Automotive
Energy & Power Analysis
Aerospace & Defense
Transportation
General Test & Measurement

DEWE-260x

Technical reference manual

ISO9001

Test & Measurement Solutions

worldwide

DEWETRON

www.dewetron.com

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.

We strongly suggest that you read this entire manual, especially the safety and care sections, as well as to avoid damaging your DEWETRON system.

What is the DEWE-206x?

This product is used for measuring of different physical and/or electrical sizes (depending on model or configuration). The connection is depending on model or configuration and takes place via safety banana plugs, BNC connectors (± 50V max.), D-SUB connectors (± 50V max.), thermocouple connectors (± 50V max.), BINDER® connectors (± 50V max.), SMB connetcors (± 50V max.), µdot connectors (± 50V max.), LEMO® connectors or RJ-45 connectors.

Preface

Notes

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Training

DEWETRON offers training at various offices around the world several times each year. DEWETRON headquaters 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. For more information about training services, please visit:
http://www.dewetron.com/support/training

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 in the US, please visit:
http://www.dewamerica.com/support/trainingsclasses

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 headquater. 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 please contact your local distributor first or DEWETRON directly.

For Asia and Europe, please contact:

DEWETRON Ges.m.b.H.
Parkring 4
A-8074 Graz-Grambach
AUSTRIA
Tel.: +43 316 3070
Fax: +43 316 307090
Email: 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, please contact:

DEWETRON, Inc.
10 High Street, Suite K
Wakefield, RI 02879
U.S.A.
Tel.: +1 401 284 3750
Toll-free: +1 877 431 5166
Fax: +1 401 284 3755
Email: support@dewamerica.com
Web: http://www.dewamerica.com

The telephone hotline is available
Monday to Friday between
08:00 and 17:00 GST (GMT -5:00)

Service/repairs

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 please contact your local distributor first or DEWETRON directly.

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

Notice

The information contained in this document is subject to change without notice.

DEWETRON elektronische Messgeraete Ges.m.b.H. (DEWETRON) shall not be liable for any errors contained in this document. DEWETRON MAKES NO WARRANTIES OF ANY KIND WITH REGARD TO THIS DOCUMENT, WHETHER EXPRESS OR IMPLIED. DEWETRON SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. DEWETRON shall not be liable for any direct, indirect, special, incidental, or consequential damages, whether based on contract, tort, or any other legal theory, in connection with the furnishing of this document or the use of the information in this document.

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.

Restricted Rights Legend

Use austrian law for duplication or disclosure.

DEWETRON GesmbH
Parkring 4
A-8074 Graz-Grambach / Austria

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SYNC-CLOCK™ is a trademark of DEWETRON Ges.m.b.H.

SUPER-COUNTER™ is a trademark of DEWETRON Ges.m.b.H.

DEWESoft ™ is a trademark of DEWESoft d.o.o.

Any other trademarks and registered trademarks are acknowledged to be the property of their owners.

Printing History

Please refer to the page bottom for printing version.

Safety conventions

Observe precautions for handling electrostatic sensitive devices!

This icon denotes a caution, which advises you of precautions to take to avoid injury, data loss, or a system crash. When this symbol is marked on the product, refer to the technical reference manual.

Indicates hazardous voltages.

Indicates the chassis terminal

WARNING	*Calls attention to a procedure, practice, or condition that could cause bodily injury or death.*
CAUTION	*Calls attention to a procedure, practice, or condition that could possibly cause damage to equipment or permanent loss of data.*

Safety instructions

Your safety is our primary concern! Please be safe!

General safety and hazard warnings for all DEWETRON systems

- 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!
- Ths 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.
- Maintenance will be executed by qualified staff only.
- During the use of the system, it might be possible to access another parts of a more comprehensive system. Please read and follow the safety instructions provided in the manuals of all other components regarding warning and security advices for using the system.
- 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, please refere to your local legally safety regulations for safety use.

  DC systems: Every DC system has a grounding connected to the chassis (yellow/green safety banana plug).
- Please note the characteristics and indicators on the system to avoid fire or electric shocks. Before connecting the system, please carefully read 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 separates the system from the power supply. Do not block the power cord, since it has to be accessible for the users.
- Supply overvoltage category is II.
- DO NOT use the system if equipment covers or shields are removed.
- If you assume the system is damaged, get it examined by authorised personnel only.
- 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, et cetera.
- Any direct voltage output is protected with a fuse against short cut and reverse-polarity, but is NOT galvanically isolated (except it is explicit marked on the system).
- The system must be connected and operated to an earthed wall socket at the AC mains power supply only (except for DC systems).
- Any other use than described above may damage your system and is attended with dangers like shortcut, fire or electric shocks.

- The whole system must not be changed, rebuilt or opened (except for changing TRION™ modules).
- 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.
- 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 cut and fire hazard!
- Warranty void if damages caused by disregarding this manual. For consequential damages NO liability will be assumed!
- Warranty 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.
- 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.
- Maximum input voltage for measuring cards are 70 V_{DC} and 46.7 V_{PEAK}
- 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.
- Prevent using metal bare wires! Risk of short cut 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 please refer to the specifications.
- Make sure that your hands, shoes, clothes, the floor, the system or measuring leads, integrated curcuits and so on, are dry.
- DO NOT use the system in rooms with flammable gases, fumes or dust or in adverse environmental conditions.
- Avoid operation in the immediate vicinity of:
  - high magnetic or electromagnetic fields
  - transmitting antennas or high-frequency generators

  For exact values please refere to enclosed specifications.
- Use measurement leads or measurement accessories aligned to the specification of the system only. Fire hazard in case of overload!
- 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.
- 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.

Safety instructions

- The electrical installations and equipments in industrial facilities must be observed by the security regulations and insurance institutions.
- The use of the measuring system in schools and other training facilities must be observerd by skilled personnel.
- The measuring systems are not designed for use at humans and animals.
- Please contact a professional if you have doubts about the method of operation, safety or the connection of the system.
- Please be careful with the product. Shocks, hits and dropping it from already lower level may damage your system. For exact values please refere to enclosed specifications.
- Please also consider the detailed technical reference manual as well as the security advices of the connected systems.

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 well-tried”, 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.

For safety reasons max. 50 V may be applied to the BNC input-connectors!
Refer to the regulation of maximum allowable touch potential.

Maintenance

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.

Cleaning:

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

- Disconnect all cables before servicing the unit!
- 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.
- Do not use harsh chemical cleaning agents!

General information

CAUTION

- 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 informations are also available in the internet (http://www.dewetron.com).
- After power off the system wait at least 10 seconds before switching the system on again. Otherwise the system may not boot correct. This prolongs also the life of all system components.

Windows updates and antivirus/security software

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

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.

Environmental Considerations

Information about the environmental impact of the product.

Product End-of-Life Handling

Observe the following guidelines when recycling a DEWETRON system:

System and Components Recycling

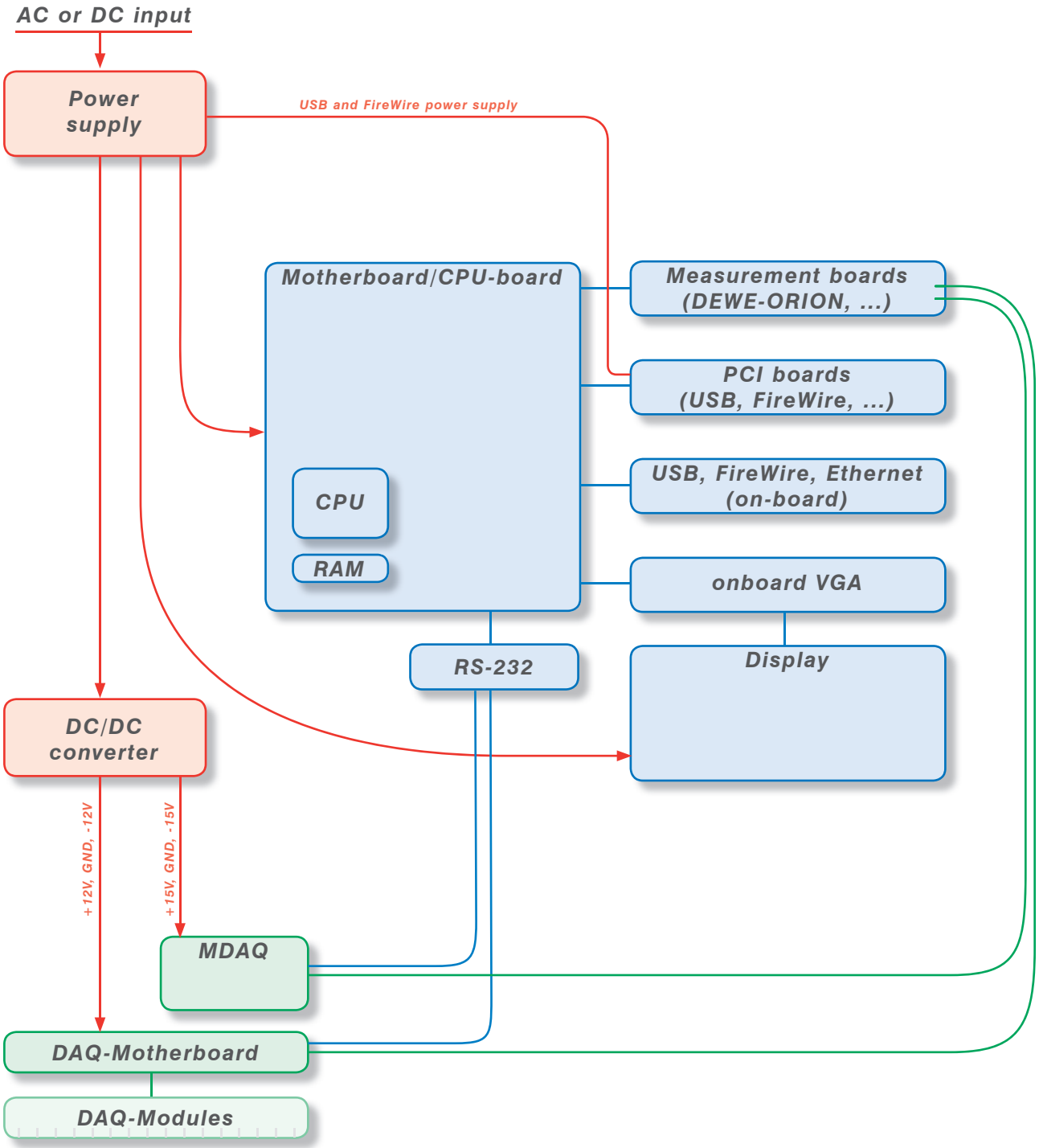
Production of these components required the extraction and use of natural resources. The substances contained in the system could be harmful to your health and to the environment if the system is improperly handled at it's end of life! Please recycle this product in an appropriate way to avoid an unnecessary 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 electrical and electronic equipment (WEEE). Please find further information about recycling 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.

Blockdiagram of the internal signal processing



First steps

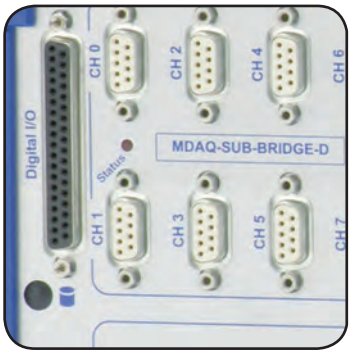
1

Install the HDD. (Shipped with your DEWE-260x series instrument)

2

Power-on your system.

