DEWETRON

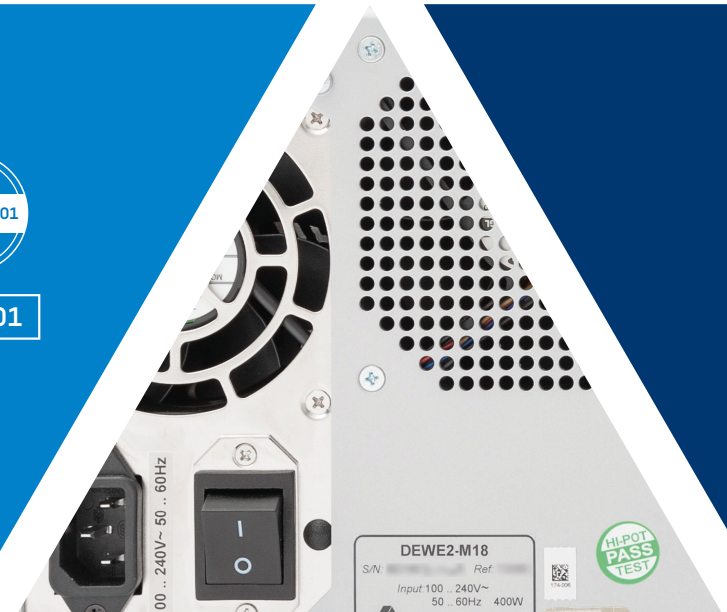
DEWE2-M18

TECHNICAL REFERENCE

DEVICE VERSION 2.2

EN ISO 14001

ISO 9001



Preface

Thank you!

Thank you very much for your investment in DEWETRON‘s unique data acquisition systems. These are top-quality instruments which are designed to provide you years of reliable service. This guide has been prepared to help you get the most from your investment, starting from the day you take it out of the box, and extending for years into the future.

This guide includes important startup notes, as well as safety notes and information about keeping your DEWETRON system in good working condition over time. However, this manual cannot and is not intended to replace adequate training.

This documentation contains operating as well as safety and care instructions that must be observed by the user. Faultless operation can only be guaranteed by observing these instructions.

Intended use

A DEWETRON DEWE2-M18 is a rack-mount data acquisition mainframe which offers 18 slots for user exchangeable TRION series modules. Choose your TRION module(s), plug them into your DEWE2-M18 instrument, turn the system on and get to work. TRION modules are automatically identified and configured within the software as soon as it is launched.

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SAFETY

Safety

Safety instructions

The following section contains warning and safety instructions that must be observed by the user. Faultless operation can only be guaranteed if these instructions are observed.

General safety instructions

- Use this system under the terms of the specifications only to avoid any possible danger. If the unit is used in a manner not specified by the manufacturer the protection can be impaired.
- Maintenance is to be executed by qualified staff only.
- DO NOT use the system if equipment covers or shields are removed. If you assume the system is damaged, have it examined by authorized personnel only.
- Any other use than described above may damage your system and is attended with dangers such as short-circuits, fire or electric shocks.
- The whole system must not be changed, rebuilt or opened (except for changing TRION modules).
- Reinstall filler panels of unused TRION slots to guarantee proper cooling of the installed modules. The warranty is void if the modules overheat due to missing filler panels.
- If you assume a more riskless use is not provided anymore, the system has to be rendered inoperative and should be protected against inadvertent operation. It is assumed that a more riskless operation is not possible anymore, if
  - the system is damaged obviously or causes strange noises.
  - the system does not work anymore.
  - the system has been exposed to long storage in adverse environmental.
  - the system has been exposed to heavy shipment strain.
- The warranty is void if damages caused by disregarding this manual. For consequential damages NO liability will be assumed.
- The warranty is void if damages to property or persons caused by improper use or disregarding the safety instructions.
- Unauthorized changing or rebuilding the system is prohibited due to safety and permission reasons (CE). Exception: changing TRION modules.
- Prevent using metal bare wires as there is a risk of short-circuit and fire hazard.
- DO NOT use the system before, during or shortly after a thunderstorm (risk of lightning and high energy overvoltage). An advanced range of application under certain conditions is allowed with therefore designed products only. For details refer to the specifications.
- Make sure that your hands, shoes, clothes and as well as the floor, the system or measuring leads, integrated circuits etc. are dry.
- Use measurement leads or measurement accessories aligned to the specification of the system only. Fire hazard in case of overload.
- Do not disassemble the system. There is a high risk of getting a perilous electric shock. Capacitors still might charged, even the system has been removed from the power supply.
- The measuring systems are not designed for use at humans and animals.
- Contact a professional if you have doubts about the method of operation, safety or the connection of the system.
- Handle the product with care. Shocks, hits and dropping it even from an already lower level may damage your system.
- Also consider the detailed technical reference manual as well as the security advices of the connected systems.

Electrical safety instructions

- With this product, only use the power cable delivered or defined for the host country.
- DO NOT connect or disconnect sensors, probes or test leads, as these parts are connected to a voltage supply unit.
- The system is grounded via a protective conductor in the power supply cord. To avoid electric shocks, the protective conductor has to be connected with the ground of the power network. Before connecting the input or output connectors of the system, make sure that there is a proper grounding to guarantee potential free usage. For countries, in which there is no proper grounding, refer to your local legally safety regulations for safety use.
- DC systems: Every DC system has a grounding connected to the chassis (black safety banana plug).
- Note the characteristics and indicators on the system to avoid fire or electric shocks. Before connecting the system, carefully read and understand the corresponding specifications in the product manual.
- The inputs are not, unless otherwise noted (CATx identification), for connecting to the main circuits of category II, III and IV. The measurement category can be adjusted depending on module configuration.
- The power cord or the main power switch separates the system from the power supply. Do not block the power cord or main switch, since it has to be accessible for the users.
- Any direct voltage output is protected with a fuse against short-circuits and reverse-polarity, but is NOT galvanically isolated (except it is explicit marked on the system).
- Supply overvoltage category is II.
- The system must be connected and operated to an earthed wall socket at the AC mains power supply only (except for DC systems).
- DO NOT touch any exposed connectors or components if they are live wired. The use of metal bare wires is not allowed. There is a risk of short-circuits and fire hazard.
- The assembly of the system is equivalent to protection class I. For power supply, only the correct power socket of the public power supply must be used, except the system is DC powered.
- Be careful with voltages >25 V_{AC} or >35 V_{DC}. These voltages are already high enough in order to get a perilous electric shock by touching the wiring.
- Unless otherwise stated, the maximum input voltage for measuring cards is 70 VDC and 46.7 V_{PEAK}
- The electrical installations and equipments in industrial facilities must be observed by the security regulations and insurance institutions.

Ambient safety notices

- This product is intended for use in industrial locations. As a result, this product may cause interference if used in residential areas. Such use must be avoided unless the user takes special measures to reduce electromagnetic emissions to prevent interferences to the reception of radio and television broadcasts.
- Do not switch on the system after transporting it from a cold into a warm room and vice versa. The thereby created condensation may damage your system. Acclimatise the system unpowered to room temperature.
- Any use in wet rooms, outdoors or in adverse environmental condition is not allowed. Adverse environmental conditions are:
  - Moisture or high humidity
  - Dust, flammable gases, fumes or dissolver
  - Thunderstorm or thunderstorm conditions (except assembly PNA)
  - Electrostatic fields etc.
- DO NOT use the system in rooms with flammable gases, fumes or dust or in adverse environmental conditions.
- Direct exposure of any DEWETRON product to strong sunlight or other heat radiation shall be prevented, as this could excessively heat up the product and lead to permanent damage of the product.
- The use of the measuring system in schools and other training facilities must be observed by skilled personnel.

Safety notices during operation

- During the use of the system, it might be possible to access another parts of a more comprehensive system. Read and follow the safety instructions provided in the manuals of all other components regarding warning and security advices for using the system.
- The product heats during operation. Make sure there is adequate ventilation. Ventilation slots must not covered. Only fuses of the specified type and nominal current may be used. The use of patched fuses is prohibited.

Standards and norms

This product has left the factory in safety-related flawless and proper condition. In order to maintain this condition and guarantee safety use, the user has to consider the security advices and warnings in this manual.

EN 61326-3-1:2008

IEC 61326-1 applies to this part of IEC 61326 but is limited to systems and equipment for industrial applications intended to perform safety functions as defined in IEC 61508 with SIL 1-3.

The electromagnetic environments encompassed by this product family standard are industrial, both indoor and outdoor, as described for industrial locations in IEC 61000-6-2 or defined in 3.7 of IEC 61326-1.

Equipment and systems intended for use in other electromagnetic environments, for example, in the process industry or in environments with potentially explosive atmospheres, are excluded from the scope of this product family standard, IEC 61326-3-1.

Devices and systems according to IEC 61508 or IEC 61511 which are considered as “operationally welltried”, are excluded from the scope of IEC 61326-3-1.

