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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.

Support

For any support please contact your local distributor first or DEWETRON directly.

For Asia and Europe, please contact:

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Web: http://www.dewetron.com

The telephone hotline is available
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Printing History

Please refer to the page bottom for printing version.

Safety instructions

Safety symbols in the manual

Indicates hazardous voltages.

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.*

WARNINGS

The following general safety precautions must be observed during all phases of operation, service, and repair of this product. Failure to comply with these precautions or with specific warnings elsewhere in this manual violates safety standards of design, manufacture, and intended use of the product. DEWETRON Elektronische Messgeraete Ges.m.b.H. assumes no liability for the customer's failure to comply with these requirements.

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

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

Safety instructions for all DEWETRON systems

- The DEWETRON data acquisition systems may only be installed by experts.
- Read your manual before operating the system.
- Observe local laws when using the instrument.
- Ground the equipment: For Safety Class 1 equipment (equipment having a protective earth terminal), a non interruptible safety earth ground must be provided from the mains power source to the product input wiring terminals or supplied power cable.
- DO NOT operate the product in an explosive atmosphere or in the presence of flammable gases or fumes and do not bring the system in contact with water.
- DO NOT operate damaged equipment: Whenever it is possible that the safety protection features built into this product have been impaired, either through physical damage, excessive moisture, or any other reason, REMOVE POWER and do not use the product until safe operation can be verified by service-trained personnel. If necessary, return the product to a DEWETRON sales and service office for service and repair to ensure that safety features are maintained.
- Keep away from live circuits: Operating personnel must not remove equipment covers or shields. Procedures involving the removal of covers or shields are for use by service-trained personnel only. Under certain conditions, dangerous voltages may exist even with the equipment switched off. To avoid dangerous electrical shock, DO NOT perform procedures involving cover or shield removal unless you are qualified to do so.
- No modifications are allowed at the instrument. The fuse in the power module has to be replaced by the same type. For continued protection against fire, replace the line fuse(s) only with fuse(s) of the same voltage and current rating and type. DO NOT use repaired fuses or short-circuited fuse holder labels and print on the power module may not be removed.
- DO NOT service or adjust alone. Do not attempt internal service or adjustment unless another person, capable of rendering first aid and resuscitation, is present.
- DO NOT substitute parts or modify equipment: Because of the danger of introducing additional hazards, do not install substitute parts or perform any unauthorized modification to the product. Return the product to a DEWETRON sales and service office for service and repair to ensure that safety features are maintained.
- Before opening the instrument (experts only) or exchanging the fuse in the power module disconnect power!
- Don’t touch internal wiring!
- Don’t use higher supply voltage than specified and take care of the correct polarity, otherwise the system will be damaged!
- Use only original plugs and cables for harnessing.
- Install filler-panels in unused slots.
- The power-cable and -connector serve as Power-Breaker. The cable must not exceed 10 feet, disconnect function must be possible without tools.
- Keep the ventilation slots free and check them frequently to avoid an overheating of the system. The cleaning interval of the filter pads depends on the environmental conditions.
- Safety of the operator and the unit depend on following these rules.
- DEWETRON is not responsible for any damage or injury that could result from improper connection or misuse!

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.

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 informations about recycling on the DEWETRON web site www.dewetron.com

Restriction of Hazardous Substances

This product has been classified as Monitoring and Control equipment, and is outside the scope of the 2002/95/EC RoHS Directive. This product is known to contain lead.

DEWE-510 Battery Powered Instrument

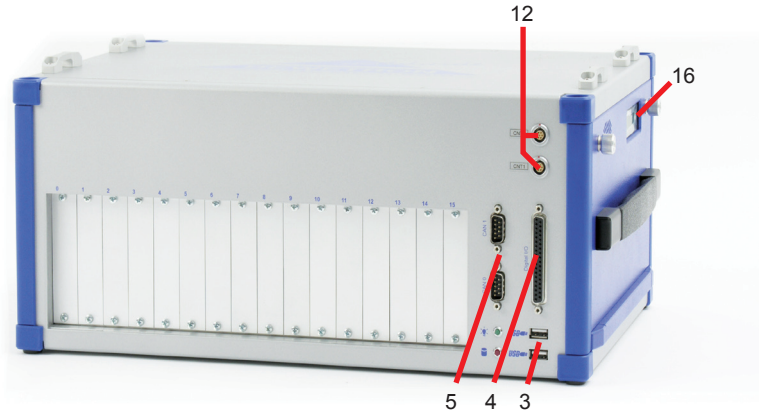
- Portable, battery powered data acquisition system
- 3 PCI slots for up to 3 DEWETRON ORION-series cards
- Up to 16 internal slots for DEWE-DAQ/PAD modules
- Optional counter- / encoder inputs
- A/D converter specs see appendix A