3

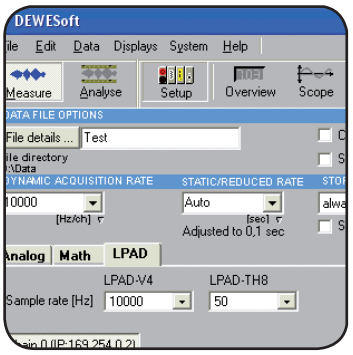


Connect your sensors to the system.

4

Run DEWESoft usually via "Start" >"Programs" > "Dewetron" > "DEWESoft x.x" > "DEWESoft x.x"

5



Start recording your data!

All accessories shown in this document are available as option and will not be shipped as standard parts. These parts are described as "option".

DEWE-2600 - All-in-one standard instrument

- Portable data acquisition system
- Up to 16 channels with isolation
  (in conjunction with DEWE-DAQ modules)
- Up to 64 channels with differential inputs
  (in conjunction with DEWE-MDAQ modules)

System specifications

	DEWE-2600														
	MDAQ-DIRECT	MDAQ-V-10	MDAQ-V-100	MDAQ-SUB-V-200	MDAQ-SUB-ACC-x	MDAQ-SUB-ACC-A-x	MDAQ-SUB-BRIDGE	MDAQ-SUB-STG	MDAQ-BASE-5	MDAQ-BASE-10	MDAQ-FILT-5-BU	MDAQ-FILT-5-BU-S1	MDAQ-FILT-5-BE	MDAQ-FILT-10	MDAQ-AAF4-5-BU
Channel 0 to 7* Channel 8 to 15*	❑	❑	❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑	❑	❑	❑	❑	❑	❑
Channel 16 to 23* Channel 24 to 31*	❑	❑	❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑	❑	❑	❑	❑	❑	❑
Channel 32 to 39* Channel 40 to 47*	❑	❑	❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑	❑	❑	❑	❑	❑	❑
Channel 48 to 55* Channel 56 to 63*	❑	❑	❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑	❑	❑	❑	❑	❑	❑
Standard power supply:	Input range 100 to 240 V_{AC} input (50/60 Hz)								Model ❑ MPM-842P ❑ BEA-640 For details see next pages!						
Power supply options: 2600-PS-BAT	Battery powered with 18 to 24 V_{DC} input								❑ XP-04 with DC-123						
Operating temperature:	0 °C to +50 °C														
Operating temperature with 2600 PS-BAT option:	0 °C to +50 °C when discharging batteries 0 °C to +45 °C when charging batteries														
Storage temperature:	-20 °C to +70 °C														
Humidity (operating):	10 % to 80 %, non condensing 5 % to 95 %, rel. humidity														
Vibration test** EN 60068-2-6 (exceeds MIL-STD 810F 514.5 procedure I)	Shape Frequency range Acceleration Sweep rate Duration Test in 3 directions														
Vibration test** EN 60721-3-2 Class 2M2	Shape Frequency range Power spectral density Duration														
Shocktests** EN 60068-2-27 (Exceeds MIL-STD 810F 516.5 procedure I)	Shape Acceleration amplitude Duration Test in 3 axis, 3 shocks in each axis and direction														
Dimensions (W x D x H):	approx. 409 x 245 x 291 mm (16.1 x 9.6 x 11.5 in.)														
Weight:	typ. 14 kg (30.8 lbs), depending on configuration														

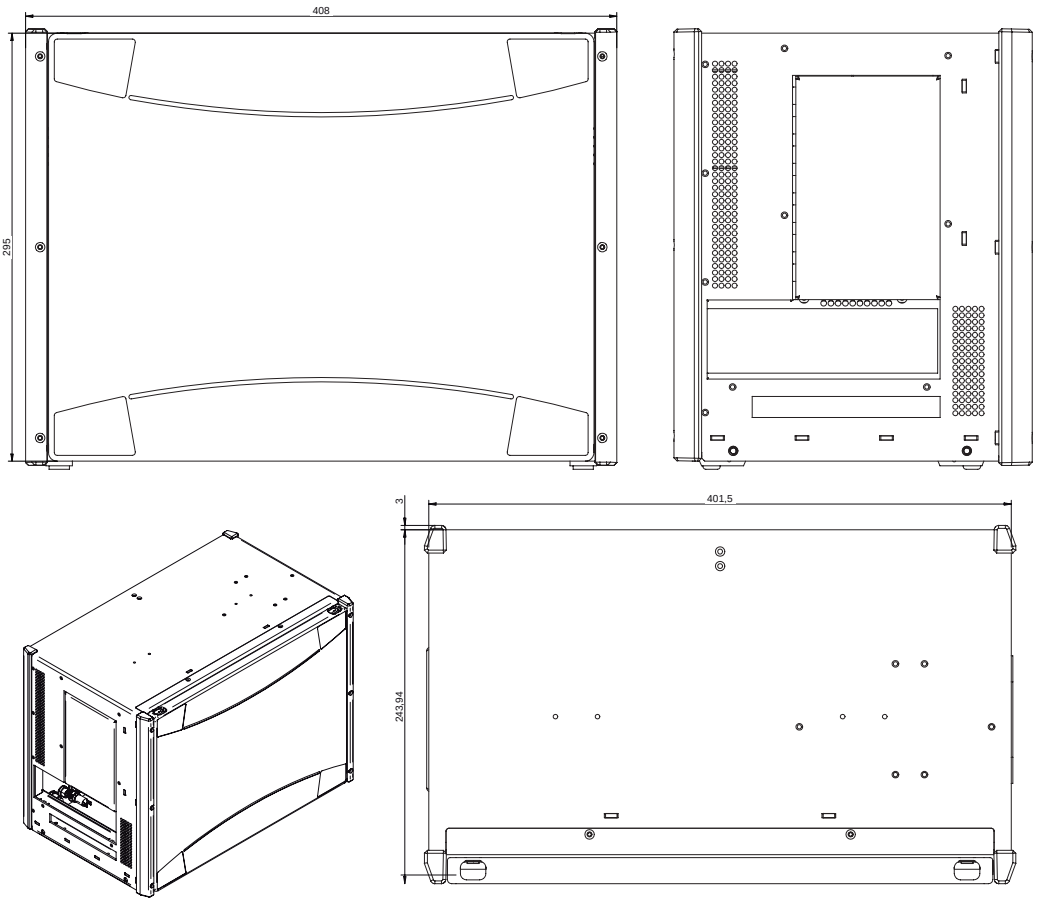
*) depending on system configuration! For details see next pages.
**) tested with SSD disc

deactivate

Note: If option 2600-PS-BAT is installed in your system and you don't use it for more than 2 weeks, please remove the batteries and store them separately! Otherwise the batteries will be discharged completely and may be destroyed!

Main System

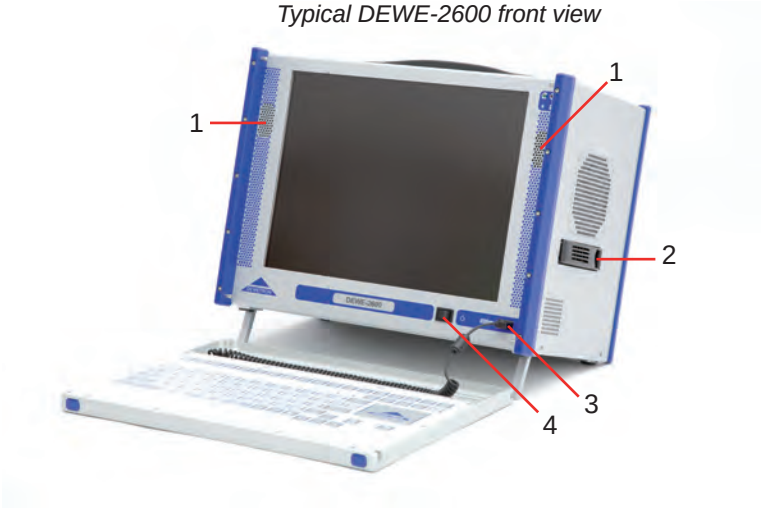
Dimensions*



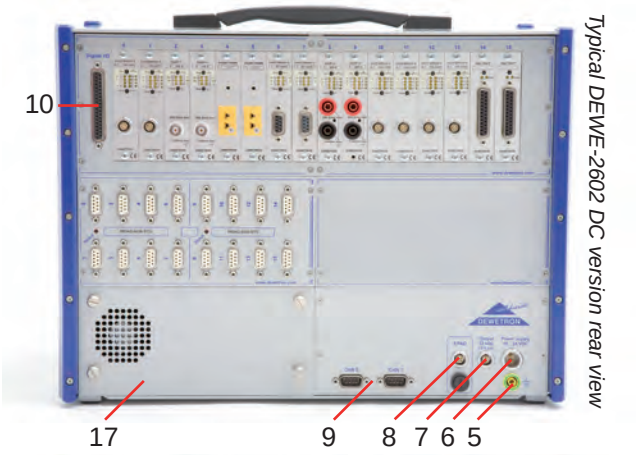
* Dimensions in mm
(1 inch = 25.4 mm)

DEWE-260x at a glance

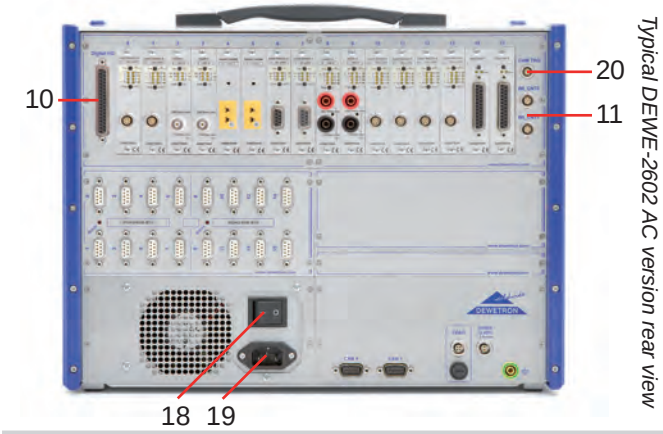
Typical DEWE-2600 front view



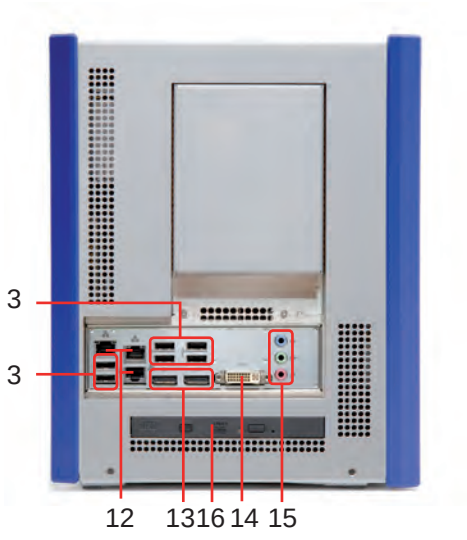
1 Built in speakers
2 External HDD access
3 USB interface connector
4 Power-on button
5 Ground connector
6 Power supply input connector (with option 2600-PS-BAT)
7 Power supply for accessories (12 V_{DC} / 1.5 A)
8 EPAD connector
9 CAN interface connector
10 Digital I/O connector
11 Optional counter inputs
12 Ethernet LAN connector
13 Display-port connector
14 DVI interface connector
15 Audio device (LINE IN, MIC, LINE OUT)
16 DVD multi-drive
17 Access to battery slots
18 Main power switch
19 AC power supply connector
20 Camera trigger connector



Typical DEWE-2602 DC version rear view



Typical DEWE-2602 AC version rear view



Note: The location of the connectors might vary from system to system and depends on configuration

3 USB interface connectors (Universal Serial Bus)

The USB interface connectors meets standard USB pin assignment.

