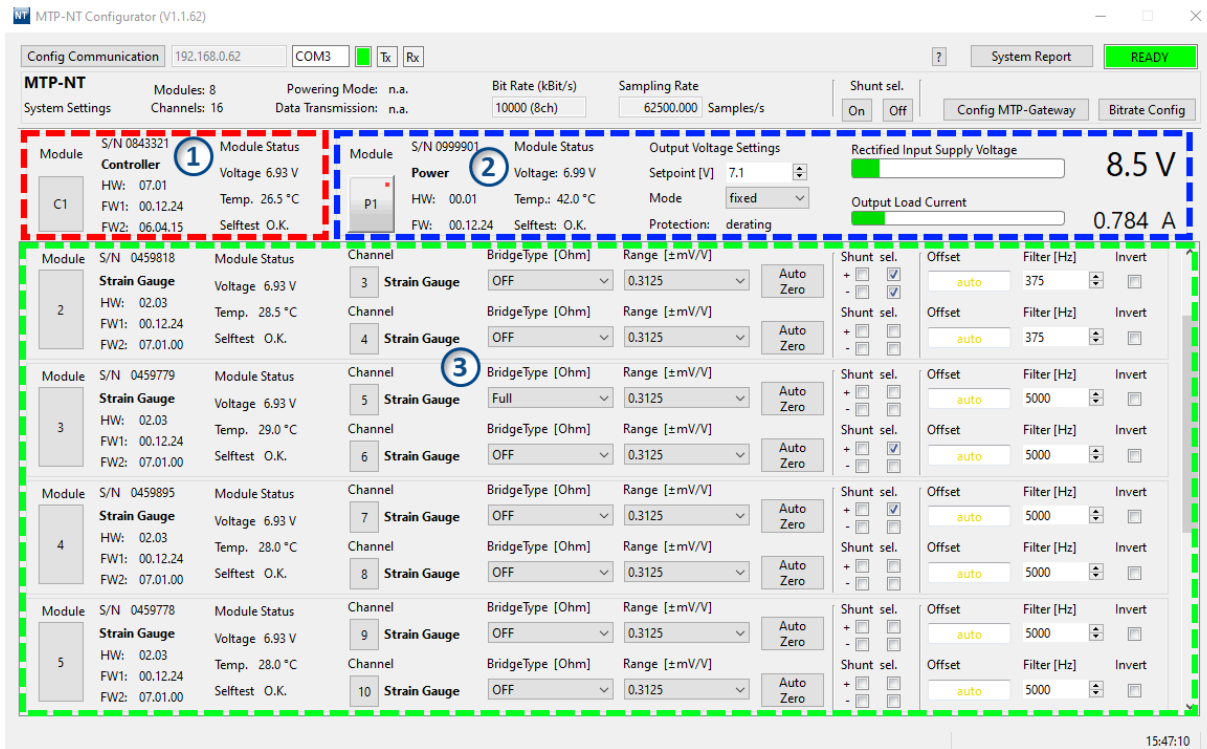


Fig. 5: NTConfig - user interface

① CONTROLLER

The area marked in red indicates the control module (CONTROLLER) present in the system. All information about this module can be found here.

② POWER-M module *

The area marked in blue indicates the POWER module available in the system, see [chapter "POWER-M"](#) ¹⁷.

(*) is omitted if no POWER-M module is present.

③ Measurement modules

In this section, you will find information and settings for all measurement modules connected to the controller module. All different module types such as [STG \(strain gauge\)](#) ¹⁸, [analog](#) ²⁰, and [thermo](#) ²¹ are listed here. As soon as the MTP-NT modules are powered up and no errors are detected, the status LED on the module lights up green. Module-specific setup procedures such as range setting, bridge type, send AutoZero, set/reset shunt, reverse polarity, or change filter frequency can be performed here. When performing these operations, the status of the "[connection status indicator](#)" ¹⁶ may change to "busy" as it may take some time to transmit commands and wait for a response. We recommend waiting until the connection status indicator turns green again before taking any further action.

