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

DEWE-30-32

Technical reference manual

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-30-32?

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

Content

Table of content

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/training

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

The Team of DEWETRON also performs 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.

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

Printing History

Please refer to the page bottom for printing version.

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

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.
- 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 circuit of category II, III and IV.
- 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.
- 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.
- The measurement category can be adjusted depending on module configuration.
- 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 DAQ, DAQP, PAD 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 connetors 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 modules like DAQ, DAQP or PAD.
- 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 VAC or >35 VDC! These voltages are already high enough in order to get a perilous electric shock by touching the wiring.
- 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.
- The electrical installations and equipments in industrial facilities must be observed by the security regulations and insurance institutions.

Safety instructions

- 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.

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

Restriction of Hazardous Substances

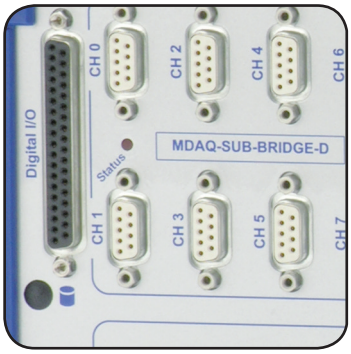
This product has been classified as Monitoring and Control equipment, and is outside the scope of the 2002/95/EC RoHS Directive. This product is known to contain lead.

First steps

1

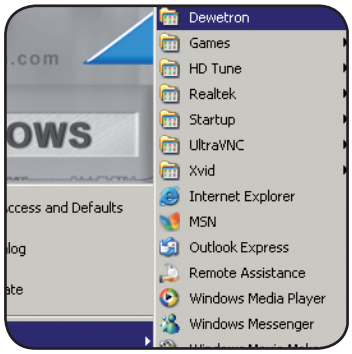
Power-on your system.

2



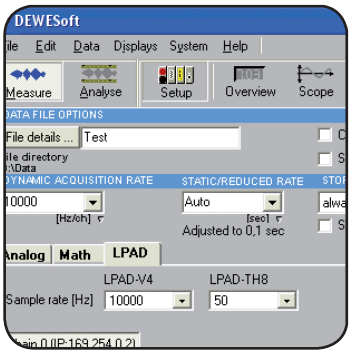
Connect your sensors to the system.

3



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

4



Start recording your data!

DEWE-30-32 signal conditioning rack

- 32 slot signal conditioning with system isolation (in conjunction with DAQP / HSI modules)