4 Power-on button

The power-on push button has to be used to switch on the system. It only works when the main power switch (20) is on.

5 Ground connector

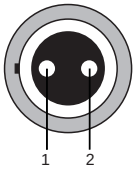
For some kind of measurements, it's necessary to give the system an additional ground connection.

6 Power supply input connector

For details see chapter power supply.

7 Power supply for accessories

To supply your accessories with 12 V_{DC}. Fused with an 1.5 A self-recovering fuse.



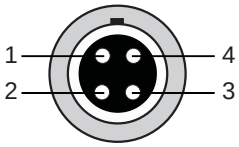
Pin assginment
1: +12 V, max 1.5 A
2: GND

Lemo EGG.1B.302

Mating connector: LEMO FGG.1B.302.CLAD52Z (for cable diameter 4.1 to 5.0 mm)
LEMO FGG.1B.302.CLAD62Z (for cable diameter 5.1 to 6.0 mm)

8 EPAD connector (LEMO)

To connect DEWETRON EPAD modules to the system.



Pin assignment
1: RS-485 A
2: RS-485 B
3: +12 V
4: GND

Lemo EGG.1B.304

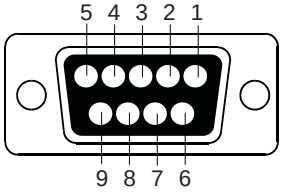
Shield is connected on housing

Mating connector: LEMO FGG.1B.304.CLAD52Z (for cable diameter 4.1 to 5.0 mm)
LEMO FGG.1B.304.CLAD62Z (for cable diameter 5.1 to 6.0 mm)

9 CAN connector (optional)

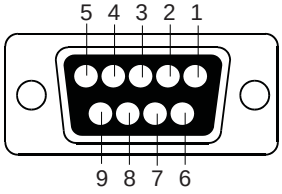
This connector supports the CAN signals of the built-in A/D board. If this board does not support CAN signals, the connector is not available.

CAN 0:



Pin assignment
1: +5 V
2: CAN0_L
3: GND
4: n.c.
5: n.c.
6: GND
7: CAN0_H
8: n.c.
9: +12 V

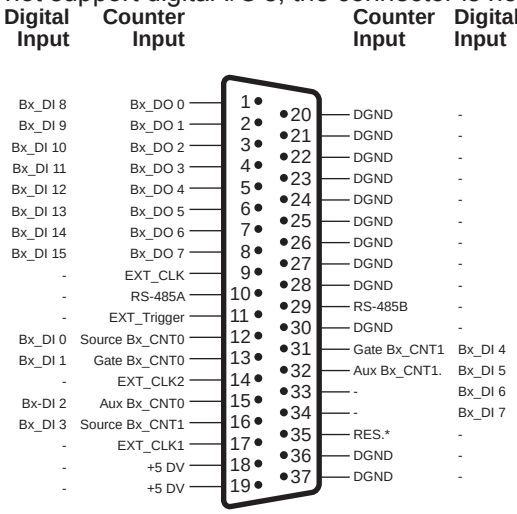
CAN 1:



Pin assignment
1: +5 V
2: CAN1_L
3: GND
4: n.c.
5: n.c.
6: GND
7: CAN1_H
8: n.c.
9: +12 V

10 Digital I/O connector

This connector supports digital input and output lines of the built-in DEWE-ORION series board. If this board does not support digital I/O's, the connector is not available.

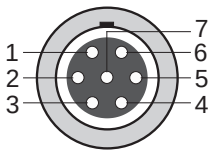


37-pin SUB-D connector

> *Note: Only available for standard systems using ORION-xxxx cards!*

11 Optional counter inputs (in conjunction with DEWE-ORION-xxxx boards)

1: Source Bx_CNT(n)
2: Aux_Bx_CNT(n)
3: Gate Bx_CNT(n)
4: Power GND
5: +5 V (max. 500 mA)
6: +12 V (max. 500 mA)
7: Signal GND
n .. channels 0 to 1 of counter board



7-pin female LEMO connector EGG.1B.307

Mating connector:
LEMO FGG.1B.307.CLAD52Z
(for cable diameter 4.1 to 5.0 mm)
LEMO FGG.1B.307.CLAD62Z
(for cable diameter 5.1 to 6.0 mm)

Cable to open end, 5 m long:
CTR-CBL-05

12 Ethernet connector

The DEWE-2600 system supports 10/100/1000 BaseT Ethernet with standard RJ45 connector.

13 Display port connectors

Additional to the DVI connector interface the DEWE-2600 supports two Display port connectors with standard pin assignment.

14 DVI connector

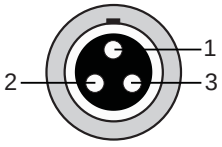
The DVI connector meets standard DVI pin assignment.

15 Audio device

Connectors for LINE IN, MIC and LINE OUT.

20 Camera trigger connector

The camera trigger connector allows you to connect high speed cameras to your system.



Lemo EGG.1B.303

Pin assignment
1: TRG
2: GND
3: n.c.

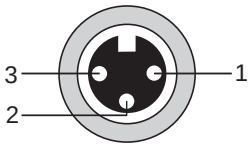
Mating connector: LEMO FGG.1B.303.CLAD52Z
(for cable diameter 4.1 to 5.0 mm)
LEMO FGG.1B.303.CLAD62Z
(for cable diameter 5.1 to 6.0 mm)

Main System

Optional connector for current power probe supply

This connector supports ±9 V current power probe supply for connecting current clamps.

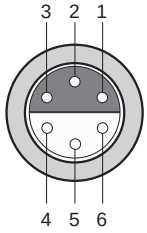
3-pin Binder series connector



BINDER-712 series

Pin assignment
1: +9 V
2: GND
3: -9 V

6-pin male/female Lemo connector (with digital inputs of ORION board)