4.2 Signal bandwidth and sampling rate

Band width (-3 dB) and sampling rate (red)							
Bit rate	2 CH	4 CH	8 CH	16 CH	32 CH	64 CH	128 CH
10 Mbit/s	--	--	24 kHz (62.5 kHz)	12 kHz (31.25 kHz)	6 kHz (15.63 kHz)	3 kHz (7.8 kHz)	--
5 Mbit/s	--	24 kHz (62.5 kHz)	12 kHz (31.25 kHz)	6 kHz (15.63 kHz)	3 kHz (7.8 kHz)	1.5 kHz (3.9 kHz)	750 Hz (1.95 kHz)
2.5 Mbit/s	24 kHz (62.5 kHz)	12 kHz (31.25 kHz)	6 kHz (15.63 kHz)	3 kHz (7.8 kHz)	1.5 kHz (3.9 kHz)	750 Hz (1.95 kHz)	375 Hz (976.56 Hz)
1.25 Mbit/s	12 kHz (31.25 kHz)	6 kHz (15.63 kHz)	3 kHz (7.8 kHz)	1.5 kHz (3.9 kHz)	750 Hz (1.95 kHz)	375 Hz (976.56 Hz)	190 Hz (488.28 Hz)
625 kbit/s	6 kHz (15.63 kHz)	3 kHz (7.8 kHz)	1.5 kHz (3.9 kHz)	750 Hz (1.95 kHz)	375 Hz (976.56 Hz)	190 Hz (488.28 Hz)	95 Hz (244.14 Hz)
312.5 kbit/s	3 kHz (7.8 kHz)	1.5 kHz (3.9 kHz)	750 Hz (1.95 kHz)	375 Hz (976.56 Hz)	190 Hz (488.28 Hz)	95 Hz (244.14 Hz)	--

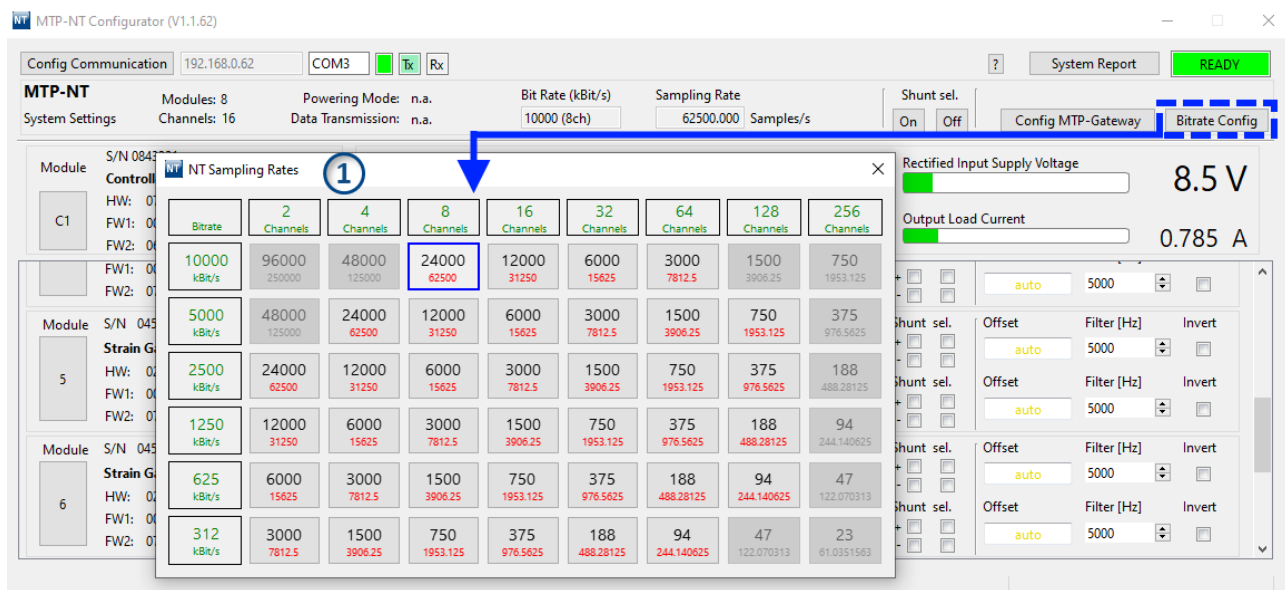


Fig. 6: Setting of the sampling rate

To change the bitrate, click on the "Bitrate Config" button in the upper right corner.