System specifications

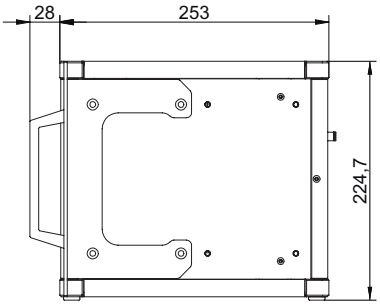
	DEWE-30-32	
Signal input / output		
Signal input:	according to installed DAQP / HSI modules	
Analog signal output: option 30-32-OUT-5 option 30-32-OUT-10[1] option 30-NI option 30-SPEC option 30-32-DIFF-OUT	❑ Two SUB-D-68 sockets with 16x ±5 V output, DEWE-ORION compatible pinout ❑ 32 BNC sockets with up to ±5 V output ❑ 32 BNC sockets with up to ±10 V output, limited bandwidth 300 kHz ❑ changes the pinout of SUB-D-68 socket to match NI 622x and 625x cards ❑ multipin output connector for any other A/D cards ❑ changes SUB-D-68 socket to SUB-D-37 socket	
Analog output configuration: option 30-32-DIFF-OUT	❑ Single ended ❑ Balanced differential output	
Interfaces:	❑ RS-232 and RS-485 for configuring DAQP /HSI modules for configuration and data transfer of PAD and EPAD2 modules ❑ DAQP-CFB-SYNC	
Bandwidth: option 30-HSI[2] option 30-32-DIFF-OUT	❑ 1 MHz ❑ no bandwidth limitation ❑ 1 MHz	
Digital I/O option 30-DIO-DE option 30-DIO-NI	❑ SUB-D-37 socket for accessing the digital I/O lines of DEWE-ORION card ❑ SUB-D-37 socket for accessing the digital I/O lines of a PCI-622x or PCI-625x card	
Power requirements		
Power supply: option 30-32-DC	❑ 100 to 250 V_{AC} (breakdown voltage @ 2500 V); 45 W available for modules[3] in slots 0..15 and 45 W available for modules[3] in slots 16..31 ❑ 9 to 40 V_{DC}; 38 W available for modules[3] in slots 0..15 and 38 W available for modules[3] in slots 16..31	
Environmental		
Operating temperature:	0 °C to 60 °C[4]	
Storage temperature:	-20 °C to +70 °C	
Humidity (operating):	10 to 85 %, non condensing	
Humidity (storing):	5 to 95 %, rel. humidity	
Vibration: EN 60721-3-2 Class 2M2	Shape Frequency range Power spectral density Duration	Random 10 - 200 Hz 1 m/s² / Hz from 10 – 200 Hz 30 Minutes per axis
Shock: EN 60068-2-27	Shape Acceleration amplitude Duration Test in 3 axis, 3 shocks in each axis and direction	Half-sine 15 g 11 ms
Dimensions (W x D x H): option 30-32-MK	approx. 438.5 x 253 x 225 mm (17.3 x 10 x 8.9 in.) 19“ 5U: 482 x 281 x 225 (19 x 11.1 x 8.9 in.)	
Weight:	typ. 7 kg (15 lbs), depending on configuration	

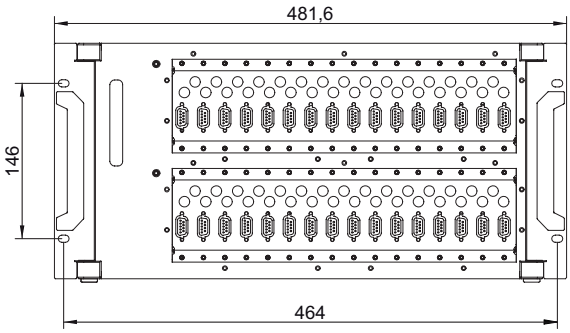
[1] Accuracy: ±0.07 % of reading ±0.5 mV (for ±10 V output this equals: ±0.07 % of reading ±0.005 %)
INFO: Total accuracy DAQx modules and DEWE-30-x: √((Accuracy DAQx module)^2 + (Accuracy DEWE-30-x)^2)
[2] not supported modules: see chapter ‚Option 30-HSI‘.
[3] Please check the appropriate modules manual for power consumption of each installed module and calculate the total power consumption.
[4] Derating 0.9 W/°C above 40 °C for AC power supply

Main System

Dimensions*

with 19“ mounting kit

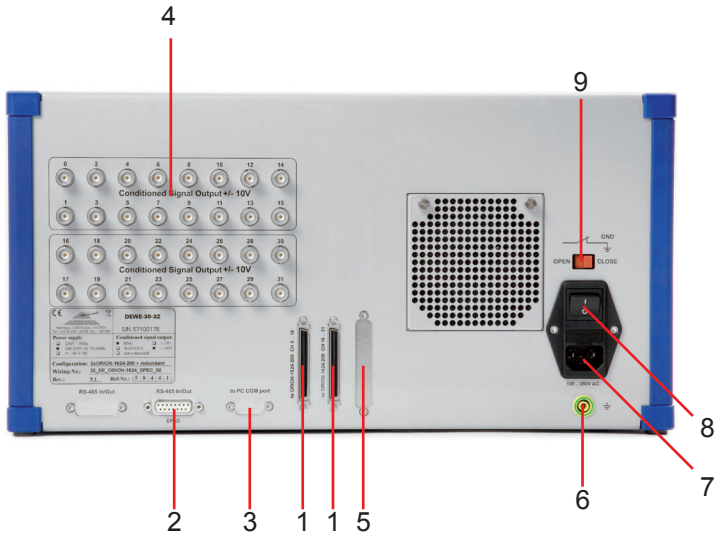




* Dimensions in mm
(1 inch = 25.4 mm)