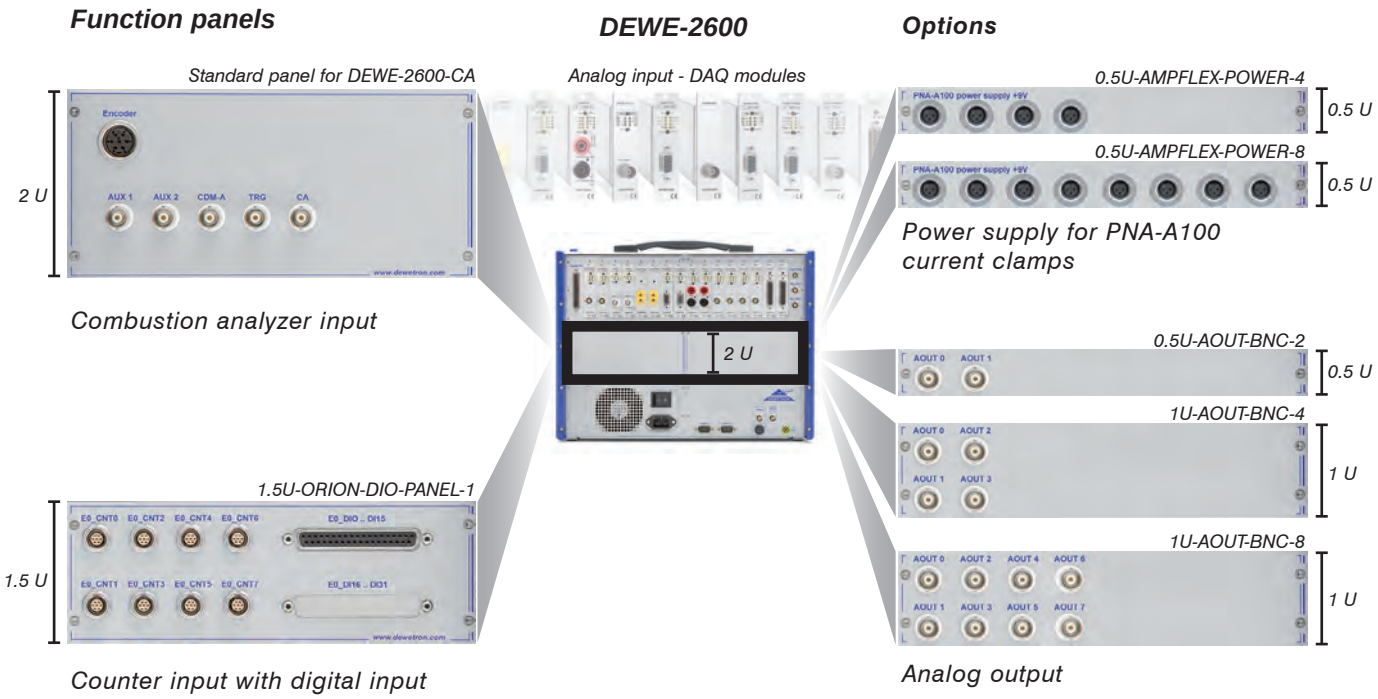


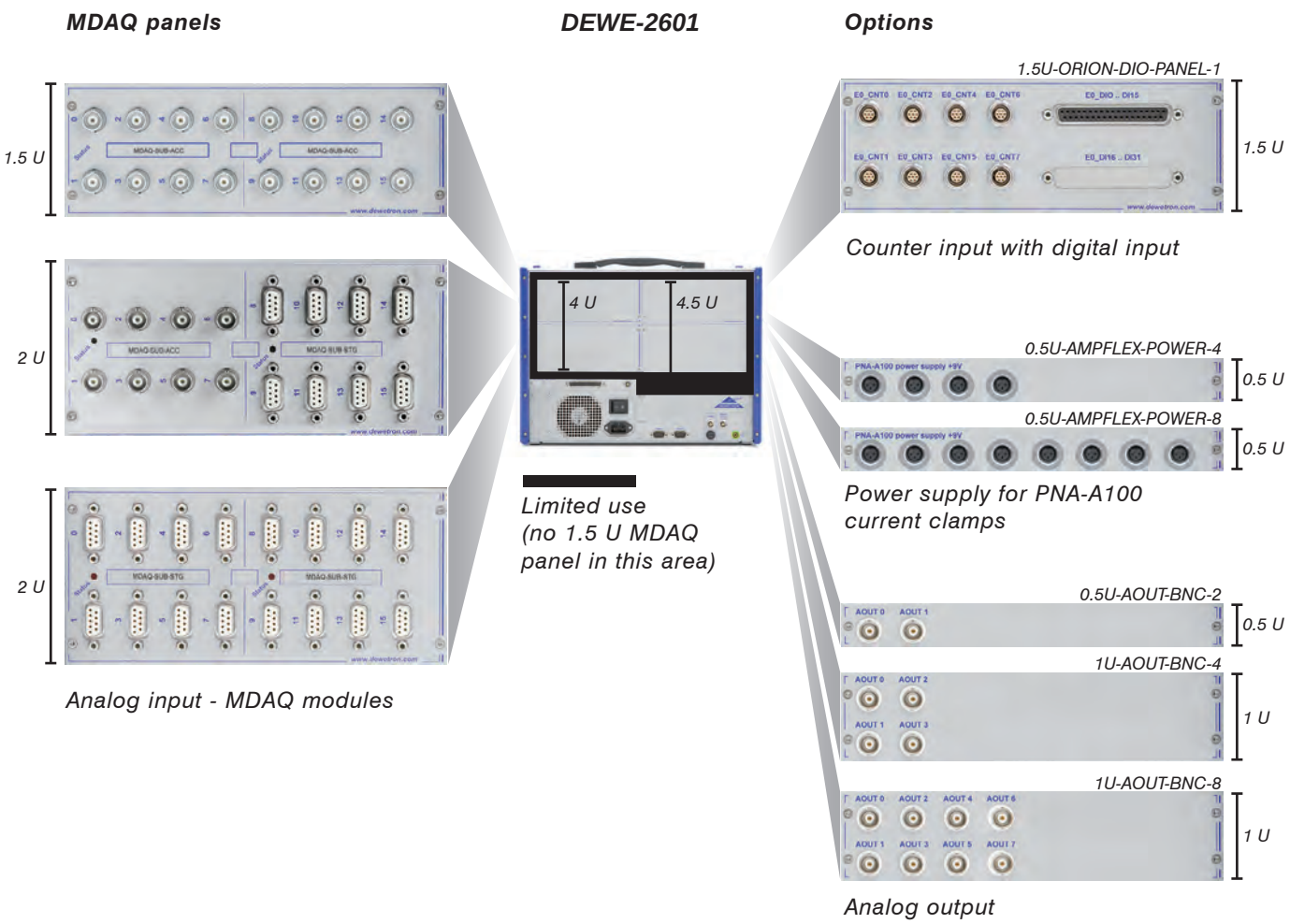
Lemo EGG.1B.306

Pin assignment
1: +15 V
2: -15 V
3: +9 V
4: DGND
5: DI(x)
6: DGND

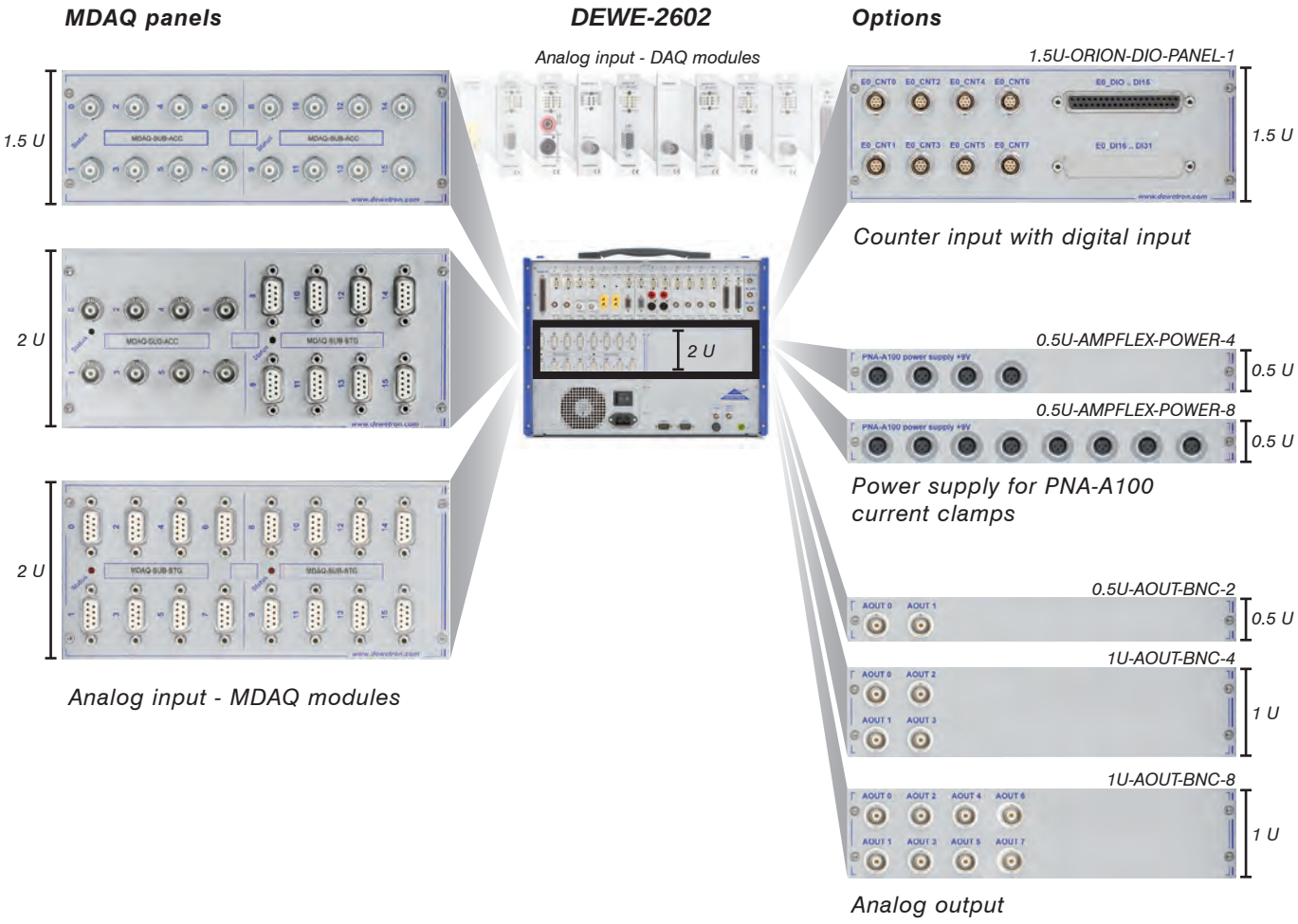
x .. digital inputs 0..7 of the ORION board

Possible configurations

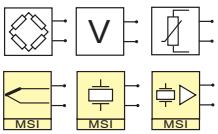
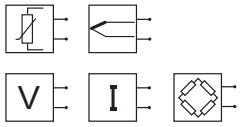
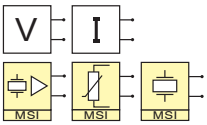



MDAQ panels
DEWE-2601
Options
1.5 U
2 U
2 U
4 U
4.5 U
1.5U-ORION-DIO-PANEL-1
1.5 U
Counter input with digital input
0.5U-AMPFLEX-POWER-4
0.5 U
0.5U-AMPFLEX-POWER-8
0.5 U
Power supply for PNA-A100
current clamps
0.5U-AOUT-BNC-2
0.5 U
1U-AOUT-BNC-4
1 U
1U-AOUT-BNC-8
1 U
Analog output
Limited use
(no 1.5 U MDAQ
panel in this area)
Analog input - MDAQ modules

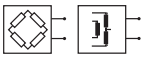
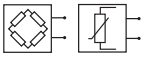
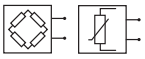
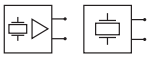
Main System


MDAQ panels
DEWE-2602
Options
Analog input - DAQ modules
1.5U-ORION-DIO-PANEL-1
1.5 U
1.5 U
Counter input with digital input
2 U
2 U
0.5U-AMPFLEX-POWER-4
0.5 U
0.5U-AMPFLEX-POWER-8
0.5 U
Power supply for PNA-A100
current clamps
2 U
0.5U-AOUT-BNC-2
0.5 U
1U-AOUT-BNC-4
1 U
1U-AOUT-BNC-8
1 U
Analog output
Analog input - MDAQ modules

DAQ series overview

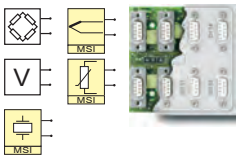
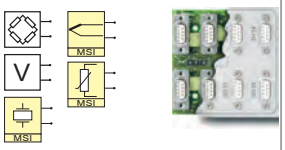
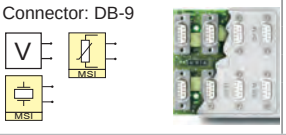
Module	Input type	Ranges	TEDS	Bandwidth (BW), Filters (LP = lowpass, HP = highpass)	Isolation (ISO), Overvoltage protection (OP)
Universal measurement					
DAQP-STG  	Strain gauge, bridge sensors	±0.1 to ±1000 mV/V (@ 5 VDC_{exc})	✓	BW: 300 kHz LP: 10 Hz to 300 kHz	ISO: 350 V_{DC} OP: ±50 V_{DC}
	Piezoresistive bridge	±0.5 to 10000 mV/mA (@ 1 mA_{exc})			
	Voltage	±500 µV to ±10 V			
	Resistance	25 mΩ to 100 kΩ			
	Pt100, Pt200, Pt500, Pt1000, Pt2000	-200° C to 850° C			
	IEPE® via MSI-BR-ACC	±2.5 to ±10000 mV			
	Thermocouple via MSI-BR-TH-x	full range of TC type			
	Charge via MSI-BR-CH-50	up to 50000 pC			
	Voltage via MSI-BR-V-200	up to ±200 V			
DAQP-MULTI  	Thermoresistors	Pt100, Pt200, Pt500, Pt1000 and Pt2000, free programmable range	✓	BW: 3 kHz LP: 3, 10, 30, 100, 300, 1000 Hz	ISO: 1 kV_{RMS}
	Thermocouple	Type K, J, T, R, S, N, E, B, L, C, U free programmable range			
	Resistance	1 Ohm to 1 MOhm			
	Piezoresistive bridge	13 ranges (±0.5 to 5000 mV/mA)			
	Voltage	10 ranges from ±5 mV to ±5 V			
	Current (with external shunt)	depending on external shunt			
High voltage measurement					
DAQP-HV  	High voltage	±20 to ±1400 V	-	BW: 300 kHz LP: 10 Hz to 300 kHz	ISO: 1.8 kV_{RMS}
DAQP-HV-S3  	High voltage	±20 to ±1400 V	-	BW: 700 kHz LP: 10 Hz to 700 kHz	ISO: 1.8 kV_{RMS}
DAQP-DMM  	High voltage	±10 to ±1000 V	-	BW: 20/30 kHz LP: 10 Hz to 30 kHz	ISO: 1.5 kV_{RMS}
Voltage & current measurement					
DAQP-LV  	Voltage	±10 mV to ±50 V	✓	BW: 300 kHz LP: 10 Hz to 300 kHz	ISO: up to 1 kV_{RMS} OP: 350 V_{DC}
	Current with external shunt	20 mA / 5 A			
	IEPE® via MSI-V-ACC	±10 mV to 10 V			
	Pt100, Pt200, Pt500, Pt1000, Pt2000 and resistance via MSI-V-RTD	-200° C to 1000° C and 0 to 6.5 kOhm			
	Charge via MSI-V-CH-50	up to 50000 pC			
DAQP-V  	Voltage	10 mV to 50 V	-	BW: 50 kHz LP: 10 Hz to 50 kHz	ISO: up to 1 kV_{RMS} OP: ±500 V_{DC}
	Current with external shunt	20 mA / 5 A			
DAQN-AIN  	Voltage	±10 V (1:1 input)	-	-	OP: < ±500 V (jumper selectable)