① Bitrate

This setting option is available from CONTROLLER FW2 version 05.20.06 onwards.

This "NT Sampling Rates" dialog box is also displayed if a setting is not possible due to old firmware (*there is no error message*).

4.3 Filter structure

RF interference suppression

The signal inputs are equipped with a double Pi filter (consisting of capacitors, inductors, and resistors) to completely suppress high-frequency interference and ensure signal quality.

Anti-Aliasing filter

The Anti-Aliasing filter in the NT analog path is located between the amplifier and the A/D converter. It has the following characteristics:

- Linear Phase, 10th Order Lowpass Filter
- Root Raised Cosine Response
- Programmable between 100 Hz and 24 kHz (increment 1 Hz)

The filter cutoff frequency (-3 dB) can be set with NTConfig Software. The modules limit the filter setting to the maximum permitted value (cut-off frequency) to prevent aliasing, approx. 1/2 of the sampling rate. With the THERMO module, only fixed filter frequencies of 1, 2, 4, 8, 16, and 32 Hz are permitted.

! Trick 1

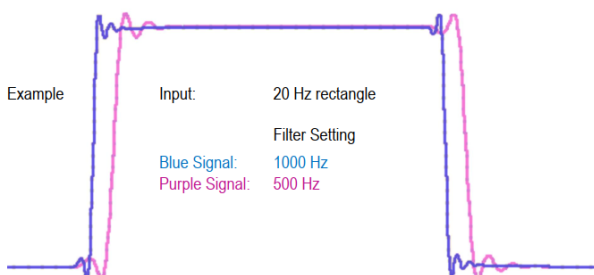
Trick 1: The maximum supported filter frequency can be determined by entering a very high value (e.g., greater than the sampling rate); the module returns the valid upper limit.

! Trick 2

Trick 2: Holding down the Shift key during entry transfers the setting to all similar channels; this also applies to other parameters such as the measuring range.

Step Response

We chose the Root-Raised-Cosine characteristic because it produces only marginally more ringing than the normally used Raised-Cosine filters, but has advantages with regard to the signal-to-noise ratio and regarding the artifacts produced by aliasing.