System specifications

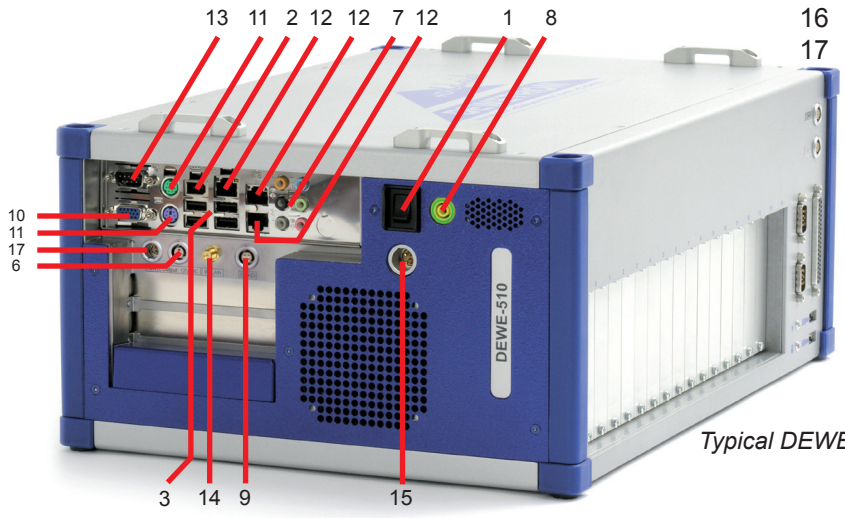
	DEWE-510 DC	
Power supply	18 to 24 V_{DC}	
Battery management	❑ BBDC-02 (120 W)	
	❑ BB-04 (150 W)	
	❑ MP-04 (192 W)	
deactivate	❑ XP-04 (320 W)	
please select!	❑ Dual DC-DC converter module	
	❑ DC-023	
	❑ DC-023-12V	
	❑ DC-123	
	for details see next pages	
Operating temperature	-10 °C to +50 °C	
Storage temperature	-20 °C to +60 °C	
Humidity (operating)	10 % to 80 %, non condensing	
	5 % to 95 %, rel. humidity	
Vibration test	Shape	Sine
EN 60068-2-6	Frequency range	10 - 150 Hz
	Acceleration	2 g
	Sweep rate	1 oct./min.
	Duration	20 Cycles
	Test in 3 directions	
Vibration test	Shape	Random
EN 60721-3-2	Frequency range	10 - 200 Hz
Class 2M2	Power spectral density	1 m/s² / Hz from 10 – 200 Hz
	Duration	30 Minutes per axis
Shocktests	Shape	Half-sine
EN 60068-2-27	Acceleration amplitude	15 g
	Duration	11 ms
	Test in 3 axis, 3 shocks in each axis and direction	
Dimensions (W x D x H)	DEWE-510: 438.5 x 308 x 180.5 mm (17.3 x 12.1 x 7.1 in.)	
Weight	typ. 6 to 10 kg (13.2 to 22 lbs), depending on configuration	

Main System

Connectors



Typical DEWE-510 front view



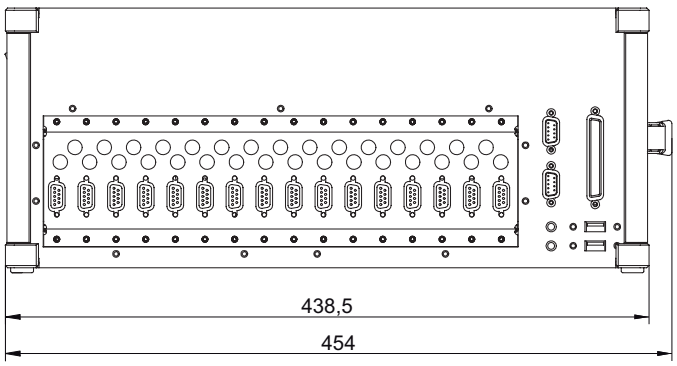
Typical DEWE-510 side view

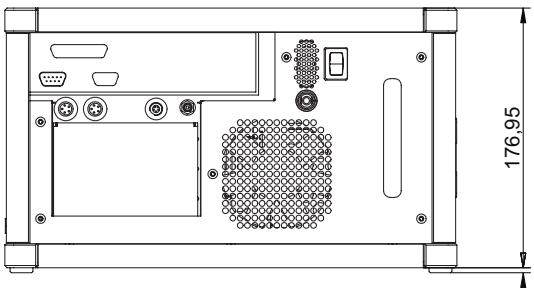
Connector overview:

1 Power-on button
2 IEEE1394 interface connector
3 USB interface connectors
4 Digital I/O connector
5 CAN interface
6 Power supply for accessories (12 V_{DC} / 1.8 A) Lemo FGG1B-302
7 Audio interface
8 Ground connector
9 EPAD interface
10 VGA connector
11 PS/2 connector
12 Counter inputs
13 RS-232 interface connector
14 WLAN connector
15 Power supply input (Lemo FGJ3B-30)
16 Battery status display
17 Ignition (IGN) input (Lemo EGJ.1B.302.CLA)

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

Dimensions*





* Dimensions in mm
(1 inch = 25.4 mm)

Internal DC power supply

DC power supply						
Input:						
Input range:	18 to 24 V_{DC} (nom. 18 V_{DC})					
Input frequency:	DC					
Max. input current:	12 A					
Output:						
Output power:	120 W	with BBDC-02 (battery management and DC-DC on a single board)				
	150 W	with BB-04 battery management				
	192 W	with MP-04 battery management				
	320 W	with XP-04 battery management (only single DC-DC)				
Output voltages:	Single DC-DC converter		Dual DC-DC converter		BBDC-02	
	+3.3 V	(max. 10 A)	+3.3 V	(max. 19 A)	+3.3 V	(max. 10 A)
	+5 V	(max. 10 A)	+5 V	(max. 19 A)	+5 V	(max.10 A)
	+12 V	(max. 7 A / 12 A*)	+12 V	(max. 13 A)	+12 V	(max. 7 A)
DC-023-12V option:	-12 V	(max. 0.25 A)	-12 V	(max. 0.45 A)	-12 V	(max. 0.3 A)

*) max. current with XP-04 battery management

External DC power supply (option)

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 @ 24V_{DC})
Input connector:	2-pin LEMO connector male, type: EGJ.3B.302.CLA
Output:	
Output voltage:	24 V
Output power:	300 W
Output current:	12.5 A
Output connector:	2-pin LEMO connector female, type: EGG.3B.302.CLL
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 DCDC! Followed by the DCDC and the power supply connection.	

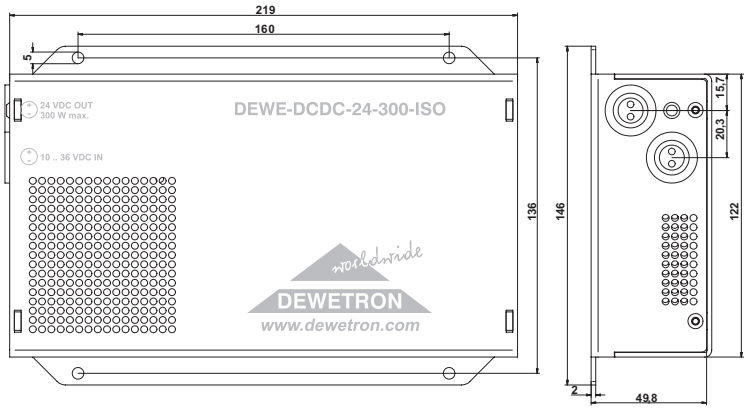
As an option the DEWE-501 is shipped with the DEWE-DCDC-24-300-ISO. This power supply serves galvanic isolated voltage with a wide input range from 10 to 36 V_{DC}. The output voltage is fixed with 24 V_{DC} with a maximum output power of 300 W.

Depending on the configuration, the DEWE-501 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!

Main System

If this high power is not available in the board supply please operate the DEWE-501 without or with charged batteries.