Fire-alarm and safety-alarm systems intended for protection of buildings are excluded from the scope of IEC 61326-3-1.

Typographic conventions

Safety and warning notices

WARNING

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

CAUTION

Indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

Notices

NOTICE

This text indicates situations or operation errors which could result in property damage or data loss.

INFORMATION

This text indicates important information or operating instructions. Not observing these instructions could inhibit or impede you from successfully completing the tasks described in this documentation.

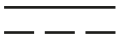
Symbols

Denotes a warning that alerts you to take precautions to avoid injury. When this symbol is shown on the product, refer to the technical reference manual (ISO 7000-4034; 2004-01).

Indicates hazardous voltages.

Observe precautions for handling electrostatic sensitive devices.

Indicates the chassis terminal (IEC 60417-5020; 2002-10).



Direct current (IEC 60417-5031; 2002-10)

Alternate current (IEC 60417-5032; 2002-10)

Both direct and alternating current (IEC 60417-5033; 2002-10)

Three-phase alternating current (IEC 60417-5032-1; 2002-10)

Protective conductor terminal (IEC 60417-5019; 2006-08)

Equipment protected throughout by double insulation or reinforced insulation (IEC 60417-5172; 2003-02)

On (power) (IEC 60417-5007; 2002-10)

Off (power) (IEC 60417-5008; 2002-10)

GENERAL INFORMATION

General information

NOTICE

The system BIOS is protected by password. Any change in the BIOS may cause a system crash. When the system is booting, do not press ESC-button on keyboard. This may clear the BIOS settings and cause system faults.

Any change in the file structure as deleting or adding files or directories might cause a system crash.

Before installing software updates contact DEWETRON or your local distributor. Use only software packages which are released by DEWETRON. Further information is available at http://www.dewetron.com.

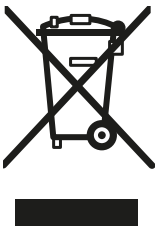
After powering off the system wait at least 10 seconds before switching the system on again. Otherwise the system may not boot correctly. This prolongs also the life of all system components.

If the AC plug of the power supply unit is disconnected an and then reconnected, it may not be possible to restart the system. In this case, the system must be disconnected from the power supply for 1 minute before it can be restarted again.

Environmental considerations

The following information refers to the environmental impact of the product and the product end-of-life handling. Observe the following guidelines when recycling a DEWETRON system:

- System and components recycling



The production of these components has required the extraction and use of natural resources. The substances contained in the system could be harmful to your health and to the environment if the system is improperly handled at its end of life. Recycle this product in an appropriate way to avoid an unnecessary pollution of the environment and to keep natural resources.

This symbol indicates that this system complies with the European Union's requirements according to Directive 2002/96/EC on Waste of Electrical and Electronic Equipment (WEEE). Further information about recycling can be found on the DEWETRON website (www.dewetron.com).

- Restriction of hazardous substances

  This product has been classified as Monitoring and Control equipment, and is outside the scope of the 2011/65/EU RoHS Directive. This product is known to contain lead.

Problematic network stacks

Often intrusive IT software or network processes can interfere with the primary function of the DEWETRON system: to record data. Therefore we recommend strongly against the installation of IT/MIS software and running their processes on any DEWETRON data acquisition system, and cannot guarantee the performance of our systems if they are so configured.

Warranty information

A copy of the specific warranty terms applicable to your DEWETRON product and replacement parts can be obtained from your local sales and service office.

Legal information

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Printing history

Refer to the page bottom for printing version.

MAIN SYSTEM

Main system

Key facts

- Data acquisition mainframe
- 18 slots for TRION acquisition modules
- Up to 144 analog inputs
- 19” rack-mountable or benchtop use

System specifications

DEWE2-M18	
Main system	
Data acquisition	18 slots for TRION acquisition modules[1)]
High-speed channel expansion	Add TRIONet at any time by SYNC interfaces or other instruments via OXYGEN-NET
Quasi-static channel expansion	CPAD2 via TRION-CAN
Rated input voltage	100 to 240 V_{AC} (max. 90 to 264 V_{AC}), 400 W AC power supply
Typical power consumption[2)]	320 W
PC configuration	Intel® Core™ i7 processor, 16 GB RAM 4x USB3.1 Gen 1; 3x LAN Ethernet; 2x HDMI; 1x RS-232
Weight w/o modules	Typ. 13 kg (28.6 lbs)
Dimensions (W x D x H)	Without feet: 441 x 424 x 177 mm (17.4 x 16.7 x 7 in.)
Environmental specifications	
Operating temperature	0 to +50 °C, down to -20 °C with prewarmed unit
Storage temperature	-20 to +70 °C
Humidity	10 to 80 % non cond., 5 to 95 % rel. humidity
Max. altitude	2000 m (6561 ft)
Sine vibration test[3)]; EN 60068-2-6	
Shape	Sine
Frequency range	10–150 Hz
Acceleration	20 m/s^2
Sweep rate	1 oct/min
Duration test in 3 directions	20 cycles
Random vibration test[3)]; EN 60721-3-2; Class 2M4	
Shape	Random
Frequency range	10–200 Hz
Spectral acceleration density	1 m^2/s^3
Duration	30 min/direction

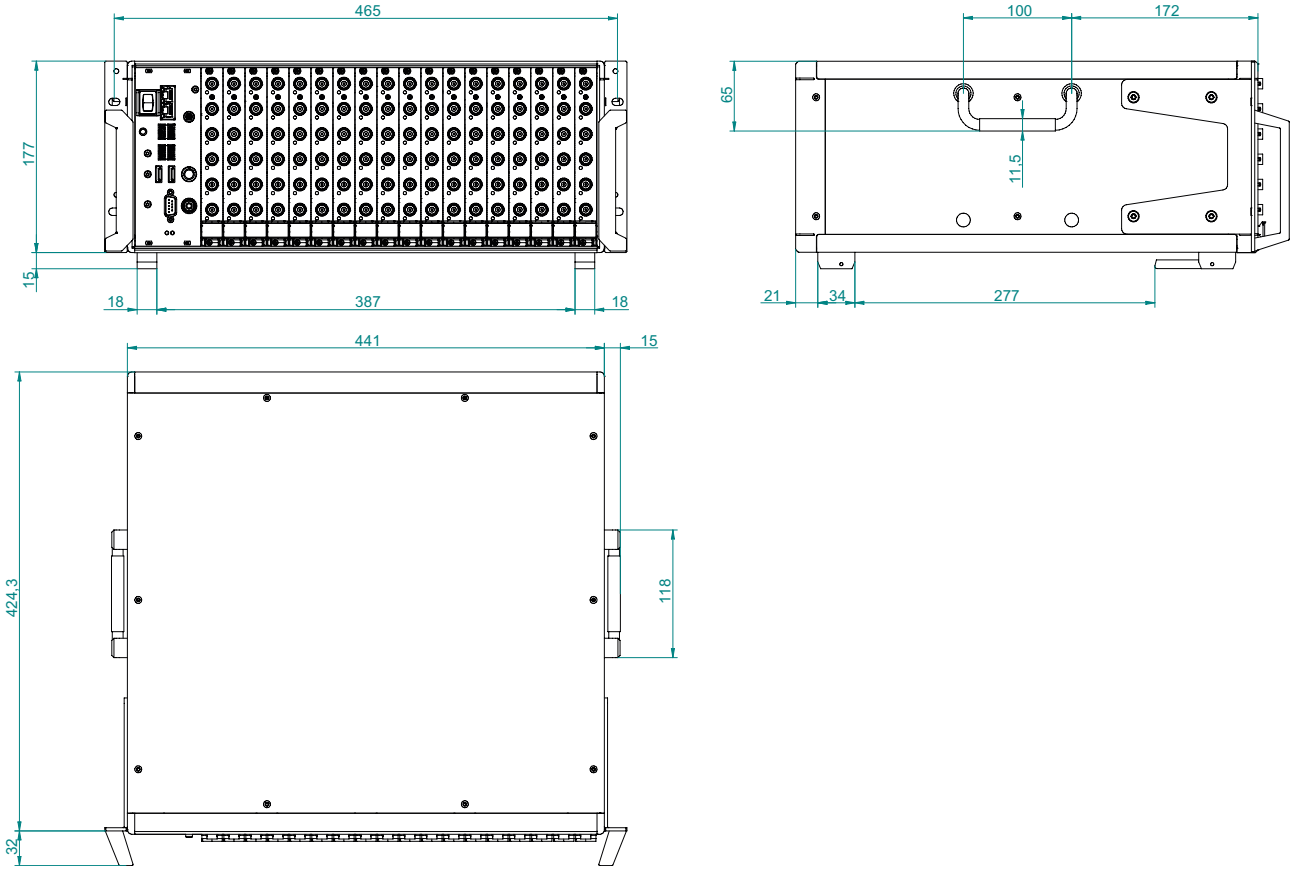
Tab. 1: System specifications

DEWE2-M18	
Shocktests[3]; EN 60068-2-27	
Pulse form	Half-sine
Acceleration amplitude	15 g
Duration	11 ms
Direction	3 bumps each direction, 6 directions in total

Tab. 1: System specifications

[1] TRION3 modules are not supported.
[2] Refer to chapter *Power supply input connector on page 16* for possible power limitations.
[3] Tested with SSD.