4.4 COM port parameter

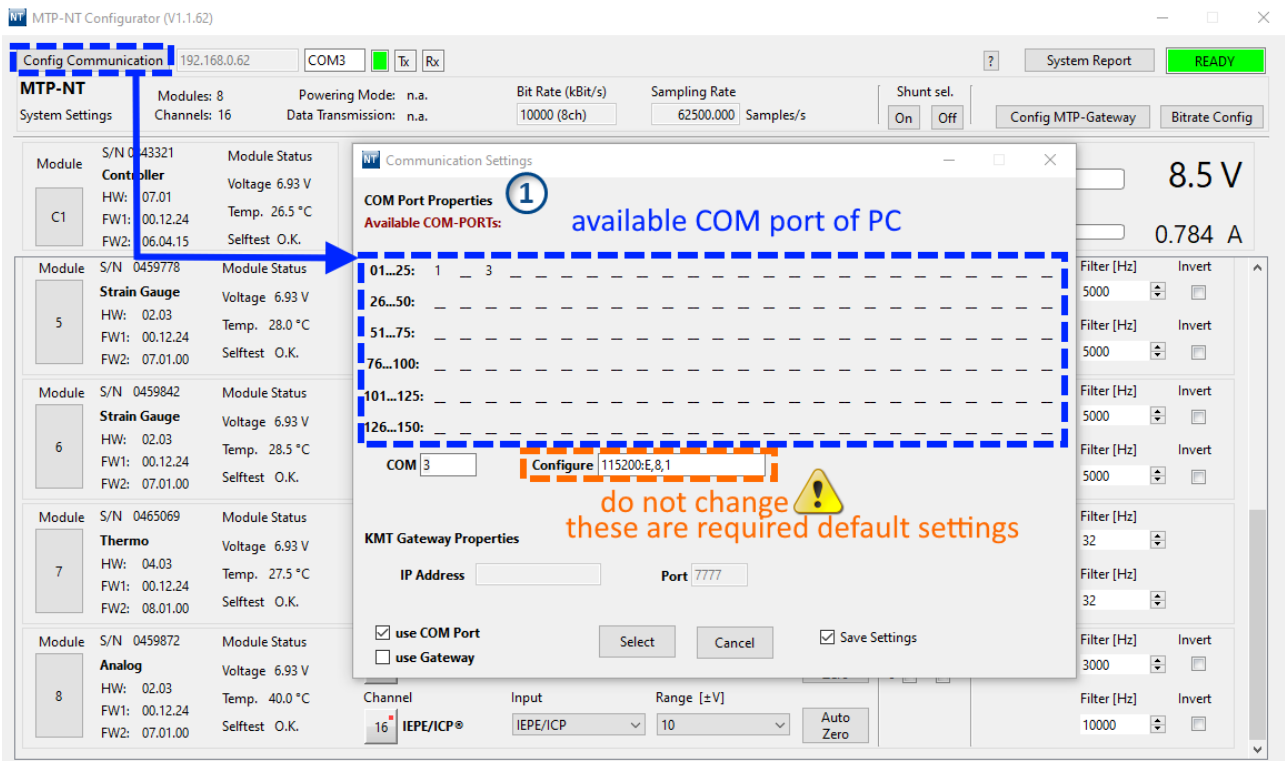


Fig. 7: COM port settings

To change the COM port, click on the "COM port settings" box in the top-left corner.

① Display the COM port settings

In this window, you can enter the number of the COM port you are using.

Note

Display settings

The COM ports currently available on your PC/computer are listed in the blue area above. Enter the number of the COM port you want to use in the COM field. Click "Select" to open the COM port with the specified settings.

Note

COM port

The configuration dialog shows the COM ports available on the PC. Select the port to which the MTP-NT-CONTROLLER is connected. To do this, enter the port number in the COM field.

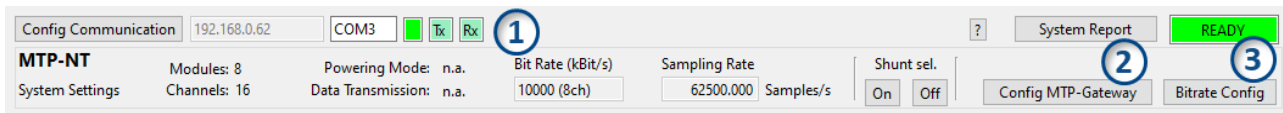


Fig. 8: COM settings

① Serial port LED

There are three colors that indicate the state of the serial communication within the application.

- grey This color indicates that there is no serial port with the given settings.
- yellow This color indicates that the serial port is available, but unable to contact or communicate with the MTP-NT system.
- green This color indicates that the application can communicate with the MTP-NT system using the given serial port settings.

② System Report

Click this button to save the entire system report in one of two available formats: PDF or Excel. A new window will open with a list of all modules of the connected NT system. The corresponding checkboxes must be activated for all modules that are to be included in the system report. The report can then be saved as either an Excel or PDF file by clicking on the corresponding "Save" button.



Note

Module detection

Modules that are not listed in the user interface under "MTP-NT measurement modules", see [Fig. 5 item ③](#), will not appear in the system report. These MTP-NT measurement modules can be identified, for example, by the status LED not lighting up.


③ Connection Status indicator

There are three phases:

- BUSY (yellow)** In the initial stage of starting the application, it shows the number of modules to be loaded. When a group command is issued, it displays the number of seconds until the operation is complete.
- OFFLINE (yellow)** The software has not yet been able to establish a connection to an MTP-NT system.
This phase has been added as of V1.1.62!
- READY (green)** This indicates that all pending messages have been sent, allowing the user to perform additional actions.

It is advisable to wait until the LED turns green before giving the next command.

4.5 POWER-M

This section is used to configure the power supply of the [imc xTP-NT system](#) .