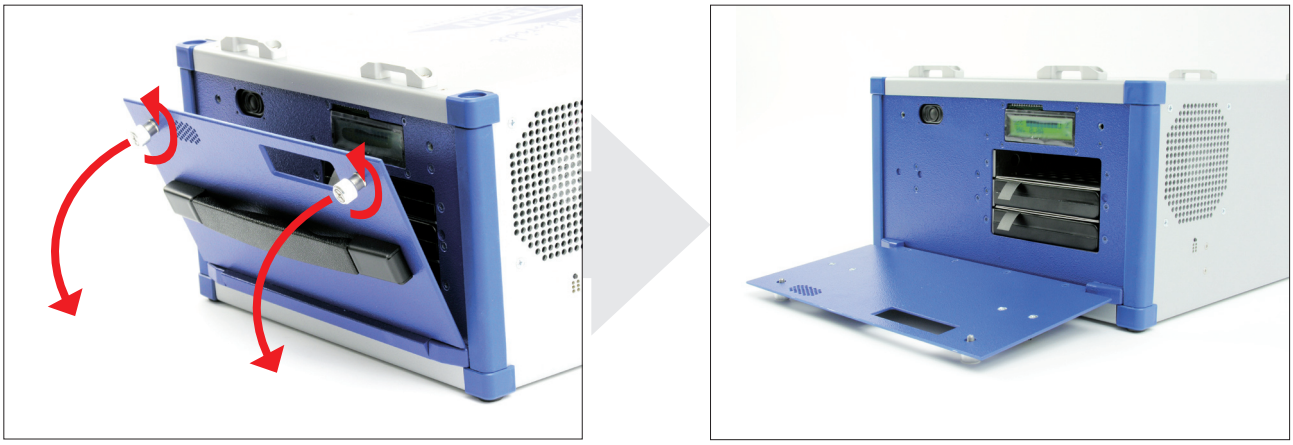
Dimensions*



* Dimensions in mm
(1 inch = 25.4 mm)

Changing batteries

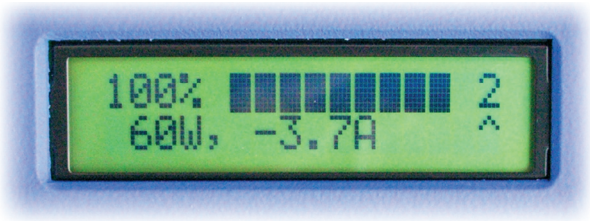
The DEWE-510 DC comes with 3 batterie slots. To change the batteries, just open the screws on the right side of the system and flip down the sidepanel as shown in the picture below.



Note: If you don't use your DEWE-510 for a longer time, please make sure to remove your batteries and store them separately. Otherwise your system may get damaged!

LCD display for battery status

The LCD Display contains two lines of information. One line is used for a bar graph displaying the amount of charge left in the battery system. The bar graph also indicates if the battery is charging or discharging.



The second line of the LCD display can show the power consumption and the current entering or leaving the battery subsystem. The second line of the display can also show the time of fully charged when charging the batteries or the time to fully discharge the batteries when power to the system is being supplied by the batteries.

Ignition power control unit (IGN)

With the OS Power control circuit it is possible to turn the instrument on and off by a control voltage (example: ignition).