Main System

Module	Input type	Ranges	TEDS	Bandwidth (BW), Filters (LP = lowpass, HP = highpass)	Isolation (ISO), Overvoltage protection (OP)
Current measurement					
DAQP-LA-SC  	Current *Note:* 5 A_{RMS} continuous	0.1 A to 30 A peak max. 5 A_{RMS} contin. current	-	BW: 300 kHz LP: 10 Hz to 300 kHz	ISO: 1.4 kV_{RMS}
DAQP-LA-B  	Current *Note:* typ. 20 mA application	2 mA to 600 mA	-	BW: 300 kHz LP: 10 Hz to 300 kHz	ISO: 1.4 kV_{RMS}
Bridge / strain gauge and carrier frequency amplifier					
DAQP-CFB  	AC bridge, strain gauge *Note*: 5 kHz sine wave excitation	Bridge: 0.1 to 1000 mV/V	-	BW: DC to 2.3 kHz LP: 10 Hz to 1 kHz	OP: ±10 V_{DC}
	Inductive sensors, LVDT	Inductive: 5 to 1000 mV/V			
DAQP-BRIDGE-A  	Strain gauge, bridge sensors	±1 to ±50 mV/V (@ 5 VDC)	-	BW: 20 kHz LP: 10 Hz to 20 kHz	ISO: 350 V_{DC} OP: ±10 V_{DC}
	Potentiometric sensors	200 Ω to 10 kΩ			
DAQP-B RIDGE-B  	Strain gauge, bridge sensors	±0.1 to ±100 mV/V (@ 5 VDC)	✓[1)]	BW: 200 kHz LP: 10 Hz to 200 kHz	OP: ±10 V_{DC}
	Potentiometric sensors	200 Ω to 10 kΩ			
Charge / IEPE® measurement					
DAQP-ACC-A  	IEPE® sensors	±50 mV to ±5 V	-	BW: 0.5 Hz to 300 kHz LP: 1 to 300 kHz HP: 0.5 Hz and 5 Hz	-
DAQP-CHARGE-A  	Charge sensors IEPE® sensors *Note:* selectable integration and double integration	Charge: 5 to 50000 pC IEPE®: ±5 mV to 5 V	-	BW: 0.1 Hz to 50 kHz LP: 100 Hz to 50 kHz HP: 0.1 Hz to 10 Hz	-
DAQP-CHARGE-B  	Charge sensors *Note:* selectable time constant for static sensors	±100 to ±1 000 000 pC	-	BW: DC to 100 kHz LP: 10 Hz to 100 kHz HP: DC, 0.001 Hz to 0.5 Hz	ISO: 350 V_{DC}
Temperature measurement					
DAQP-THERM  	Thermocouple *Note:* internal CJC and linearisation	Type K, J, T, R, S, N, E, B, L, C and U selectable free programmable range	-	BW: 3 kHz LP: 3, 10, 30, 100, 300, 1000 Hz	ISO: 1 kV_{RMS}
Frequency measurement					
DAQP-FREQ-A  	Frequency	100 Hz to 200 kHz	-	BW: according to range Output response: 1.5 ms 30 ms 500 ms	ISO: 350 V_{DC}
Voltage output module					
DAQN-V-OUT  	Voltage output	1:1 output module with isolation Input voltage: ±10 V Output voltage: ±10 V	-	BW: 400 Hz	ISO: 240 V_{DC}

[1)] TEDS support for DAQP-BRIDGE-B revision 2 only

MDAQ series amplifiers overview

SUB Modules for MDAQ-BASE-x						
Module	**# CH**	**Input type**	**Ranges**	**TEDS**	**Bandwidth (BW), Highpass filters (HP)**	**Excitation**
MDAQ-SUB-STG-D Connector: DB-9 	8	Strain-gage (Full-, half and quarter-bridge, incl. shunt calibration) for strain gage application	14 ranges from ±0.5 to 1000 mV/V (@ 5 V_{DC} excitation	✓	BW: 30 kHz	0 to 12 V_{DC}
		Voltage up to ±10 V	15 ranges from ±2.5 mV to ±10 V			
		ICP via MSI-BR-ACC	7 ranges from ±0.25 mV to ±10 V			
		Voltage up to 200 V via MSI-BR-V-200	6 ranges from ±10 to ±200 V			
		Thermocouple via MSI-BR-TH-x	full range of TC type			
		Pt100, Pt200, Pt500, Pt1000, Pt2000 and resistance via MSI-BR-RTD	-200 °C to 1000 °C and 0 to 6.5 kOhm			
MDAQ-SUB-BRIDGE-D Connector: DB-9 	8	Strain-gage (Full-, and half bridge) for strain gage sensors	14 ranges from ±0.5 to 1000 mV/V (@ 5 V_{DC} excitation	✓	BW: 30 kHz HP: 0.16 Hz	+15 V_{DC} and 0 to 12 V_{DC}
		Voltage up to ±10 V	15 ranges from ±2.5 mV to ±10 V			
		ICP, via MSI-BR-ACC	7 ranges from ±0.25 mV to ±10 V			
		Voltage up to 200 V via MSI-BR-V-200	6 ranges from ±10 to ±200 V			
		Thermocouple via MSI-BR-TH-x	full range of TC type			
		Pt100, Pt200, Pt500, Pt1000, Pt2000 and resistance via MSI-BR-RTD	-200 °C to 1000 °C and 0 to 6.5 kOhm			
MDAQ-SUB-V-200-D Connector: DB-9 	8	Voltage up to ±200 V	13 ranges from ±0.125 to ±200 V	✓	BW: 300 kHz	±15 V_{DC} and 0 to 12 V_{DC}
		ICP, via MSI-V-ACC	7 ranges from ±0.25 mV to ±10 V			
		Pt100, Pt200, Pt500, Pt1000, Pt2000 and resistance via MSI-V-RTD	-200 °C to 1000 °C and 0 to 6.5 kOhm			
		Note: *for safety reasons, max. 120 V_{DC} or 50 V_{AC} are allowed at this connector*				
MDAQ-SUB-V-200-BNC Connector: BNC 	8	Voltage up to ±200 V	13 ranges from ±0.125 to ±200 V	-	BW: 300 kHz	-
		Note: *for safety reasons, max. 120 V_{DC} or 50 V_{AC} are allowed at this connector*				
MDAQ-SUB-ACC-BNC Connector: BNC 	8	ICP® or voltage up to ±10 V	8 ranges from ±125 mV to ±10 V	✓	BW: 300 kHz HP: 3.4 Hz	4 / 8 mA
		Single-ended or differential input and one highpass filter *3.4 Hz highpass filter for noise and shock response measurement*				
		MDAQ-SUB-ACC-BNC-S1 *0,16 Hz for structural and modal analysis, human body vibration measurement* *(rest same as MDAQ-SUB-ACC-BNC)*		✓	BW: 300 kHz HP: 0.16 Hz	4 / 8 mA
MDAQ-SUB-ACC-A-BNC Connector: BNC 	8	ICP® or voltage up to ±10 V	8 ranges from ±125 mV to ±10 V	✓	BW: 300 kHz HP: 0.16 Hz, 3.4 Hz	4 / 8 mA
		Single-ended input and two HP filters *0.16 Hz for structural and modal analysis, human body vibration measurement* *3.4 Hz for noise and shock response measurement*				
MDAQ-SUB-ACC-A-MD Connector: Microdot 	8	ICP® or voltage up to ±10 V	8 ranges from ±125 mV to ±10 V	✓	BW: 300 kHz HP: 0.16 Hz, 3.4 Hz	4 / 8 mA
		Single-ended input, two HP filters and sensor failure detection *0.16 Hz for structural and modal analysis, human body vibration measurement* *3.4 Hz for noise and shock response measurement* Option: test signal input for all channels				

Main System

Filter Modules for MDAQ				
Module	**# CH**	**Filter characteristics**	**Cutt-off frequencies**	**Order**
MDAQ-AAF4-5-BU 	16	Butterworth	100 Hz, 1, 10, 30, 100 kHz, Bypass *Note: not possible in all system configurations. Please contact factory for details.*	4th order
MDAQ-FILT-5-BU 	16	Butterworth	30, 100, 300 Hz, 1, 10 kHz, Bypass	2nd order
MDAQ-FILT-5-BU-S1 	16	Butterworth	100 Hz, 1, 10, 30, 100 kHz, Bypass	2nd order
MDAQ-FILT-5-BE 	16	Butterworth	30, 100, 300 Hz, 1, 10 kHz, Bypass	2nd order

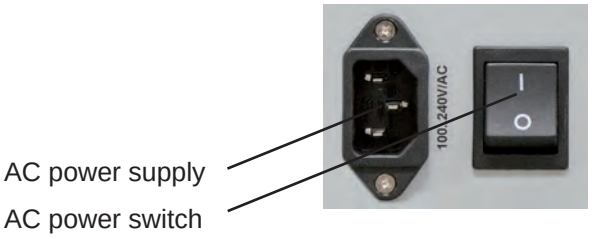
Modular smart interfaces to connect various sensors

Modular Smart Interfaces for DAQP / MDAQ modules, DEWE-43 and DEWE-101							
	MDAQ-SUB-STG-D	**MDAQ-SUB-BRIDGE-D**	**MDAQ-SUB-V-200-D**	**DAQP-STG-D**	**DAQP-LV-D**	**DEWE-43**	**DEWE-101**
MSI-BR-ACC 	✓	✓	-	✓	-	✓	✓
	Isotron (constant current powered) adapter for MDAQ-SUB-BRIDGE / -STG modules with DB9 connector Excitation current 4 mA at 21 V, High pass filter 1.5 Hz, BNC connector Bandwidth and ranges are defined by connected amplifier Automatic adapter identification						
MSI-BR-V-200 	✓	✓	-	✓	-	✓	✓
	200 V input adapter for MDAQ-SUB-BRIDGE / -STG modules with DB9 connector Differential input configuration, BNC connector Bandwidth and ranges are defined by connected amplifier Automatic adapter identification						
MSI-BR-RTD 	✓	✓	-	not needed	-	✓	✓
	Pt100, Pt200, Pt500, Pt1000 and Pt2000 adapter for MDAQ-SUB-BRIDGE / -STG modules with DB9 connector 2, 3 and 4 wire connection methods, 5-pin Binder 710 series connector Automatic adapter identification						
MSI-BR-CH-x 	✓	✓	-	✓	-	✓	✓
	Charge input interface for DAQP-STG and MDAQ-SUB-BRIDGE / -STG with DB9 connector Range up to 50000 pC, AC coupled with 0.07 Hz, BNC signal connection Max. 100 kHz bandwidth (dependent on the max. bandwidth of the amplifier) Automatic adapter identification						
MSI-BR-TH-x 	✓	✓	-	✓	-	✓	✓
	isolated TC sensor			any TC sensor		isolated TC sensor	
	Thermocouple type K / J / T adapter for DAQP-BRIDGE-x and MDAQ-SUB-BRIDGE / -STG modules with DB9 connector For use with **isolated** thermocouple sensors only ! (except in combination with DAQP-BRIDGE-A*) High accuracy cold junction reference measurement, 1 m thermo cable with Mini TC connector Automatic adapter identification						
MSI-V-ACC 	-	-	✓	-	✓	-	-
	Isotron (constant current powered) adapter for DAQP-LV and MDAQ-SUB-V-200 modules with DB9 connector Excitation current 4 mA at 21 V, High pass filter 1.5 Hz, BNC connector Bandwidth and ranges are defined by connected amplifier Automatic adapter identification						
MSI-V-RTD 	-	-	✓	-	✓	-	-
	Pt100, Pt200, Pt500 and Pt1000 adapter for DAQP-LV and MDAQ-SUB-V-200 modules with DB9 connector 2, 3 and 4 wire connection methods, 5-pin Binder 710 series connector Automatic adapter identification						
MSI-V-CH-50 	-	-	✓	-	✓	-	-
	Charge input interface for DAQP-LV, MDAQ-SUB-V-200 modules with DB9 connector Range up to 50000 pC, AC coupled with 0.07 Hz, BNC signal connection Max. 100 kHz bandwidth (dependent on the max. bandwidth of the amplifier) Automatic adapter identification						