Dimensions*



*) Dimensions in mm (1 inch = 25.4 mm)

Fig. 1: Dimensions DEWE2-M18

CONNECTIONS AND PORTS

Connections and ports

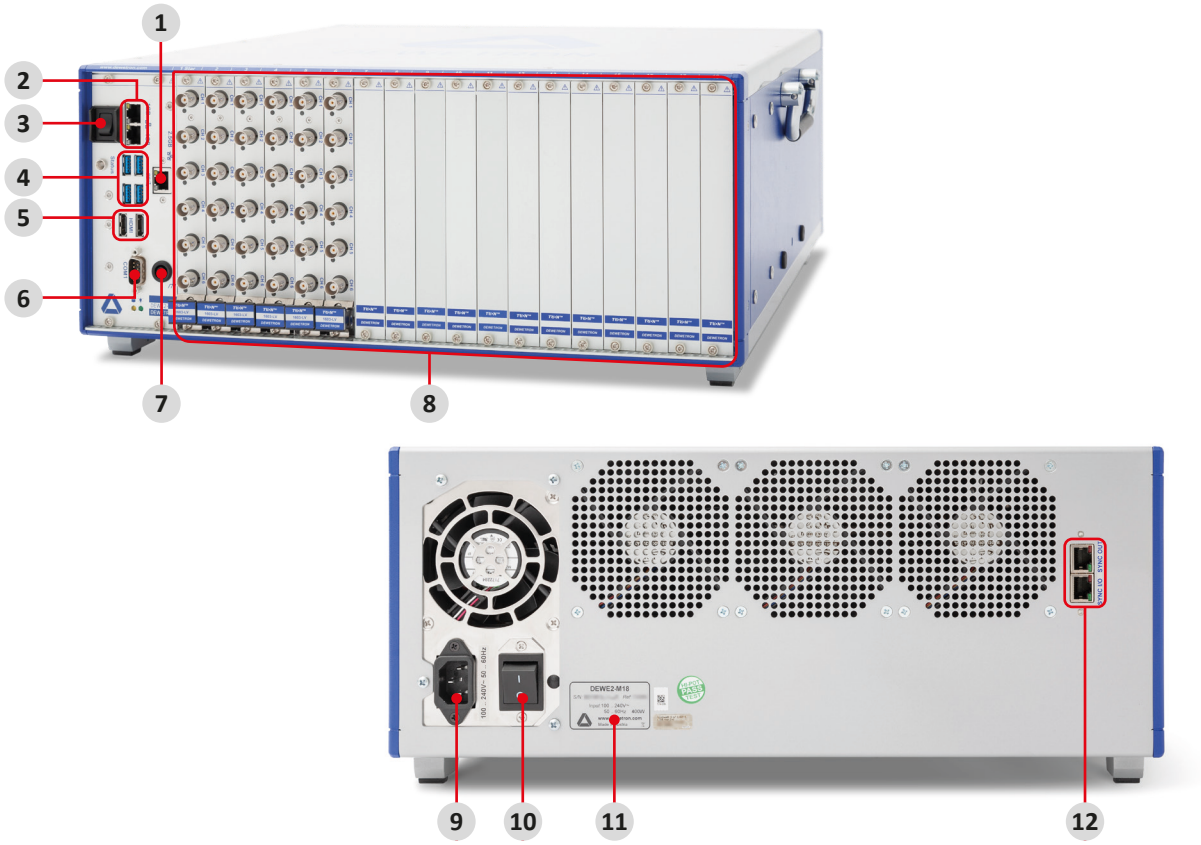


Fig. 2: DEWE2-M18 connections and ports

1. 2.5 GBit Ethernet LAN connector
2. 1 GBit Ethernet LAN connector
3. Power on/off switch
4. USB 3.1 interface connectors
5. HDMI connectors
6. RS-232 interface connector
7. Chassis terminal
8. TRION series module slots
9. Power supply input connector
10. Main power switch
11. Nameplate
12. TRION SYNC-BUS

INFORMATION

The amount and location of the connectors might vary from system to system and depends on system configuration.

2.5 GBit Ethernet LAN connector

The DEWE2-M18 supports 10/100/1000/2500 BaseT Ethernet with standard RJ45 connector.

An Intel® Ethernet Controller I225 is used for this port. The required operating system is either Windows 10 RS5+ x64 (or higher) or Linux kernel 5.7 (or higher).

1 GBit Ethernet LAN connector

The DEWE2-M18 supports 10/100/1000 BaseT Ethernet with standard RJ45 connector.

Power on/off switch

The power on/off switch at the front of the system is used to switch on the system. It only works if the main power switch **(10)** is switched to position 'I'. For further information see chapter *Power supply input connector on page 16*.

USB 3.1 interface connectors

The DEWE2-M18 comes with 2 USB 3.1 Gen 1 interface connectors which meet standard USB pin assignment.

HDMI connectors

The DEWE2-M18 comes with two HDMI connectors for connecting external monitors with standard pin assignment.

RS-232 interface connector

The RS-232 interface connector (male) is configured as standard RS-232 interface COM 1/COM 2 and can be used for peripheral units.

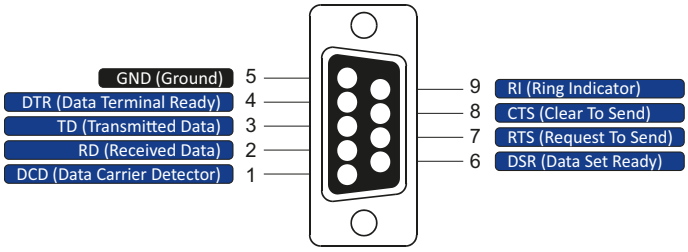


Fig. 3: Pin assignment RS-232 interface connector (COM 1+2)

Chassis terminal

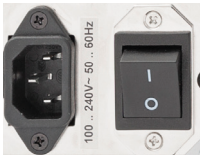
For some kind of measurements, it is necessary to provide the system with an additional ground connection.

TRION series module slots

The DEWE2-M18 supports all modules of the TRION series. TRION3 series modules are not compatible with DEWE2 series instruments (see also *Compatibility with TRION boards on page 17*). For more information about the various modules refer to *TRION series modules overview on page 29.*

CONNECTIONS AND PORTS

Power supply input connector

400 W DC power supply			
	**Input**		
	– Rated input voltage	100...240 V_{AC} (max. 90 ... 264 V_{AC}), active PFC	
	– Input frequency	47...63 Hz	
	– Max. input current	7 A (115 V_{AC}), 3.5 A (230 V_{AC})	
	Output		
	– Output power	max. 400 W	
	– Output voltages	+3.3 V (max. 28 A)	
		+5 V (max. 35 A)	-5 V (max. 0.5 A)
		+5 V_{SB} (max. 2 A)	
		+12 V (max. 30 A)	-12 V (max. 0.8 A)

Tab. 2: Specifications power supply input connector

By switching the main power switch to position 'I' the instrument can be powered up by actuating the power on/off switch located at the front of the instrument.

To shut the instrument down, again, actuate the power on/off switch located at the front of the instrument. After 6 seconds the instrument is completely shut down (mainboard & power supply).

In case of a power loss, the built-in logic recognizes the position of the main power switch and automatically restarts the instrument.

Main power switch

The main power switch separates the system from the grid. The power on/off switch **(3)** at the front of the DEWE2-M18 only works if the main power switch **(10)** is switched to position 'I'.

Nameplate

The nameplate is located on the backside of the device. It indicates the product name and serial number as well as information about the power properties and manufacturer.

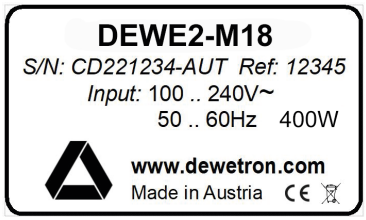


Fig. 4: Nameplate

TRION SYNC-BUS

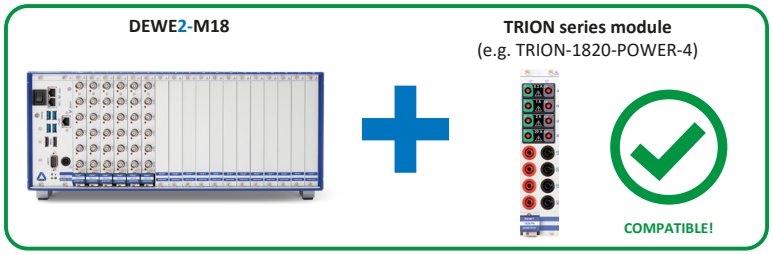
The TRION SYNC-BUS allows an easy high-speed channel expansion with TRIONet front-ends or distributed high channel-count systems featuring OXYGEN with the OXY-OPT-NET software option.