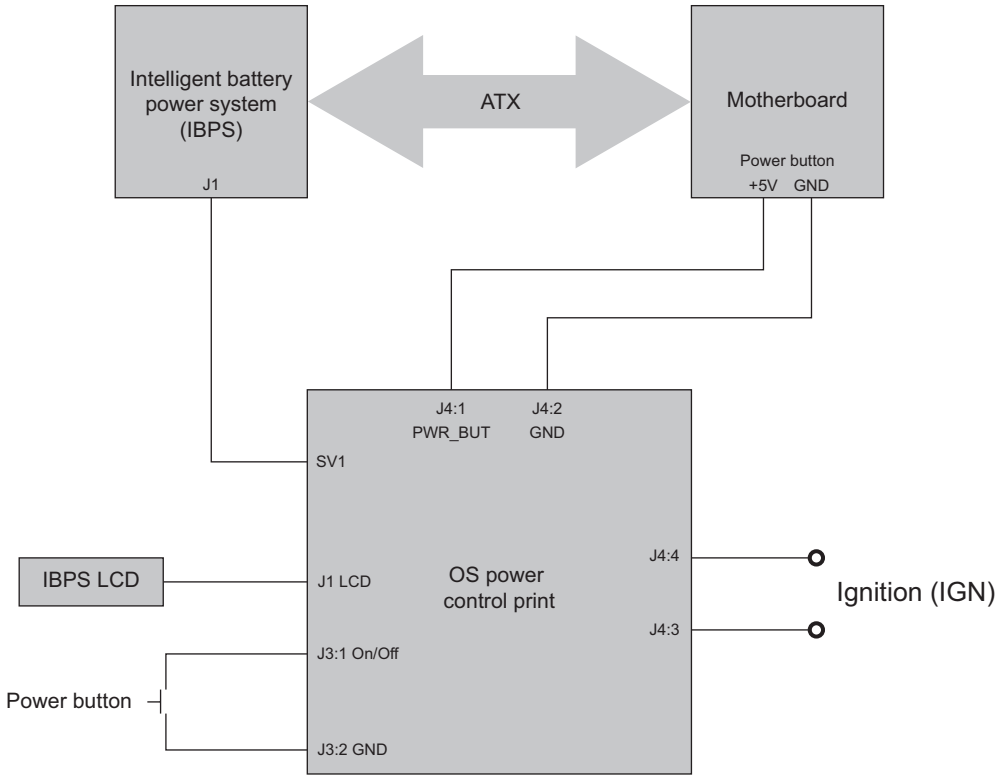


Figure 1: Block diagram

There are three operation modes possible:

Operation by Power Button

The instrument is turned on by the Power Button and shut down manually by Windows. Attention: If the Power Button is pressed longer than 3 seconds the power supply (IBPS) is turned off (not shut down!). See Figure 2.

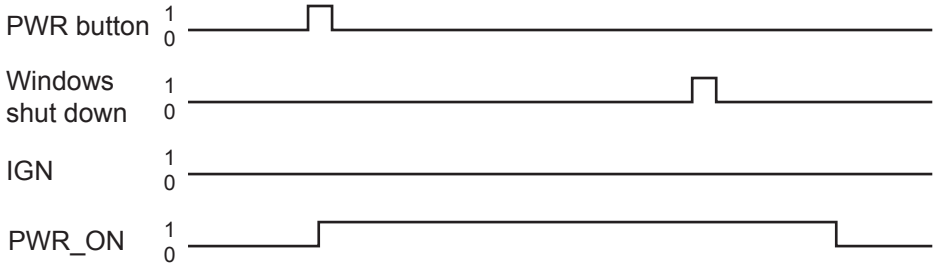


Figure 2: Operation by power button

Operation by control voltage (IGN)

When the control voltage is high for longer than 4 seconds the instrument is started. To shut down the instrument, the control voltage must be low for longer then 30 seconds. After further 30 seconds it is controlled if the computer has really shut down, if not the power supply (IBPS) is turned off. See Figure 3.

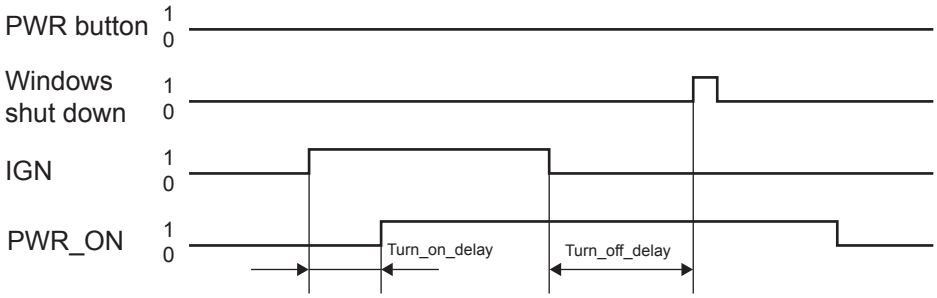


Figure 3: Operation by control voltage

Mixed operation

When the instrument is turned on by the Power Button and later the control voltage is also turned on the unit will shut down (with turn off delay) if the control voltage is turned off (See Figure 4).

When the instrument is shut down manually by Windows and the control voltage is on, the control voltage has to be turned off before the unit can be started again by control voltage.

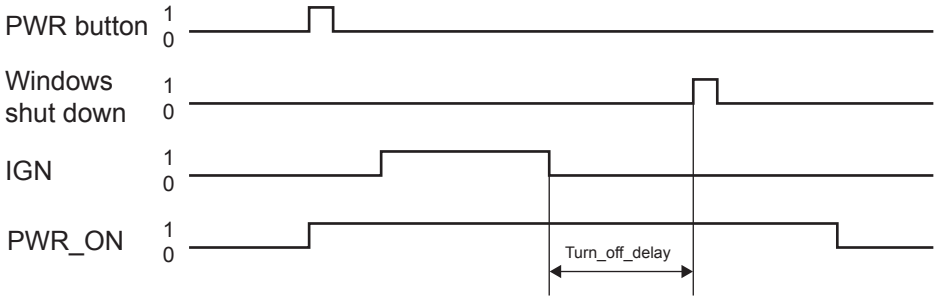


Figure 4: Mixed operation

Electrical carachteristics

Power supply (by IBPS)	
I_{Supply} (V_{IGN} = Low)	400µA
I_{Supply} (V_{IGN} = High)	800µA
V_{IGN} input (galvanically isolated)	
Low	0 .. 1 V
High	5 .. 24 V
I_{IGN} = 12 V	5 mA
I_{IGN} = 24 V	6 mA