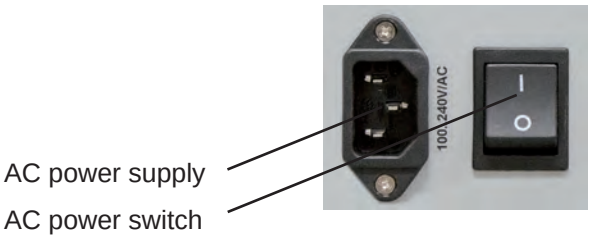
Power supply

AC standard power supply

400 W AC power supply	MPM-842P
Input:	
Input range:	100 to 240 V_{AC} (auto selecting)
Input frequency:	47 to 63 Hz
Max. input current:	8 A (115 V_{AC})
Output:	
Output power:	400 W continuous (450 W peak)
Output voltages:	+3.3 V (max. 22 A) +5 V (max. 21 A) +5 Vsb (max. 1.5 A) +12 V (max. 22 A) -12 V (max. 0.8 A)



400 W AC power supply	BEA-640
Input:	
Rated input voltage:	100 to 240 V_{AC} (max. 90 to 264 V_{AC}); active PFC
Input frequency:	47 to 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 Vsb (max. 2 A) +12 V (max. 30 A) -12 V (max. 0.8 A)



Main System

Internal battery power supply: option DEWE-2600-PS-BAT

320 W DC power supply with XP-04 battery management	
Input:	
Input range:	18 to 24 V_{DC} (nom. 18 V_{DC})
Input frequency:	DC
Max. input current:	12 A
External AC power supply:	90 to 260 V_{AC} (DEWE-POW-24-350 included as standard accessory)
Output:	
Output power:	320 W with XP-04 battery management (with DCDC-123)
Output voltages:	+3.3 V (max. 10 A)
	+5 V (max. 10 A)
	+12 V (max. 12 A)

Power supply pin assignment:

Connector type
2-pin. male
LEMO EGJ.2B.302

If option 2600-PS-BAT is installed, there are 3 slots for hot-swappable smart batteries available in the system. Standard shipment includes 2 smart batteries, more can be ordered additionally (option BAT-95WH).

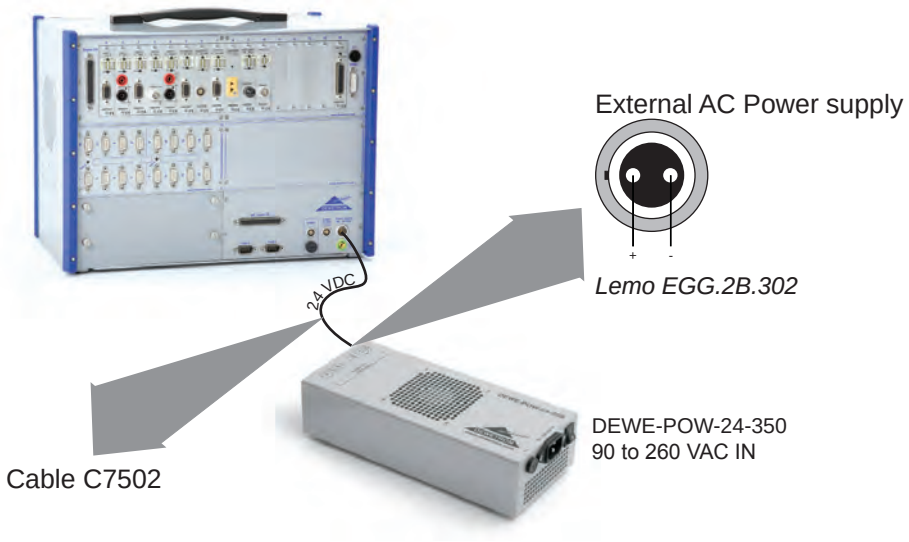
Optional cables:
C7502: LEMO 2B jack to LEMO 2B plug, 2 m. (used for connecting DEWE-2600 to DEWE-POW-24-350 or to DEWE-DCDC-24-350-ISO)
C8502: LEMO 2B jack to banana plugs, 2 m.

Note: If the system is powered by batteries, please take care that there are at least 2 batteries installed! In some special applications 3 batteries are necessary! (Hot swap of the batteries not possible)

External AC/DC power supply (standard accessory included with option 2600-PS-BAT)

AC/DC power supply	DEWE-POW-24-350
Input:	
Rated input voltage:	100 to 240 V_{AC} (max. 90 to 264 V_{AC})
Input frequency:	47 to 63 Hz
Input current (typ.):	2 A @ 230 V_{AC} / 4 A @ 115 V_{AC}
Inrush current (typ.):	44 A @ 230 V_{AC} / 22 A @ 115 V_{AC}
Leakage current:	<2 mA @ 240 V_{AC}
P.F.C. (typ.):	0.95 @ 230 V_{AC} / 0.98 @ 115 V_{AC}
Output:	
Output voltage:	24 V
Min. load:	0 A
Rated load (free / fan):	12.5 A / 14.6 A
Output tolerance:	±2 %
Ripple & Noise (max.):	150 mV
Efficiency (typ.):	88 %
Output connector:	Banana jacks and LEMO EGG.2B.302
Protection:	
Overload:	105 % to 130 % constant current limiting, auto recovery
Over voltage:	26.7 to 32.4 V; Hiccup mode, auto recovery after fault has been removed
Over temperature:	> 80°C ±5°C detect on heat sink of power transistor Shutdown, auto recovery after temp. has fallen
Short curcuit:	Yes
Setup time:	<2000ms @ 230V_{AC} / 4000ms @ 115V_{AC}
Rise time:	<100ms @ 230 V_{AC} / 100ms @ 115 V_{AC}
Holdup time:	16ms @ 230 V_{AC} / 16ms @ 115 V_{AC}
Withstand voltage:	I/P-O/P:3 KV_{AC}, I/P-FG:1.5 KV_{AC}, O/P-FG:0.5 KV_{AC} / 1 minute
Isolation resistance:	I/P-O/P, I/P-FG, O/P-FG: 500 V_{DC} / 100 MOhm
Switching frequency:	100 kHz
Temperature:	
Operating:	-10 to 65°C
Derating:	45 to 60°C: 2 %/°C (3.5 & 5 V: 40 to 65°C: 2 %/°C)
Storage:	-40 to 85°C
Humidity:	
Operating:	20 to 90 % RH
Storage:	10 to 95 % RH (non condensing)
M.T.B.F.:	> 106 K hours (according to MIL-HDBK-217F at 25°C environment)
Safety:	Approved: UL 60950-1 / TÜV EN60950-1
EMC:	
EMI	EN55022 Class B / EN61000-3-2,3
EMS	EN61000-4-2,3,4,5,6,8,11 / ENV50204
Dimensions (W x D x H):	248 x 106 x 62 mm (9.8 x 4.2 x 2.4 in.)
Weight:	1.7 kg (3.7 lbs)

DEWE-2600 with option PS-BAT and external AC/DC power supply



Smart battery packs

Smart battery packs are equipped with an integrated circuit which stores information (such as manufacturer, serial number, production date etc.) and monitors the current battery status in terms of discharge rate, predicted remaining capacity, temperature, voltage etc. The battery packs, supplied with every battery powered DEWETRON system, are even capable of displaying their charge state without a separate device. With the push of a button, a LED display on the battery pack shows the current charge state in 25% steps. An intelligent battery controller, integrated in our DEWETRON systems, takes care of the charging and discharging process in order to ensure maximum battery performance and life time.

Main System

External battery charger (optional)

External battery charger	CH5000A/E/U
Power supply:	
Input voltage:	90 to 260 VAC, 24V
Input current:	2.5 A
Mains Cord:	CH5000E - 220 V European 2-pin connector with ground recess
Dimensions (WxDxH):	180 mm x 92 mm x 58 mm
Weight:	ca. 250 g
Mating connector:	5-blade standard battery connector

From time to time, due to the aging process of the batteries, it is necessary to recalibrate the battery in order to retain the accuracy and reliability of the fuel gauge. This can be archieved with an external battery charger (BAT-CHARGER) which is optionally available. Another advantage of the BAT-CHARGER is that additional batteries can be recharged without being in the measurement unit. This allows the measurement unit to run non-stop without being connected to the power net, thanks to the hot-swap capability of the battery packs.

External DC/DC power supply (recommended option if system is configured with 2600 PS-BAT power supply)

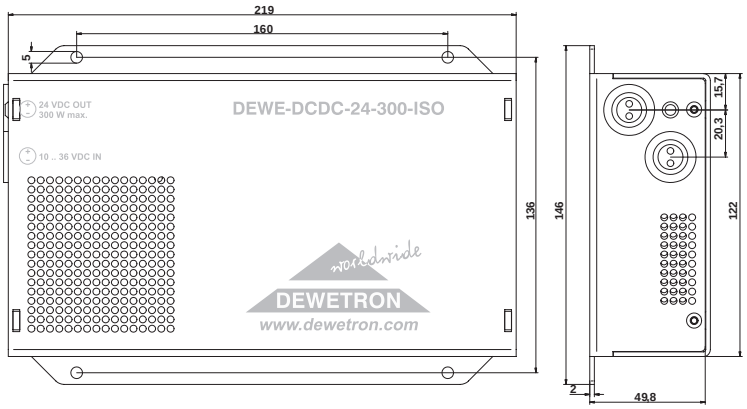
DC/DC power supply	DEWE-DCDC-24-300-ISO
Input:	
Input voltage:	10 to 36 V_{DC} (the input is protected against wrong polarity
Max. input current:	36 A @ 10 V_{DC} input voltage (15 A @ 24 V_{DC})
Input connector:	2-pin LEMO connector male, type: EGJ.2B.302
Output:	
Output voltages:	24 V
Output power:	300 W
Output current:	12.5 A
Output connector:	2-pin LEMO connector female, type: EGG.2B.302
Operating temperature:	-20 °C to 60 °C
Derating above 45 °C:	8 Watt/°C
Isolation voltage:	500 V_{DC}
Status LED:	Green LED indicates an output voltage > 21 V_{DC}
Dimensions: (W x D x H):	approx. 219 x 122 x 50 mm (8.6 x 4.8 x 2 in.)
Weight:	1.3 kg (2.9 lbs)
Power on sequence: First: Connect the system and the DEWE-DCDC-24-300 followed by the power supply connection.	

As an option the DEWE-2600 is shipped with the DEWE-DCDC-24-300-ISO. This power supply serves galvanic isolated voltage with a wide input range from 10 to 36 V_{DC}. The output voltage is fixed with 24 V_{DC} with a maximum output power of 300 W.