DEWE-30-32 at a glance

Typical DEWE-30-32 rear view



1 68-pin SUB-D socket for conditioned signal output
2 RS-485 In/Out (EPAD)
3 to PC COM port, RS-232
4 Optional 32 BNC sockets for conditioned signal output
5 Optional 37-pin SUB-D socket for digital I/O
6 Ground connector
7 Power supply input connector
8 Power-on switch
9 Ground switch

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

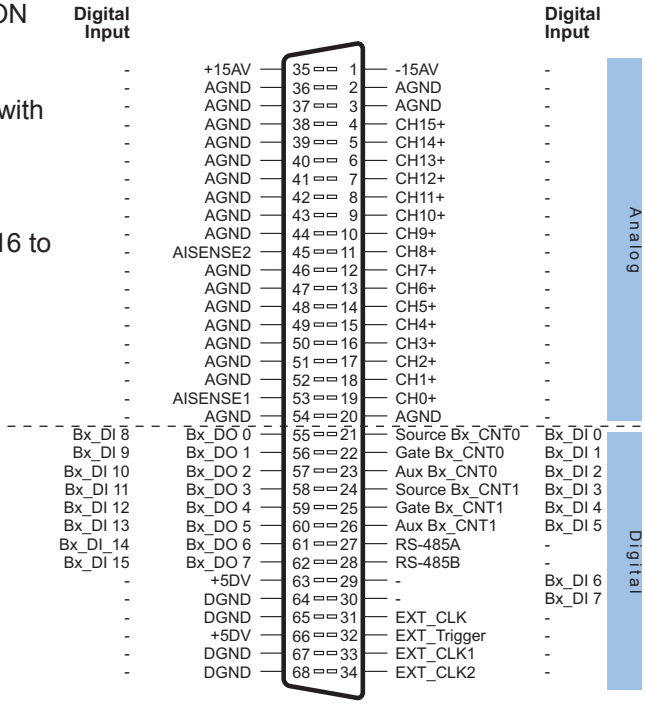
1 68-pin SUB-D socket for conditioned signal output

The standard pinout is prepared to match DEWE-ORION series A/D cards.
The schematic shows the pin assignment of the output connector. A standard 68-pin high density female type with 0.05 inch pin distance is used for the signal interface.

Cabling:

A “DE-C03xx” cable is used to connect the DEWE-30-16 to DEWE-ORION-16xx A/D cards.

Note: xx ... specifies cablelength



68-pin Amplimite series
(AMP: 174339-5) SCSI II

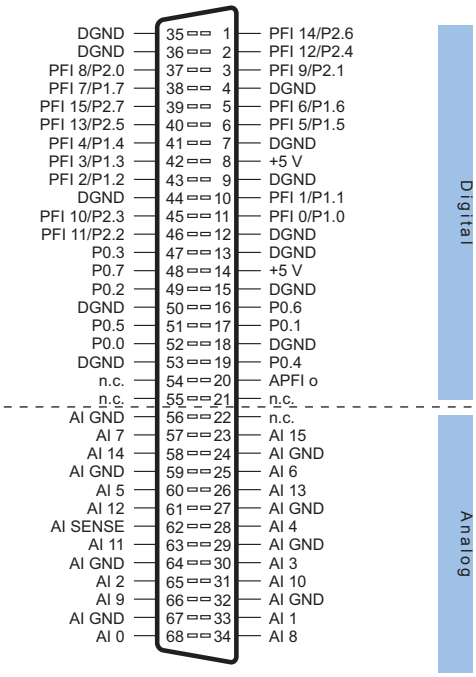
Option 30-NI

Changes the pinout of the SUB-D-68 socket to match NI 622x and 625x A/D cards. The schematic shows the pin assignment of the output connector. A standard 68-pin high density female type with 0.05 inch pin distance is used for the signal interface.