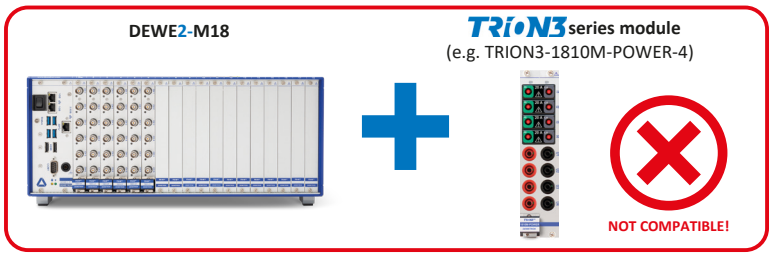
Working with the system

Hardware

Compatibility with TRION boards

Slots for TRION series modules. The DEWE2-M18 supports all modules of the TRION series. TRION3 series modules are not compatible with DEWE2 series instruments.





For further information about TRION series modules refer to the corresponding technical reference manual shipped with your instrument.

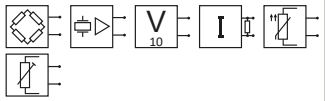
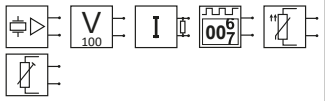
TRION series modules overview

[1] Some versions of this module occupy 2 TRION slots
[2] CAT III 1000 V only applicable for 1000 V inputs; SUB-600V has CAT II 600 V / CAT III 300 V

Analog modules

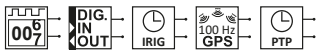
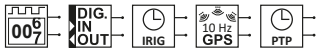
ANALOG modules		Channels	Sample rate per channel	Resolution	Isolation	Connector type
TRION-1820-MULTI	V 100, I, MSI, CAN, 007	4 or 8	1820: 2 MS/s	24 bit >2 MS/s: 18 bit	yes	D-SUB or LEMO 0B
TRION-2402-MULTI	V 100, I, MSI, CAN	4 or 8	200 kS/s	24 bit	yes	D-SUB, LEMO 0B
TRION-1620-ACC	V 100, I, 007	6	2 MS/s	24 bit >1 MS/s: 16 bit	yes	LEMO 1B, BNC
TRION-1620-LV	V 100, I	6	2 MS/s	24 bit >1 MS/s: 16 bit	yes	LEMO 1B, BNC
TRION-1603-LV	V 100, I	6	250 kS/s	18 bit	yes	Safety banana[2]

Tab. 3: TRION analog modules

ANALOG modules		Channels	Sample rate per channel	Resolution	Isolation	Connector type
TRION-2402-dSTG[1)]		6–8	200 kS/s	24 bit	no	LEMO 1B, LEMO 0B, D-SUB, RJ-45
TRION-2402-dACC		6–8	200 kS/s	24 bit	no	SMB, BNC
TRION-1802-dLV		16 or 32	200 kS/s 100 kS/s	18 bit 24 bit	no	D-SUB
TRION-1600-dLV		16 or 32	20 kS/s	16 bit	no	D-SUB
TRION-1810-HV		4–8	1 MS/s	24-bit	yes	Safety banana[2)]

Tab. 3: TRION analog modules

Digital modules

DIGITAL modules		Channels	Sample rate per channel	Resolution	Isolation	Features
TRION-CNT		6	800 kS/s	80 MHz	yes	6 channel advanced counter
TRION-DI-48		48	2 MS/s	500 nsec	yes	48 highspeed digital IN
TRION-BASE		-	2 MS/s	80 MHz	no	Basic IO card with simple IRIG sync and 2 counter
TRION-VGPS-V3		-	2 MS/s	0.01 km/h <10 cm	no	100 Hz GNSS receiver for automotive applications
TRION-TIMING-V3		-	2 MS/s	12.5 nsec	no	Applies precision absolute time to measured data
TRION-CAN		4	1 MBit	-	yes	D-SUB
TRION-ARINC	-	4 or 16	-	-	no	Decoding of ARINC 429 signals, export of decoded signals
TRION-MIL1533	-	1 or 4	-	-	no	Decoding of MIL-STD 1553 signals, export of decoded signals
TRION-Ether-CAT-1-SLAVE		100	500 S/s	-	no	Measurement data output

Tab. 4: TRION digital modules

Power modules

POWER modules		Channels	Sample rate per channel	Resolu-tion	Isolation	Connector type
TRION-1820-POWER[1)]	V 1000 I	8 (4 U / 4 I)	2 MS/s	24-bit	yes	Fixed: 4x safety banana[2)] Exchangeable: 4x sub-modules
TRION-1810-HV	V 1000	8 (4 U / 4 I)	1 MS/s	24-bit	yes	Fixed: 4x safety banana[2)] Exchangeable: 4x sub-modules

Tab. 5: TRION power modules

Installing a TRION module

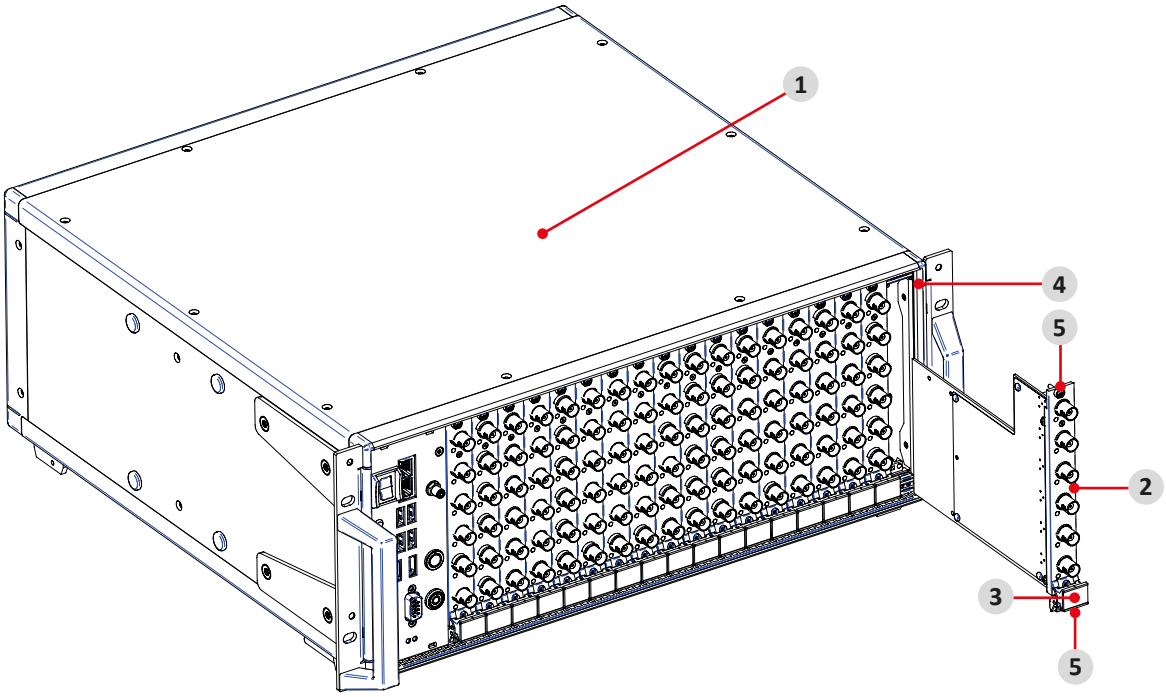


Fig. 5: Installing a TRION module

1. DEWE2 chassis
2. TRION series module
3. Injector/ejector module
4. Module guides
5. Mounting screws

In order to install a TRION module into a chassis proceed as follows:

1. Take proper ESD precautions to avoid any damage to the unit.
2. Power off and unplug all connected cables including sensors from the DEWE2 chassis and TRION series modules.
3. Identify a supported TRION peripheral slot. Some modules require a TRION STAR-slot.
4. Remove the filler panel of an unused TRION peripheral or STAR-slot.
5. Place the module edges of the TRION module into the module guide at the top and bottom of the chassis.

6. Insert the TRION module to the rear of the chassis until a resistance appears.
7. Pull up on the injector/ejector handle to latch the device.
8. Secure the installed TRION front panel to the chassis by using the mounting screws.