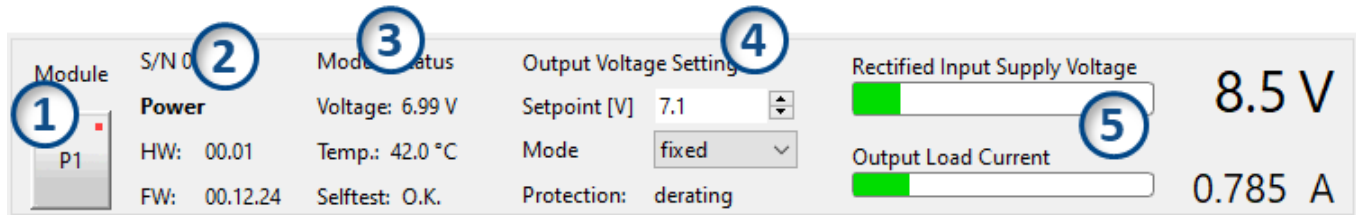



Fig. 9: Configuring the POWER-M module

Clicking the P1 button Fig. 9 item. ① opens a separate window "Power settings", where you can configure the **self-protection mode**. The following modes are available:

Mode	Description
Standard	In standard mode, the output voltage is switched off when a certain module temperature is exceeded.
Derating	In derating mode, the output voltage is deliberately reduced when the module temperature exceeds a first threshold. If the module temperature exceeds a second critical threshold, the output voltage is switched off.
Mission critical	<div>*New</div> <div>In Mission Critical Modus, there is neither a shutdown nor a reduction in the output voltage.</div> <div>  This setting will void the warranty. The user bears full responsibility for all resulting consequences. </div>

Column ②: Module S/N xxx (Seriennummer)

Designation	Description
P1	Button for module settings (currently only self-protection mode)
HW	Hardware version of the module
FW	Version number of the firmware of the module

Column ③: Module Status

Designation	Description
Voltage	Measured output voltage
Temp.	Measured temperature in the module
Selftest	Error state of the module

Column ④: Output Voltage Settings

Designation	Description
Setpoint [V]	*New Setpoint of the output voltage for supplying the MTP-NT system
Mode	*New Operating mode: (1) fixed: fixed voltage; (2) auto: module automatically sets the optimal voltage (currently, "auto" mode is not yet supported)
Protection	Display the setting selected for the POWER-M module under ①.

Column ⑤: Rectified Input Supply Voltage

Rectified Input Supply V	Rectified input voltage for supplying the MTP-MT system
Output Load Current	Measured output current changes when more modules are used, when bridge supply voltage is set, or when temperature changes occur.