PS/2 mouse / keyboard connector

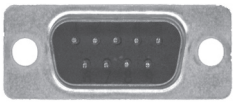
The mouse / keyboard connector could be used to connect a keyboard or an external PS/2 mouse. The connector meets standard PS/2 pin assignment.

USB interface connectors (Universal Serial Bus)

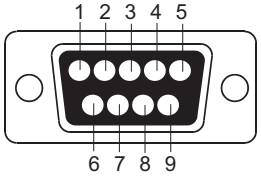
The USB interface connectors meets standard USB pin assignment.

RS-232 interface connector (COM1)

The RS-232 interface connector (male) is located on the rear side of the DEWE-510. It is configured as standard RS-232 interface COM 1 and can be used for mouse or other peripheral units.



9-pin SUB-D connector (male)

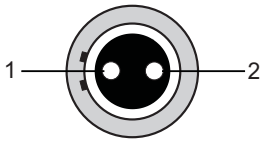


Schematic

Pin assignment
1: DCD (Data Carrier Detector)
2: RD (Received Data)
3: TD (Transmitted Data)
4: DTR (Data Terminal Ready)
5: GND (Ground)
6: DSR (Data Set Ready)
7: RTS (Request To Send)
8: CTS (Clear To Send)
9: RI (Ring Indicator)

Lemo connector (IGN)

The ignition connector is used to provide the ignition power control unit with +9 .. 30 V_{DC}. The connector is located on the side panel of the DEWE-510.
Please refer to chapter "Ignition power control unit (IGN)" for further information.

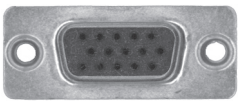


Pin assignment
1: +9 .. 30 V_{DC}
2: GND

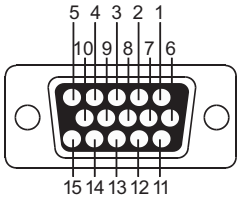
Main System

VGA connector

The VGA connector offers the possibility to connect a CRT or other standard VGA displays to the system.



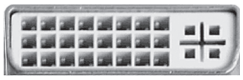
15-pin mini-SUB-D connector (male)



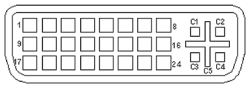
Schematic

Pin assignment
1: Red video
2: Green video / Sync on green
3: Blue video
4: -
5: -
6: Red video ground
7: Green video ground
8: Blue video ground
9: -
10: Ground
11: Ground
12: Data line
13: H-Sync / HV-Sync
14: V-Sync
15: Clock line

Some systems have a DVI connector instead or additionally to the VGA.



15-pin mini-SUB-D connector (male)



Schematic

Pin assignment

1: TDMS-data 2-
2: TDMS-data 2+
3: Shield TDMS-data 2,4
4: TDMS-data 4-
5: TDMS-data 4+
6: DDC clock
7: DDC data
8: Analog: V-Sync
9: TDMS-data 1-
10: TDMS-data 1+
11: Shield TDMS-Daten 1,3
12: TDMS-data 3-
13: TDMS-data 3+
14: +5 volt
15: Ground for +5 volt
16: Hotplug-Detect
17: TDMS-data 0-
18: TDMS-data 0+
19: Shield TDMS-data 0,5
20: TDMS-data 5-
21: TDMS-data 5+
22: Shield TDMS-Takt
23: TDMS-clock+
24: TDMS-clock -
C1: Analog: red
C2: Analog: green
C3: Analog: blue
C4: Analog: H-Sync
C5: Analog: ground

Ethernet connector

The DEWE-510 system supports 10/100/1000 BaseT Ethernet with standard RJ45 connector.

WLAN connector

The DEWE-510 system supports 802.11b and 802.11g standards for Wireless LAN with max. speed of 54 MBit/s.

Power-on button

The power-on button has to be used to switch on the system. To shut down the system exit windows and press the power-on button for more than 3 seconds.