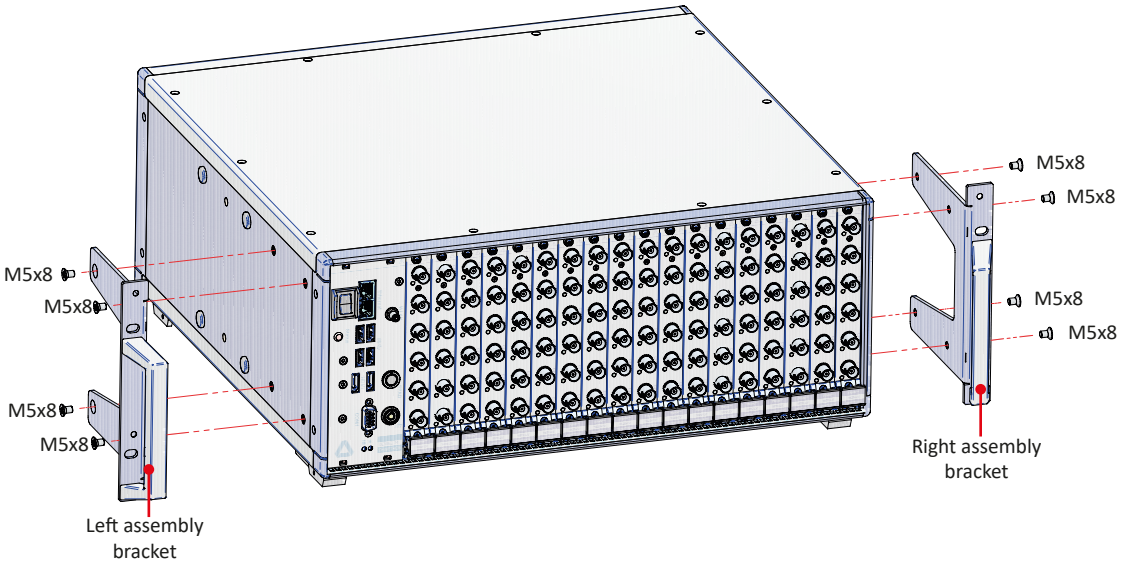
The TRION module is now installed into a DEWE3 chassis.

NOTICE

Unused TRION slots must always be covered. Make sure to reinstall the filler panels to unused TRION slots to guarantee proper cooling of the installed modules.

The warranty is void if the modules overheat due to missing filler panels.

Installing the optional 19” mounting kit



NOTICE

When installing the 19" mounting brackets, the maximum lenght for screws is 8 mm. If a screw gets lost replace it with M5x8 countersunk head screw only. Otherwise the TRION series measurement boards or the power supply could get damaged.

Software

Further information on how to operate with OXYGEN find in the corresponding user manual available at: https://ccc.dewetron.com/pl/oxygen

For a more detailed explanation of the OXYGEN software refer to the OXYGEN Technical Reference Manual, which is available at *https://ccc.dewetron.com/pl/oxygen*.

Starting OXYGEN

When starting OXYGEN, the measurement screen is displayed. OXYGEN will instantly start to acquire data but will not store it yet. *Fig. 6* shows an overview of the measurement screen and some important buttons and menu tabs.

Fig. 6: Measurement screen

1. Software mode indicator
2. Design mode
3. Record
4. Stop
5. Open data file
6. Data channel list menu
7. Instruments menu
8. Export menu

Connecting and setting up signals and sensors

It is possible to directly measure ±10 V or to use MSIs to expand the input signal possibilities:

Open the Data Channel List by double clicking/tapping on the menu tab on the right side or by swiping it over the whole measurement screen, seen in *Fig. 7*.

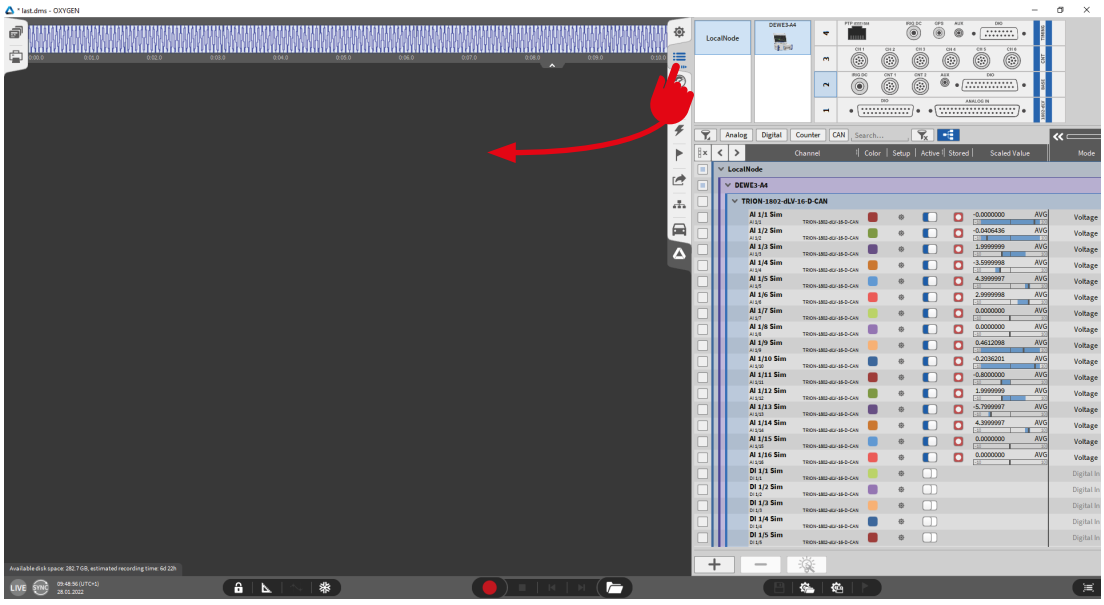


Fig. 7: Expanding data channel list

Changing channel settings

The next step is to change the channel settings:

1. Click on the channel name in the list to enter a new name.
2. Alternatively, the channel settings will also open by clicking on the gear button (see *Fig. 8*).

There different settings are available

- Sensor scaling (unit and scaling or sensitivity factor)
- Table scaling for a non-linear scaling

All settings are automatically saved when entered and do not have to be saved separately.

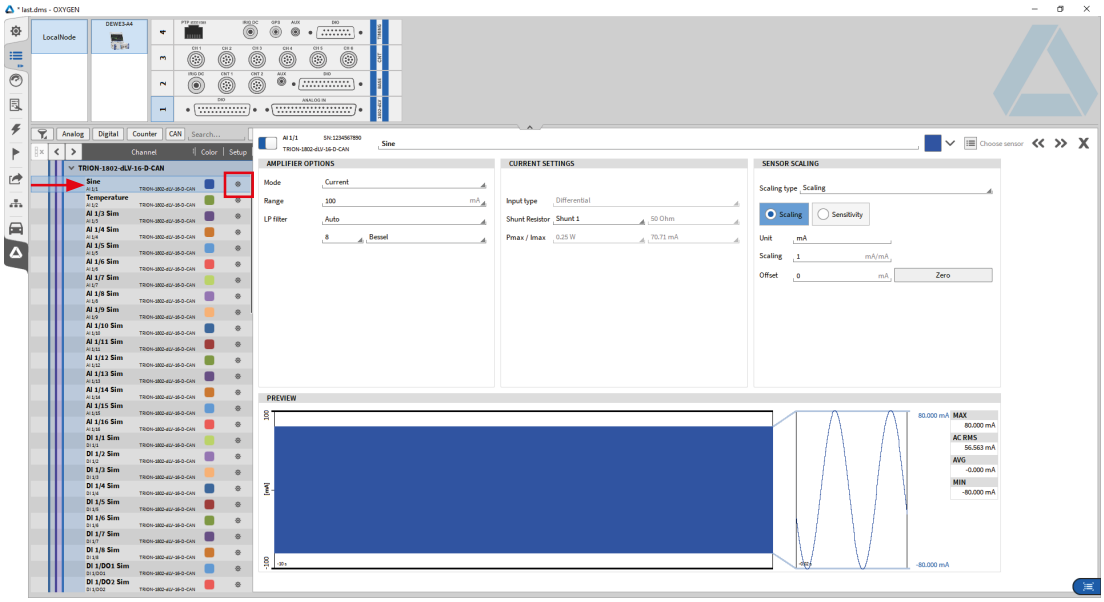


Fig. 8: Changing channel settings

Designing the measurement screen

After the channel settings are done, design the measurement screen to your needs:

1. Double-click/tap on the menu tab or swipe the menu to the right.
2. Click or tap on the *Instrument* menu tab and drag and drop a recorder on the measurement screen.

   More instruments can be added and adjusted like this, when being in *Design Mode* (see 2 in *Fig. 6*).
3. Click on the *Data Channel* menu tab and add the signal by selecting the instrument and the signal to be shown or by drag and dropping the signal into the instrument.
4. Disable the *Design Mode*.

The design of the measurement screen is now finished.