4.6 Strain Gauge

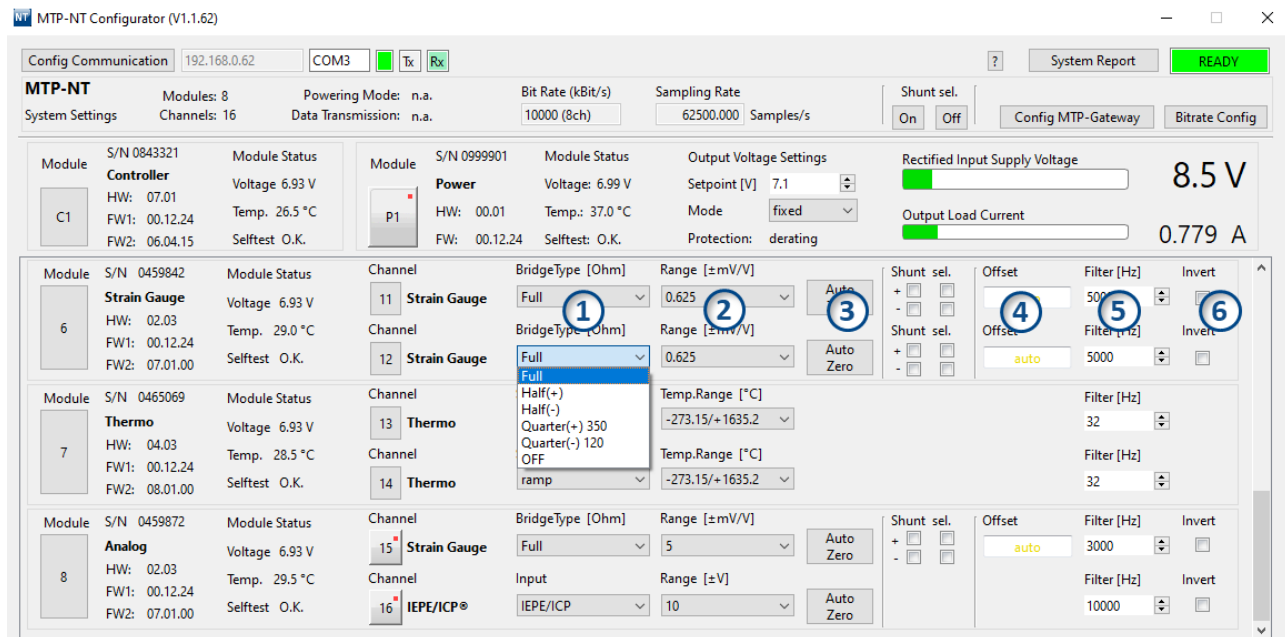


Fig. 10: Strain Gauge functions

Some functions of the Strain Gauge module are marked with "SC (Shift Click)" and "SE" (Shift Enter) in the following description. A group command can be issued for these functions, i.e., the current setting can be applied to all similar modules. Simply click on the drop-down menu to select a suitable type, then hold down the Shift key and click on the setting to apply it to all similar modules.

- ① **Bridge type (SC):** Clicking the drop box below the 'Bridge Type' label will display a list of valid measurement ranges.
Depending on the required type, the user can select an option and set the specific channel value.
- ② **Range (SC):** Click on the drop-down menu below the label 'Range'. This will display a list of items that the user can select to set the range.
- ③ **Autozero (SC):** Click the Autozero button to send the command to the corresponding channel. The button text will turn red to indicate the approximate time it will take for the Autozero command to take effect in the module.
Press and hold the Shift key while clicking to apply the AZ command to all similar channels at once.
Alternatively, a long press of this button sends an Autozero Reset command to the particular channel of the module.
- ④ **Offset:** Selecting this option displays a new dialog box in which the user can set the offset value in the corresponding channel to "Auto" or "Manual".
- ⑤ **Filter:** The filter value can be set in this box. Once set, the text turns blue and a command is sent to the specific channel in the module.
- ⑥ **Invert:** This option can be selected to reverse the polarity of a specific channel on the module.

4.7 Function Shunt sel.

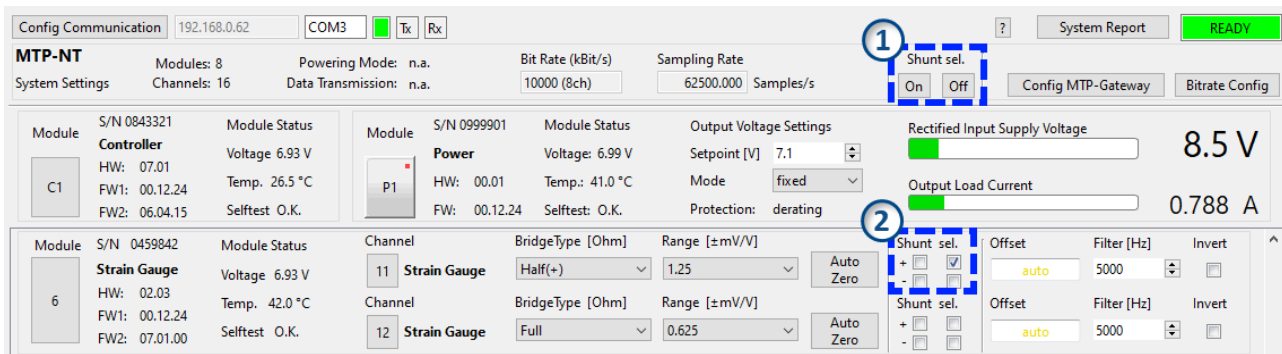


Fig. 11: Function Shunt sel.