Depending on the configuration, the DEWE-2600 takes usually not more than 150 W. The typical power consumption is just around 70 W. However, if the batteries are empty the input current can go up to 12 Ampere which is an equivalent power consumption of 280 Watt! If the unit is supplied from a typical board supply of 12 V it needs an input current of 28 A!

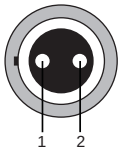
If this high power is not available in the board supply please operate the DEWE-2600 without or with charged batteries.

Dimensions*



* Dimensions in mm
(1 inch = 25.4 mm)

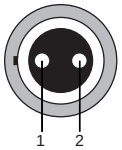
Input connector



Lemo EGJ.2B.302

Pin assignment
1: 10 .. 36 V_{DC} input
2: GND

Output connector



Lemo EGG.2B.302

Pin assignment
1: 24 V_{DC} output
2: GND

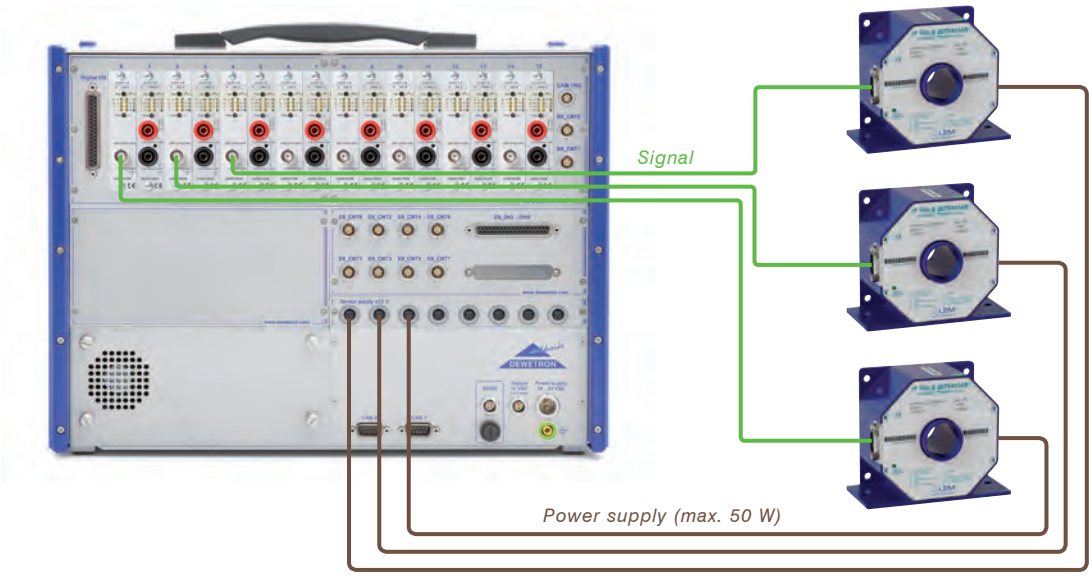
Optional cables: C8502 LEMO 2B jack to banana plugs, 2 m.

Main System

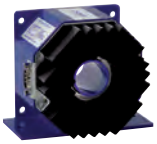
Mobile power supply for current transducers

It's possible to supply all current sensors (zero-flux transducers, AC/DC clamp) directly out of the DEWE-2600. If you use a DEWE-2600 with battery pack, the full measurement system can be used for mobile applications as well and also works as uninterruptable power supply for the transducers.

Connection schematic:



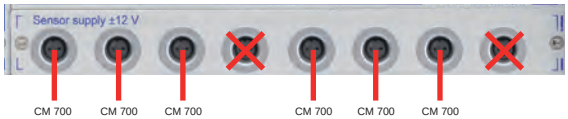
The maximal power supply of the DEWE-2600 for current transducers is 50 W. The following table will give you an overview of how many transducers of different types you can connect to your DEWE-2600.

Transducer	CM 60	CM 200	CM 400	CM 700	CM 1000	150 DC
						
Max. power consumption	2.7 W	4.2 W	4.2 W	7.2 W	16.2 W	5 W
# of transducers to be connected to one measurement unit	16 x	11 x	10 x	6 x	3 x	10 x

NOTE: The maximum cable lenght from the transducer to the device is 5 m. Longer cable lenghts may cause a too high voltage drop.

NOTE: Do not use the zero-flux transducer system without power supply. Induction of currents can damage the built-in electronics (see user manual).

NOTE: If you use 6 x CM 700 current transducers with one DEWE-2600 device, ensure that you connect the power supply for the current transducers as shown in the picture below:



Due to the fuse of 27 W for four power plugs please skip every fourth connector.

Maintenance

External HDD access for easy service

If the system harddisk drive gets damaged, an external HDD access for easy service is available. Pull out the access bay for removing/changing the system harddisk drive.

Notes

DEWESoft™

DEWESoft™ Software Turns our Hardware into a Powerful Data Acquisition System

Our award-winning data acquisition package is second to none when it comes to both pure recording power and ease of use. Normally it is a difficult balancing act to provide lots of capability and performance, without making the user interface cumbersome and hard to learn. But with careful and innovative design, we have done exactly that!

The software can act as a simple multi-meter or recorder as well as a sophisticated combustion analyzer or power analyzer. Or anything in between these extremes, like a FFT analyzer, transient recorder, etc.

Over 10 years DEWESoft™ evolved into a great data acquisition software and is Nr.1 in synchronous acquisition of vastly different signals like analog, digital, CAN, GPS, PCM, counter, video, etc. In 2010 with the release of version 7, DEWESoft™ takes a big step toward become a very powerful data analysis tool for a wide range of test & measurement applications. Since many years you can utilize math channels in the measure mode for online calculations. Starting with version 7.0, captured data can be re-calculated in the analyze mode using the large suite of calculation (math) functions available in the measure mode. This eliminates the CPU performance limitations and thus provides unlimited offline calculation power.

Key Features of DEWETRON systems running DEWESoft™

- *Fast and easy setup*
- *Perfect sync of vastly different signals like analog, digital, counter, CAN, XCP, GPS, Video, ARINC, 1553, etc.*
- *Powerful online data processing, MATH functions, filters, statistics, reference curves*
- *Attractive online display of all kind of data, creation of displays is a matter of seconds*
- *Analog, digital or CAN data output; powerful function generator, alarms, CAN messages*
- *Build test procedures in a form of workflow diagram by means of sequencer*
- *Fast data analysis, reload GByte files in seconds*
- *Post processing, large suite of calculation (math) functions*

Example: Performing a 10th order notch filter on 128 channels being sampled at 200 kS/s each. This is not possible online. But in analyze mode it´s easy. Simply record the data and then filter it afterwards (math functions are non-destructive, i.e., they do not affect the raw channels).

Another important new feature is the sequencer which provides a way to automate test procedures.

Hardware Support

DEWESoft™ supports DEWETRON hardware cards as well as some third-party cards, like Spectrum cards for transient recording. Multiple cards of the same family are supported for high channel counts.

There is also a huge range of DEWETRON signal conditioners which are all perfectly implemented into the software.

Besides the analog inputs DEWESoft™ supports the digital I/Os, counters and CAN interfaces of DEWETRON hardware.

To acquire video streams in sync with the analog data there is a selection of DEWE-CAM cameras.

Further bus systems like PCM telemetry, XCP, ARINC, 1553, etc. are supported, too. DEWETRON offers the appropriate hardware for all of these.

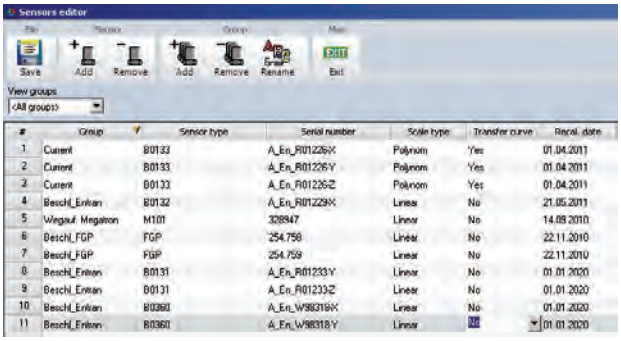
For position and speed measurements there is a choice of high performance DEWE-VGPS sensors. Or use low-cost sensor which is NMEA compatible for simple position plotting and mapping applications.

DAQx modules

DEWE-ORION A/D cards

Sensor Database and TEDS (Technical Electronic Data Sheet)

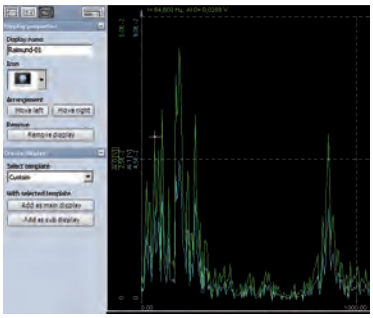
The DEWESoft™ data acquisition software suite was developed especially for measurement technicians, thus simple sensor "connection" is a major topic. Basic settings like sensor setup are easily done. TEDS technology of newer sensors is supported on both the hardware and software side, so that all settings follow automatically, preventing user errors and saving a huge amount of time. For sensors without TEDS, there are numerous options for manual scaling as well as an integrated sensor database to make settings as efficient as possible.



Video Recording

A camera is a perfect sensor for many applications and a lot of people like to use it in their data acquisition. Video is a useful test documentation, providing a visual record of the test conditions and setup. I can also be used for more in-depth analysis, as you can imagine. There is nothing quite like seeing your data replayed with synchronized video – this DEWETRON innovation provides a whole new level of context and understanding of your test data than you could ever imagine.

3D Graph

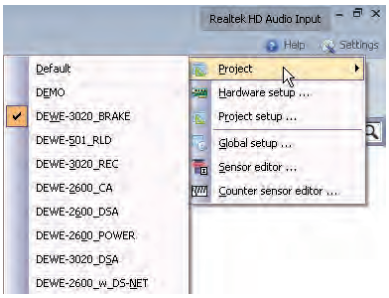


In the properties panel there is a function that allows you to edit the properties of the selected display, and to create new displays, and rearrange them. You can rename any display, and select a different icon for it. Of course you can add sub-displays to any main display.

Display Screens

One of the most powerful and yet easy to use aspect of DEWESoft™ is the creation of displays. Of course a few standard displays like Recorders, Oscilloscope, FFT, Meters, Bars, 2D and 3D graphs, etc. are built-in for you. But this is only the beginning. You simply can create custom displays according to the needs of specific test.

Project Setup



The project files setup the measurement instruments in seconds including complete hardware setup, measurement configuration, and sensor calibration.

Since DEWESoft version 7 you can create "Projects" at the hardware setup screen level, where each project contains all of the settings for any hardware that you own. You can have an unlimited number of hardware setups, which you can freely name and edit. When you start DEWESoft 7, it will automatically load the last hardware setup that you used, of course … but if you have changed the hardware, you can simply choose a different project from the "Settings" menu, and a completely different hardware setup will be loaded.

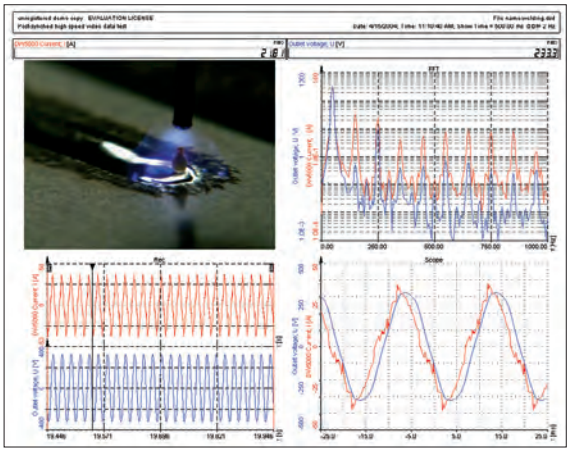
Even when using the same hardware, projects allows using different folders for setup, data and exported files. So you can create John and George projects for different users and work without interfering or you can create e.g. Road-Load and DSA projects for different tasks.