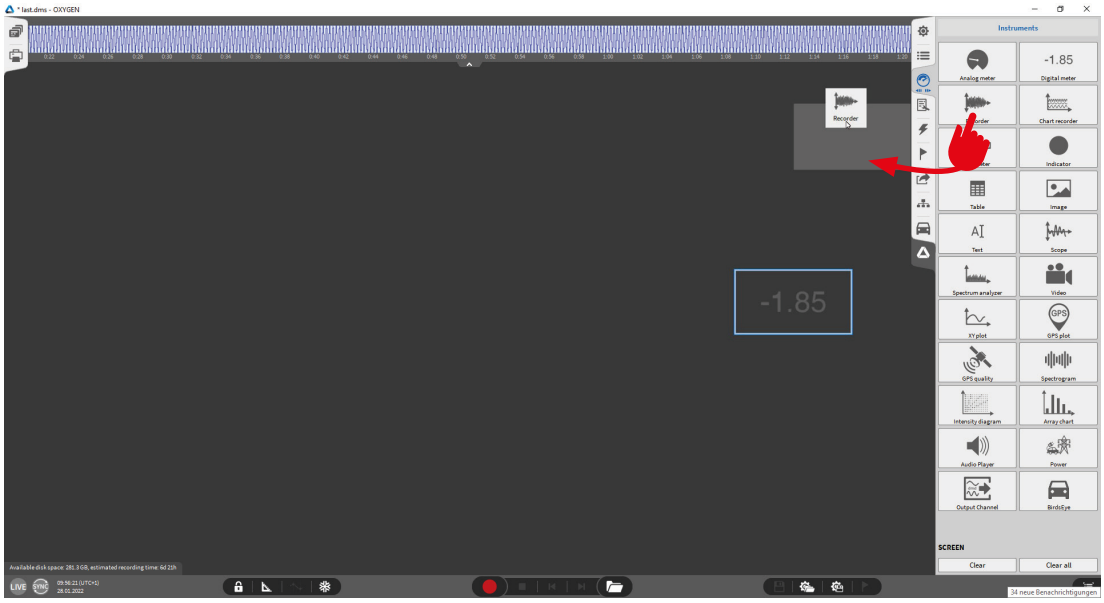


Fig. 9: Designing the measurement screen

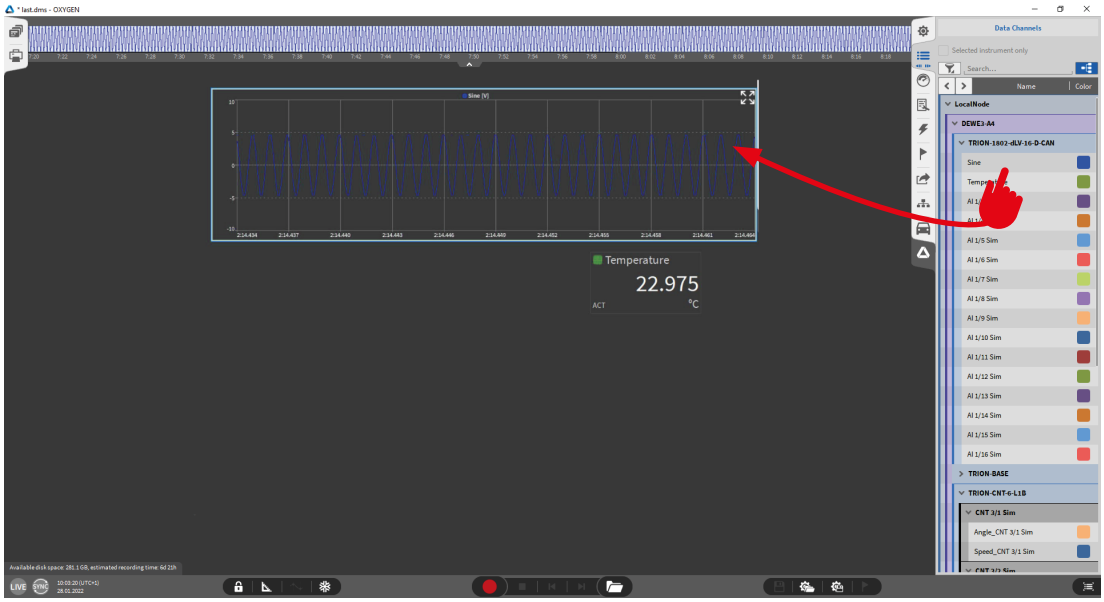


Fig. 10: Selecting instrument and signal

Recording

To start the recording proceed as follows.

1. Click on the record button.

   The red border and the REC indicator seen *Fig. 11* in the lower left corner displays, that the recording is going on.

2. Click on the Stop button to stop the recording.

The recording process is now finished.

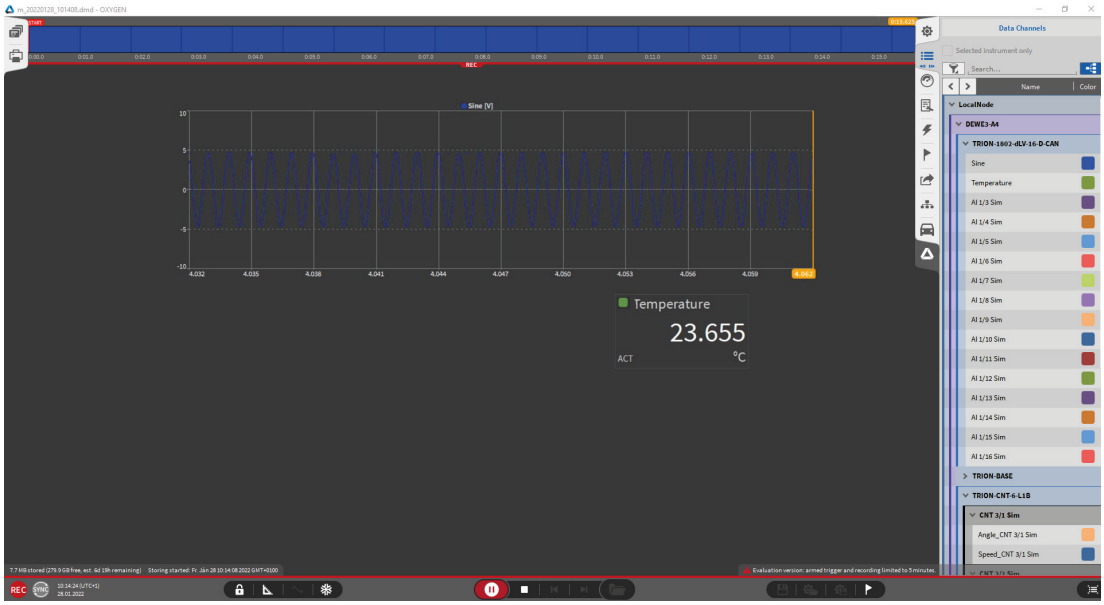


Fig. 11: Recording

Opening datafile and export

To open a datafile, proceed as follows:

1. Click on the file button, and select the corresponding file (see *Fig. 12*).

   The green border and PLAY indicator in the lower left corner indicate that a file is loaded for post-processing (see *Fig. 13*).

2. To export the data, click or tap on the *Export Settings* menu tab.
3. Select the desired format and the channels to be exported.
4. Click on the export button seen in *Fig. 13*.

The exporting process is now finished.