Digital I/O connector

This connector supports digital input and output lines of the built-in A/D board. If this board does not support digital I/O's, the connector is not available.
The pin assignment is depending on the used A/D board - details are available in appendix B.

Ground connector

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

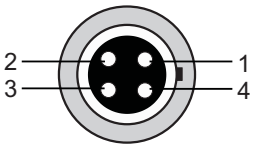
Power supply for accessories

To supply your accessories with 12 V_{DC}. Fused with an 1.8 A self-healing fuse.

Lemo EGG.1B.302

EPAD connector

To connect DEWETRON EPAD modules to the system.



4-pin. LEMO connector (female)

Pin assginment
1: RS-485 A
2: RS-485 B
3: +12 V
4: GND
Shield is connected on housing

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

Notes

A/D & D/A Conversion

A/D Conversion

Detailed information about the A/D card are not included in this manual.

For detailed information see the manufacturer's A/D card manual.

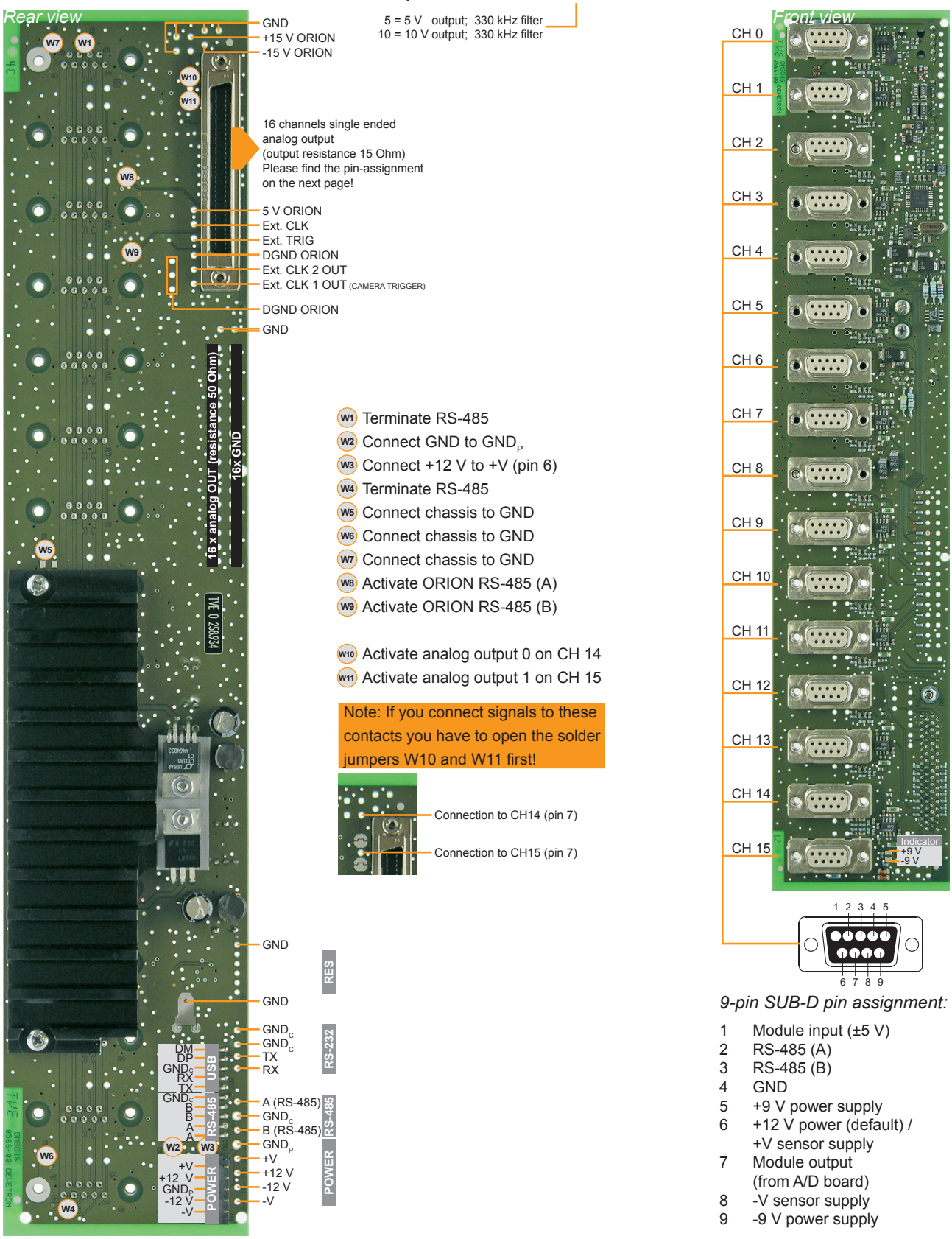
D/A Conversion

Detailed information about the D/A card are not included in this manual.