Recording

You can control recording as simple as pressing the START, STORE and STOP buttons. But there are also versatile trigger options to e.g. only store data if a trigger event occurs or to store at a slow rate usually but store at a fast rate at a trigger event with definable pre- and post times.

There is a large suite of calculation (math) functions which can be applied to any channels.

Analyze – Replay, Re-calculate, Export



In Analyze mode you can replay any captured data file, zoom in, make cursor measurements, print reports and export the data to a wide variety of formats, like Flexpro, Excel, Matlab, Diadem and many more.

Since version 7 all the powerful math functions such as math formulas, filtering, statistics, power analysis, frequency response function, order tracking, torsional vibration, engine combustion analysis, sound analysis, human vibration analysis, and others can also be applied off-line to captured data. So you can simply store the raw data and do all the processing off-line, on any computer, anywhere. This allows you to work with the data as you were at the test bench or on the proving ground.

Notes

A/D Conversion

Please find information about the A/D conversion in the attached DEWE-ORION series manual.
The latest version of the manual can be downloaded from:

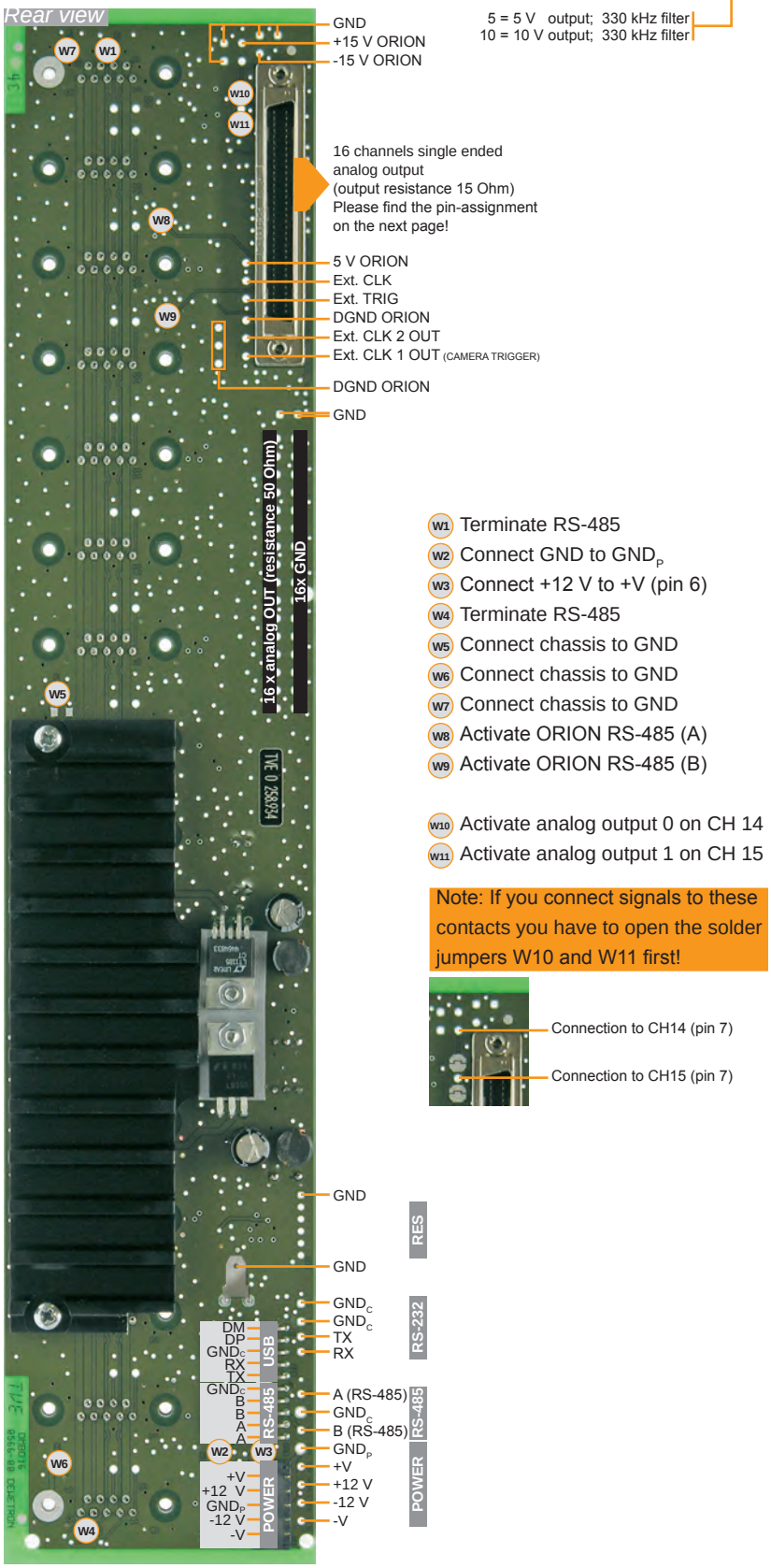
http://download.dewetron.com/dl/components/adboards

Informations regarding different manufacturer's see the corresponding D/A card manual.

A/D & D/A Conversion

Notes

16 slot DEWE-MOTHERBOARD DAQ-MOTH-16-DE-x



9-pin SUB-D pin assignment:

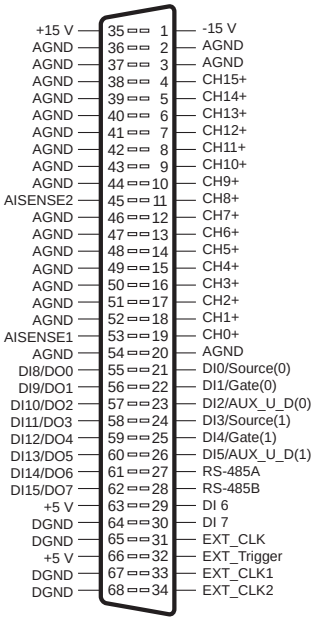
1	Module input (±5 V)
2	RS-485 (A)
3	RS-485 (B)
4	GND
5	+9 V power supply
6	+12 V power (default) / +V sensor supply
7	Module output (from A/D board)
8	-V sensor supply
9	-9 V power supply

The 16 slot DEWE-MOTHERBOARD receives the ±12 V_{DC} power supply via a DC/DC converter from the internal power supply.

Internal Wiring

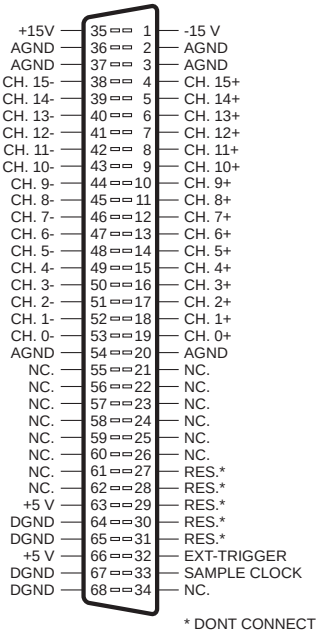
Analog output connector pin-assignment

Connector for DEWE-ORION-1616 cards



68-pin high density connector

Connector for DEWE-ORION-1624 cards

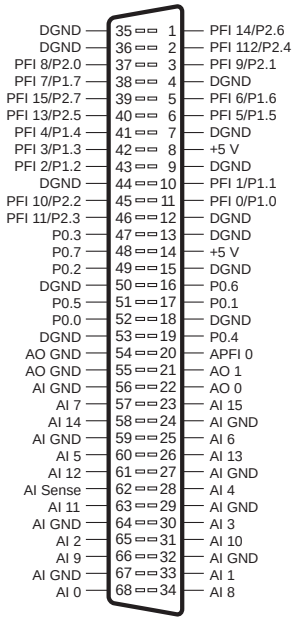


68-pin high density connector

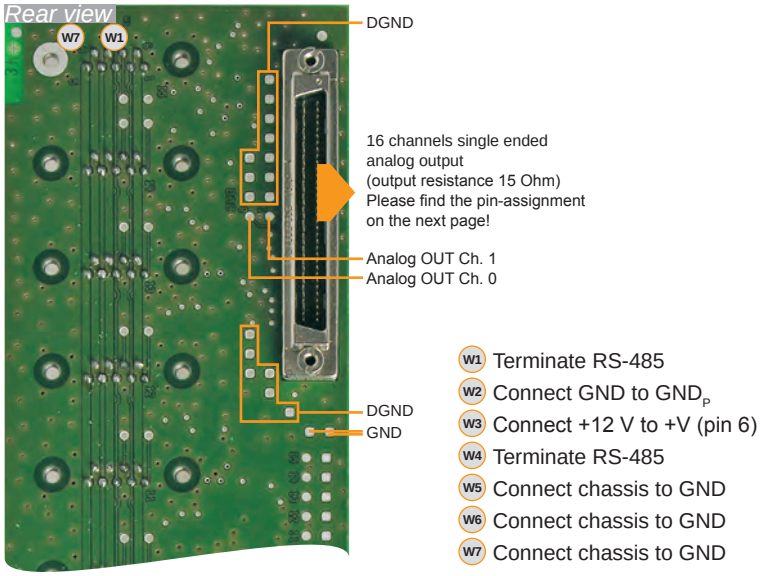
16 slot DEWE-MOTHERBOARD DAQ-MOTH-16-NI-x-U

5 = 5 V output; 330 kHz filter
10 = 10 V output; 330 kHz filter
USB interface on-board

Connector for National Instruments™ A/D cards



68-pin high density connector



Internal Wiring

Please find information about the MDAQ amplifiers in the attached DEWE-MDAQ series manual. The latest version of the manual can be downloaded from:

http://download.dewetron.com/dl/products/signal/mdaq

Internal Wiring

Notes

CE-Certificate of conformity

Manufacturer: **DEWETRON Elektronische Messgeraete Ges.m.b.H.**

Address: **Parkring 4**
A-8074 Graz-Grambach Austria

Tel.: +43 316 3070 0
Fax: +43 316 3070 90
e-mail: sales@dewetron.com
http://www.dewetron.com

Name of product: **DEWE-260x**

Kind of product: *Data acquisition instrument*

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

73/23/EEC
"Directive on the approximation of the laws of the Member States relating to electrical equipment designed for use within certain voltage limits amended by the directive 93/68/EEC"

89/336/EEC
"Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility amended by the directives 91/263/EEC, 92/31/EEC, 93/68/EEC and 93/97/EEC

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

LV	**Safety**	IEC/EN 61010-1:1992/93 IEC/EN 61010-2-031	IEC 61010-1:1992/300 V CATIII Pol. D. 2 IEC 1010-2-031
EMC	**Emissions**	EN 61000-6-4	EN 55011 Class B
	Immunity	EN 61000-6-2	Group standard

Graz, April 28, 2010
Place / Date of the CE-marking

Dipl.-Ing. Roland Jeutter / Managing director

Notes