① Shunt sel. (On, Off)

The On button switches **on** all preselected shunts (marked with a second blue check mark in the box in the Sel column) for 20 seconds.

The Off button switches off all shunts (not just the preselected ones).

② Shunt

There are two switchable shunts (shunt resistors) per measuring bridge channel (strain gauge). Both shunt resistors are connected to the sensor supply (GND). The resistor at the positive input IN+ has a value of 100 kΩ, the resistor at the negative input IN- has a value of 300 kΩ.

Clicking on the box to the right of the + symbol activates the 100 kΩ resistor of the positive path for 20 seconds. Clicking on the box to the right of the - symbol activates the 300 kΩ resistor of the negative path for 20 seconds. Clicking the box a second time immediately deactivates the shunt. As long as a shunt is active, a red dot appears in the corresponding box.

Hold down the Shift key and click on any shunt to activate all shunts (either + or -) in a measurement setup.

Sel stands for Select

The two boxes in this **column "Sel"** are intended for preselection. A check mark indicates the preselected status. All preselected shunts are switched on simultaneously with "Shunt sel. On" (see marking ①).

4.8 Analog

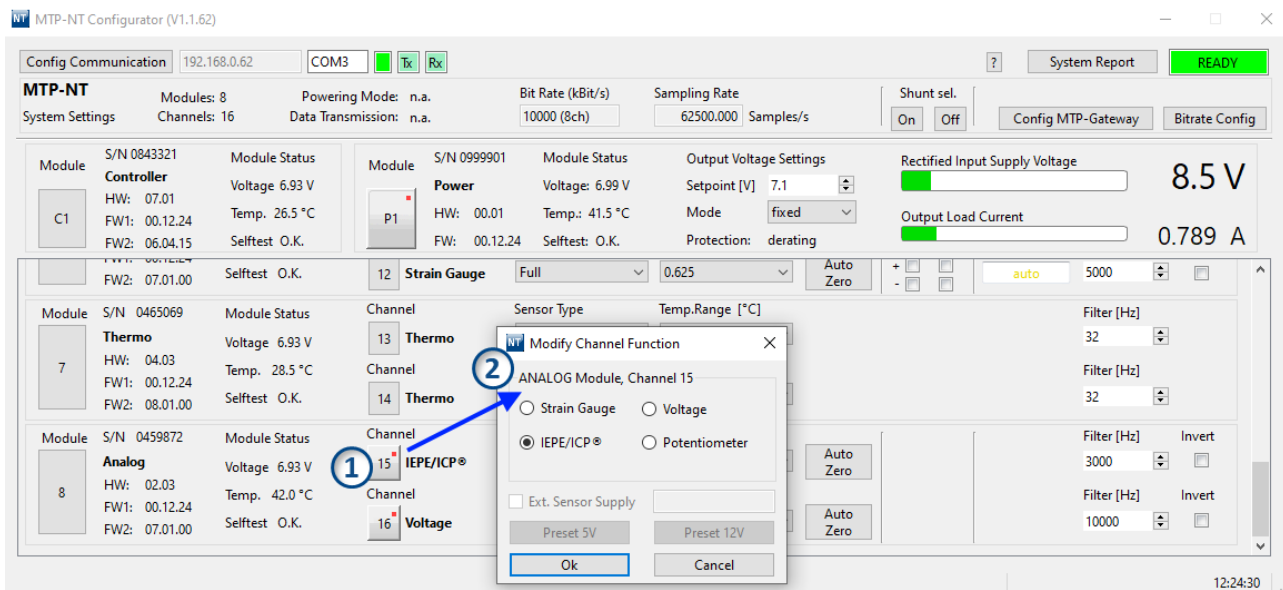


Fig. 12: settings of the ANALOG module

The channels of the Analog module können can be configured for different types of channel function:

- strain Gauge,
- voltage,
- IEPE/ICP® and
- potentiometer.

- ① To modify the channel function, click on the **channel number button** below "Channel" ([red dot](#) ¹¹). This brings up a new dialogue box where a different channel function can be selected.
- ② Channel function name: upon successfully changing the channel function, the name and available features for the channel are displayed.