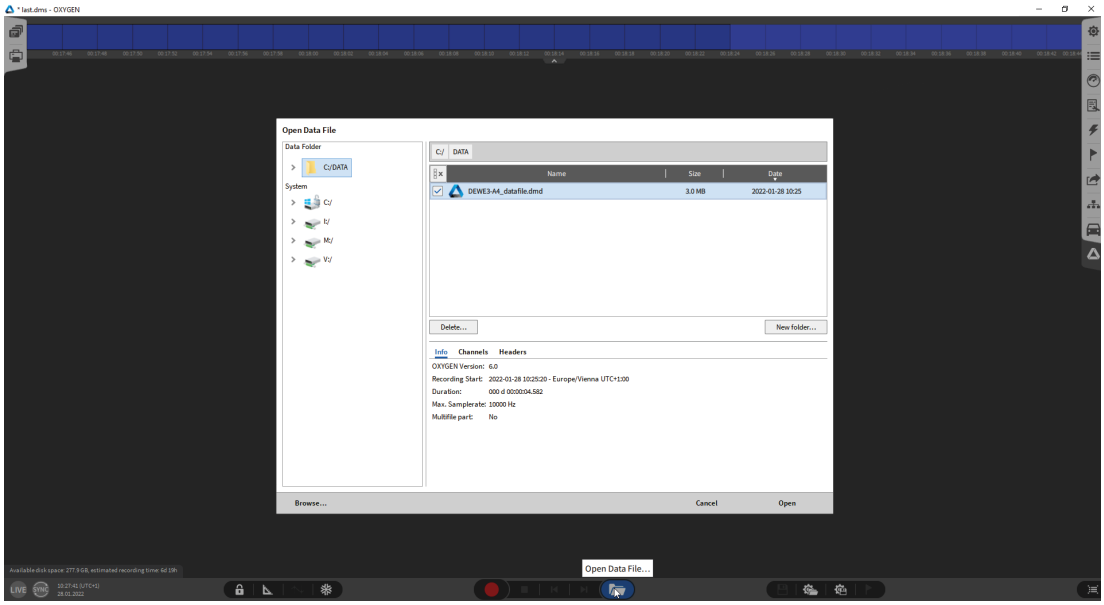


Fig. 12: Opening datafile

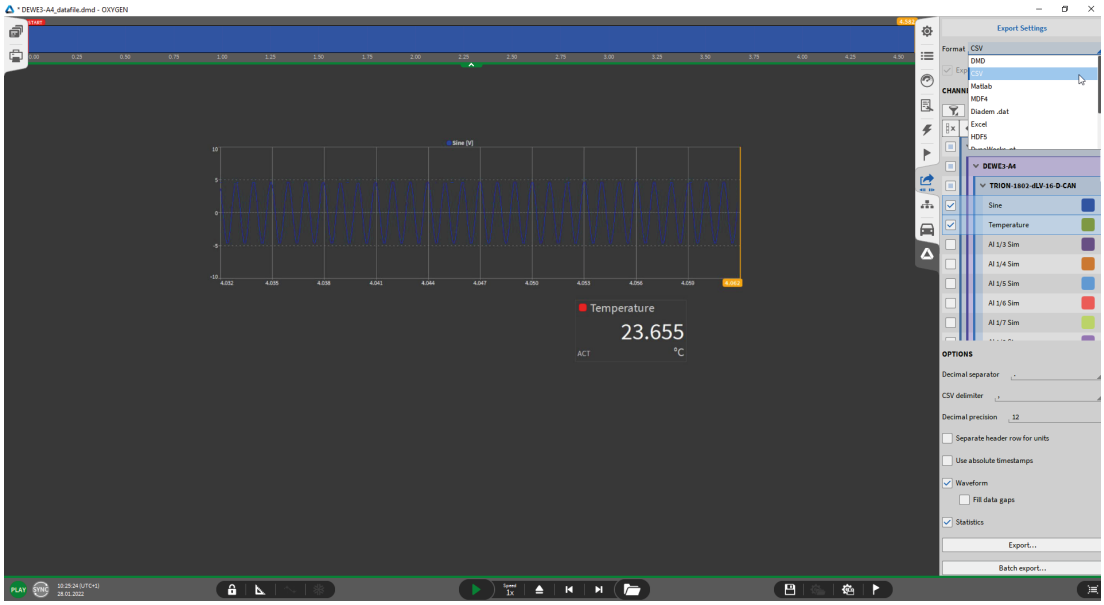


Fig. 13: Exporting data file for post-processing

Synchronization

The TRION-SYNC-BUS (SYNC IN, SYNC OUT) is used to synchronize two or more DEWE2/3 systems with up to 100 m distance between each node. The TRION-SYNC-BUS consists of two RJ45 sockets. One socket is used as synchronization output (OUT), while the other is used as synchronization input (IN).

Depending on the usage of the SYNC I/O (input or output) the LED indicates if the system clock is available or received correctly from another system. The green LED indicates that the acquisition is running. If the acquisition stops the LED will be off.

LED indication	SYNC OUT	SYNC I/O
RED (stable)	Clock detected	Clock detected / receiving clock
Green (stable)	Acquisition running	Acquisition running

Tab. 6: LED indication

Channel expansion with TRIONet

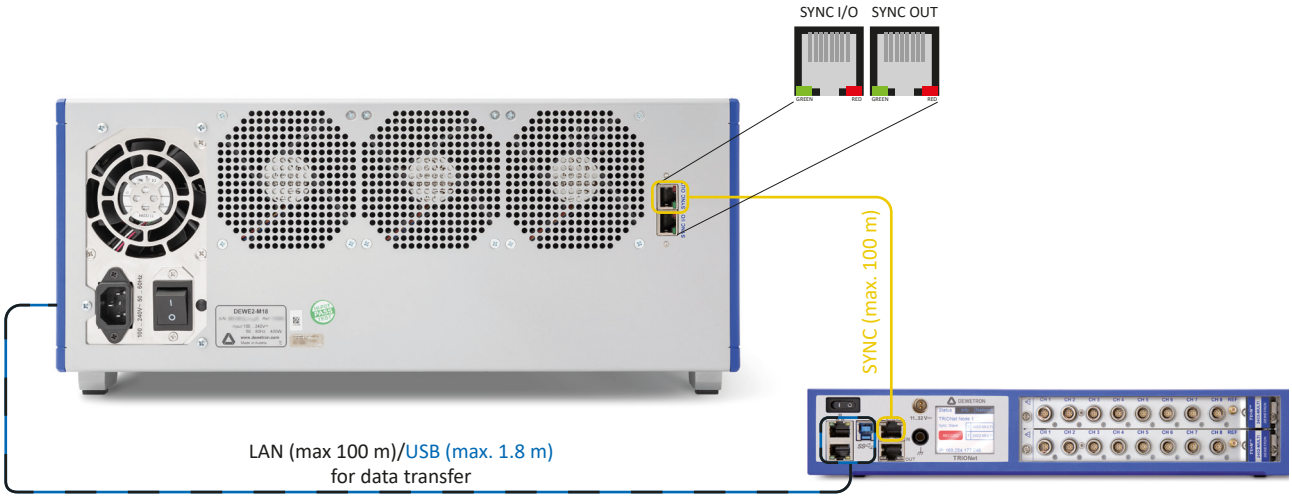


Fig. 14: Channel expansion with TRIONet

Network with multiple systems

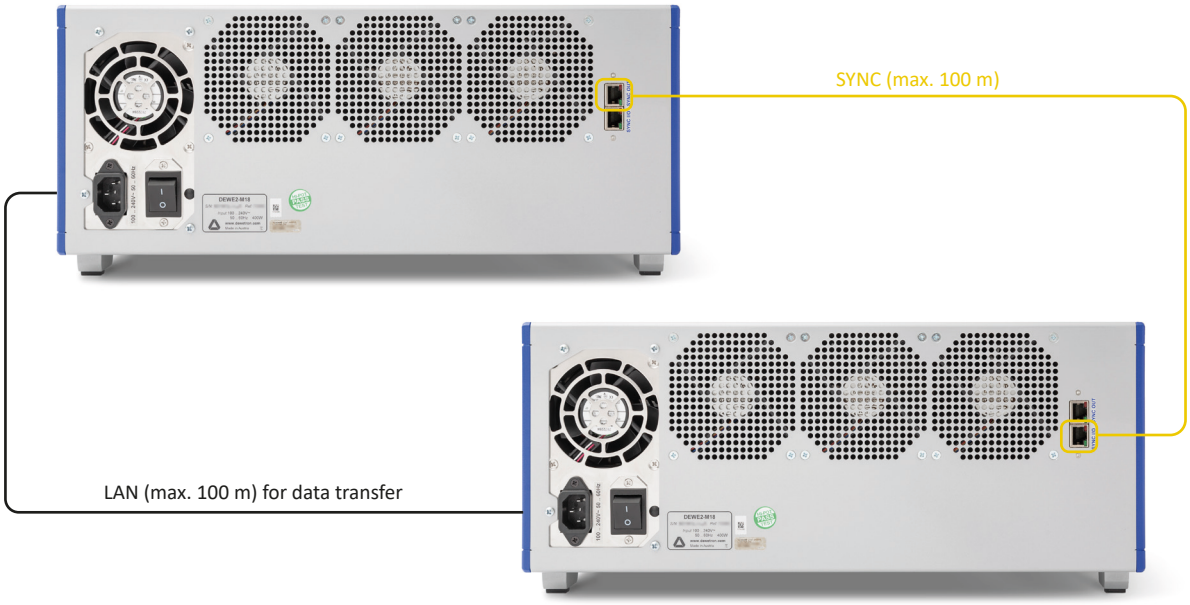


Fig. 15: Network with multiple systems

Maintenance and service

The information in this section is designed for use by qualified service personal.

Service interval

Clean dust from the chassis exterior/interior and exchange filter foam based on the operating environment.

Actions	On demand	At least once a year	Every 5 years
Clean dust from chassis exterior/interior	Depending on environmental conditions	x	-
Clean filters	Depending on environmental conditions	x	-
Calibrate TRION modules	-	x	-
Change CPU fan	-	-	x
Change chassis fan	-	-	x
Change CMOS battery	-	-	x
Change SSD	Depending on SSD health status	-	x

Fig. 16: Service intervals

Cleaning the system

- Clean surface of the chassis with dry lint-free cloth.
- Use a dry velocity stream of air to clean the chassis interior.