For detailed information see the manufacturer's D/A card manual.

Notes

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



9-pin SUB-D pin assignment:

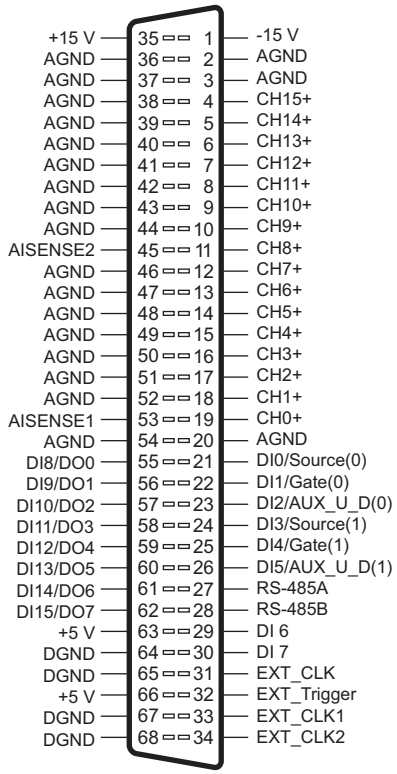
1	Module input (±5 V)
2	RS-485 (A)
3	RS-485 (B)
4	GND
5	+9 V power supply
6	+12 V power (default) / +V sensor supply
7	Module output (from A/D board)
8	-V sensor supply
9	-9 V power supply

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

Internal Wiring

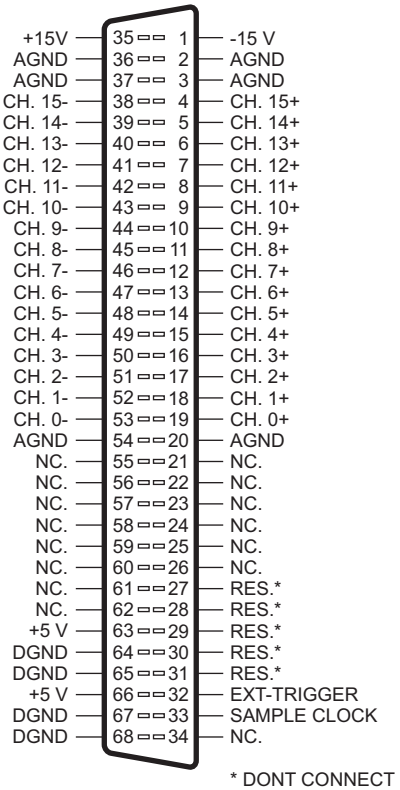
Analog output connector pin-assignment

Connector for DEWE-ORION-1616 cards



68-pin high density connector

Connector for DEWE-ORION-1624 cards



68-pin high density connector

Declaration of conformity

Following products are in conformity with EN50081 (Electromagnetic compatibility, generic emission standard for light and heavy industry) and EN50082 (Electromagnetic compatibility, generic immunity standard for light and heavy industry):

DEWE-2000 / DEWE-2010 / DEWE-2500 series

DEWE-3000 / DEWE-3010 / DEWE-3020 series

DEWE-4000 / DEWE-4010 series

DEWE-200 series

DEWE-500 series

DEWE-5000 series

DEWE-600 series

DEWE-800 series

DEWE-900 series

DEWE-BOOK series

DEWE-RACK series

DAQ / MDAQ modules series

PAD / EPAD modules series

Note: Enhanced EMC specifications are achieved when using DC power supply input.

Manufacturer:

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Austria

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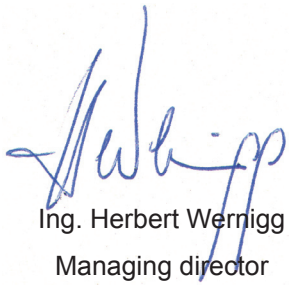
e-mail: sales@dewetron.com
http://www.dewetron.com



Graz, Nov. 15th, 2004

Ing. Herbert Wernigg
Managing director

Notes