The selected channel function behaves in exactly the same way as its chosen type. For example, if the channel function is set to 'Strain Gauge', all the channel's features are identical to those of a strain gauge. The same behaviour applies with [Strain Gauge modules](#) ¹⁸.

4.9 Thermo

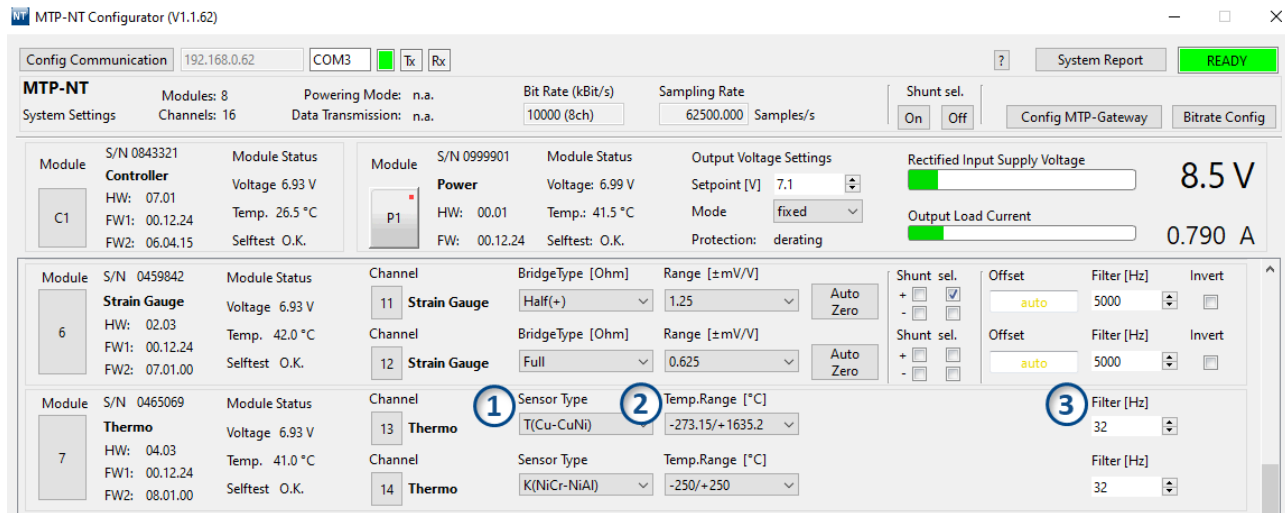


Fig. 13: settings of the THERMO module

The thermo module only has three parameters that can be modified by the user:

- ① **Sensor type:** A list of sensors that can be configured with the Thermo module is provided. The user can click on the drop-down menu below 'Sensor Type' and select the desired sensor.

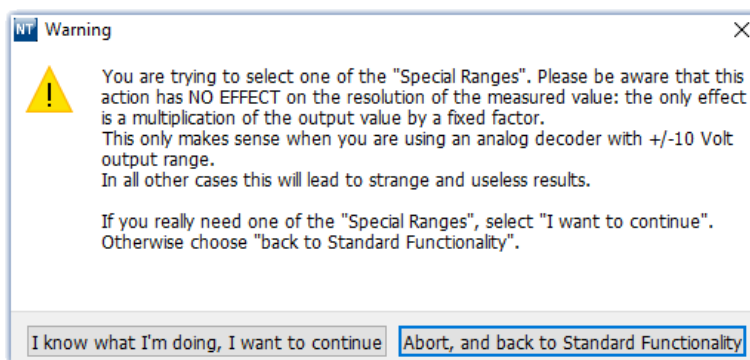


Note

Thermocouple types

Of all the thermocouple types displayed in the drop-down menu, **only type K** is currently supported.

- ② **Temperature range:** The temperature range can be modified by selecting the drop-down menu. After selecting a new area, the following query dialog appears before applying the changes, which must be confirmed or rejected:



- ③ **Filter:** The filter value can be set in this box. Once set, the text turns blue and a command is sent to the specific channel in the module.

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