  Do not use harsh chemical cleaning agents.

NOTICE

Many components within the chassis are sensitive to static discharge damage. Always wear a ground wrist strap and service the unit only in static-free environment.

WARNING

Risk of injury

Disconnect all cables before servicing the unit.

Cleaning the filter pads

WARNING

The DEWE2-M18 must not be opened or disassembled except for cleaning the filter pad. The filter pad has to be checked regularly depending on the environmental condition.

MAINTENANCE AND SERVICE

WARNING

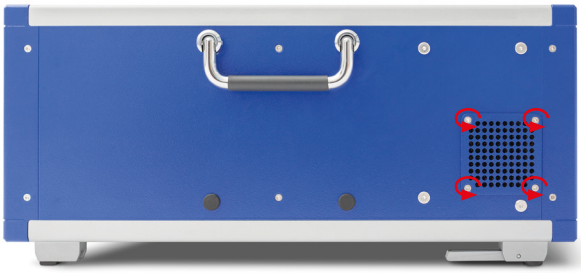
Do not attempt to remove filter covering plate when in operation.

Power off the instrument and disconnect the device from the power supply first.

Any voltage over 50 V connected to the modules must also be terminated.

To clean the filter pads proceed as follows:

1. Switch-off the instrument and disconnect any high-voltage sensors/connectors.
2. Loosen the 4 screws of the fan cover plate on the left side of the system using a TORX T10 screwdriver.



3. Remove the covering plate and take out the filter pads..
4. Clean the filterpads with a dry velocity stream of air.
5. Reinsert the cleaned filter pads and gently tap them.
6. Remount the covering plate by re-tightening the 4 screws using a TORX T10 screwdriver.

NOTICE Do not switch on the instrument before the covering plate has not been fully reattached.

The filter pad cleaning procedure is now finished.

Battery

The battery installed in the PC is a CR 2032 type. It is allowed to replace this battery only with the same type. Replaceable only by serviceman.

NOTICE

Battery exchange has to be done by qualified persons only.

System recovery

For more information regarding a total recovery refer to the corresponding total recovery technical reference manual shipped with your DEWE3 system.

Updates

Windows and antivirus/security software

Before installing Windows software updates consult with DEWETRON for compatibility guidance. Also keep in mind that the use of any antivirus or other security software may slow down your system and may cause data loss.

Software updates

NOTICE

The system BIOS is protected by password. Any change in the BIOS may cause a system crash. When the system is booting, do not press ESC-button on keyboard. This may clear the BIOS settings and cause system faults.

Any change in the file structure as deleting or adding files or directories might cause a system crash.

Before installing software updates contact DEWETRON or your local distributor. Use only software packages which are released by DEWETRON. Further information is also available in the Internet (http://www.dewetron.com).

After powering off the system wait at least 10 seconds before switching the system on again. Otherwise the system may not boot correctly. This prolongs also the life of all system components.

If the AC plug of the power supply unit is disconnected an and then reconnected, it may not be possible to restart the system. In this case, the system must be disconnected from the power supply for 1 minute before it can be restarted again.

Service and repairs

We are very sorry that your DEWETRON system is not operating properly. Our team is here to ensure that your DEWETRON product is returned to peak performance as quickly as possible.

Help us to provide you with the best support by following the RMA policy.

Some problems can be solved remotely by our support team. To facilitate a quicker resolution to the problem and save unnecessary shipping costs, we ask you to first have your problem investigated by our technical support before sending your product. Contact details for our support can be found on our website. Describe the error accurately and with as much detail as possible. This helps expedite the repair process.

If a repair is necessary, complete our online RMA form. You will then receive an RMA (Return Material Authorization) number and detailed instructions that identify where to ship the damaged product.

Products arriving at our repair department without RMA require follow-up calls and investigation, which lead to a longer turnaround. Only the team of DEWETRON is allowed to perform any kinds of repairs to your system to assure a safe and proper operation in future.

INFORMATION

Only the team of DEWETRON is allowed to perform any kinds of repairs to your system to assure a safe and proper operation in future. For information regarding service and repairs contact your local distributor first or DEWETRON directly.

INFORMATION

Any spare parts (screws, backplanes, cables etc.) must be obtained from DEWETRON only.

Training

DEWETRON offers training at various offices around the world several times each year. DEWETRON headquarters in Austria have a very large and professional conference and seminar center, where training classes are conducted on a regular basis starting with sensors and signal conditioning, A/D technology and software operation.

Dewetron Inc. in the USA also has a dedicated training facility connected to its headquarters, located in Rhode Island.

For more information about training services visit https://www.dewetron.com/academy.

MAINTENANCE AND SERVICE

Calibration

Every instrument needs to be calibrated at regular intervals. The standard norm across nearly every industry is annual calibration. Before your DEWETRON data acquisition system is delivered, it is calibrated at our DEWETRON headquarter. Each of this system is delivered with a certificate of compliance with our published specifications. Detailed calibration reports from our calibration system are available for purchase with each order. We retain them for at least one year, so calibration reports can be purchased for up to one year after your system was delivered.

Support

DEWETRON has a team of people ready to assist you if you have any questions or any technical difficulties regarding the system. For any support contact your local distributor first or DEWETRON directly.

For Asia and Europe contact:

DEWETRON GmbH
Parkring 4
8074 Grambach
AUSTRIA

Tel.: +43 316 3070
Fax: +43 316 3070-90
E-Mail: support@dewetron.com
Web: http://www.dewetron.com

The telephone hotline is available
Monday to Friday between
08:00 and 17:00 CET (GMT +1:00).

For the Americas contact:

DEWETRON Inc. (HQ USA)
2850 South County Trail, Unit 1
East Greenwich, RI 02818
USA

Tel.: +1 401 284 3750
Toll-free: +1 866 598 3393
Fax: +1 401 284 3750
Email: support@dewetron.com
Web: http://www.dewetron.com

The telephone hotline is available
Monday to Friday between
08:00 and 16:30 EST

CE certificate of conformity

Manufacturer	DEWETRON GmbH
Address	Parkring 4 8074 Grambach, Austria Tel.: +43 316 3070-0 Fax: +43 316 3070-90 Email: sales@dewetron.com http://www.dewetron.com
Name of product	**DEWE2-M18**
Kind of product	*Rack-mount data acquisition instrument*

The product meets the regulations of the following EC-directives:

2014/35/EU

Directive of the European Parliament and of the Council of 26 February 2014 on the harmonization of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits

2014/30/EU

Directive of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (recast)

The accordance is proved by the observance of the following standards:

LVEMC	**Safety**	IEC 61010-1:2011	
	Emissions	EN 61000-6-4	EN 55011 Class B
	Immunity	EN 61000-6-2	Group standard

Graz, October 14, 2019

Place / date of the CE-marking

Ing. Thomas Propst / Manager Total Quality

CERTIFICATES OF CONFORMITY

Conformity to IEC 61000-4-30

Manufacturer	DEWETRON GmbH
Address	Parkring 4 8074 Grambach, Austria Tel.: +43 316 3070-0 Fax: +43 316 3070-90 Email: sales@dewetron.com http://www.dewetron.com

This certificate has been issued as a result of an assessment of the performance of the models listed below as to their conformity with the requirements of IEC 61000-4-30:2008 Class A, Electromagnetic compatibility (EMC) Part 4-30: Testing and measurement techniques – Power quality measurement methods.

Instruments **DEWE2 series (all devices)** **TRIONet**

DEWE3 series (all devices) **TRIONet3**

in combination with

Amplifiers **TRION-1820-POWER-4** **TRION-1810-HV-8**

TRION3-1810M-POWER-4 **TRION3-SUB-8 with SUB-600V**

and

Software **OXYGEN with OPT-POWER-BASIC and OPT-POWER-ADV since version 2.3**

Standard	Parameter	IEC section	Referring to	Class	Comment
IEC 61000-4-30	Power frequency	5.1	-	A	a)
	Magnitude of supply voltage	5.2	-	A	a)
	Flicker	5.3	61000-4-15	A	b)
	Supply voltage unbalance	5.7	-	A	a)
	Voltage harmonics	5.8	61000-4-7	A	c), d)
	Voltage interharmonics	5.9	61000-4-7	A	d)

General notice: no synchronisation to UTC 10 minute tick

a) 10/12 period values only with setting “Max. update rate” = 190 ms

b) For U_din in range of 60 V to 690 V

c) Only with grouping setting = “Type 1”; no smoothing with LP filter

d) For nominal value of 5 A, use SUB-CUR-20A; for currents above use external current sensor

On the basis of the evidence presented, the above products conform to the requirements of IEC 61000-4-30:2008 (Edition 2) Class A, Electromagnetic compatibility (EMC) Part 4-30: Testing and measurement techniques – Power quality measurement methods:

Graz, August 10, 2023

Place / date of issue

Ing. Thomas Propst / Manager Total Quality