Cabling:

A “DE-C58xx” cable is used to connect the DEWE-30-16 to NI 622x and NI 625x A/D cards.

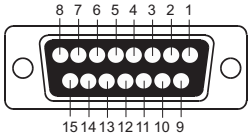
Note: xx ... specifies cablelength



68-pin Amplimite series
(AMP: 174339-5) SCSI II

2 RS-485 In/Out (EPAD)

To connect DEWETRON EPAD modules to the system.

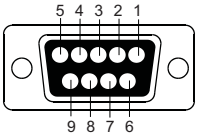


15-pin female SUB-D connector

Pin assignment
1: RS-485 A
2: RS-485 B
14: GND (power supply EPAD modules)
15: +12 V (power supply EPAD modules)
all remaining pins are not connected!

3 RS-232 Interface (to PC COM port)

The RS-232 interface connector meets standard RS-232 pin assignment.



9-pin female SUB-D connector

Pin assignment

1: n.c.	6: n.c.
2: RX	7: n.c.
3: TX	8: n.c.
4: n.c.	9: n.c.
5: GND	

4 Optional conditioned signal output (option 30-OUT-5)

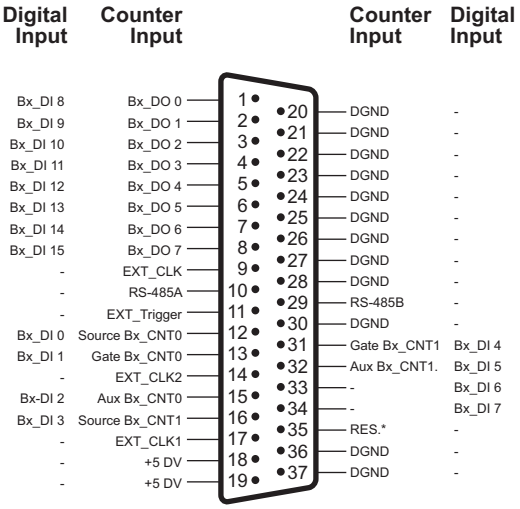
The conditioned signal output of each DAQP- / HSI-series module is also available on a BNC socket on the rear panel of the DEWE-30-16 as a ±5 V signal.

Optional conditioned signal output (option 30-OUT-10)

The conditioned signal output of each DAQP- / HSI-series module is also available on a BNC plug on the rear panel of the DEWE-30-16 as a ±10 V signal. Not compatible with option 30-HSI.

5 Optional 37-pin female SUB-D connector for option 30-DIO-DE

This connector is for accessing the digital I/O lines of the DEWE-ORION series A/D card on a 37-pin SUB-D socket.



6 Ground connector

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

7 Power supply input connector

This connector supports standard 100 .. 250 V_{AC} power supply input for your system.

8 Power-on switch

The power-on switch has to be used to switch on the system.

9 Ground switch

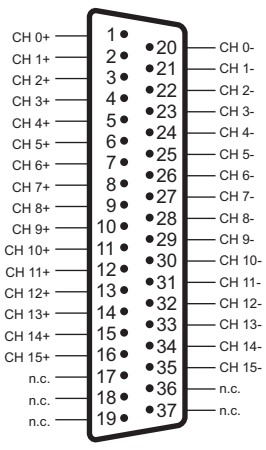
Option 30-32-DIFF-OUT (differential output)

- 32 channel to balanced differential output
- High output current of ±60 mA
- Stable with high capacitive load of 50 nF
- Short circuit proofed output
- Bandwidth up to 1 MHz
- Replaces 68-pin female SUB-D with 37-pin female SUB-D connectors

Specifications

	30-32-DIFF-OUT
Output range:	±5 V (±2.5 V referenced to GND)
Output configuration:	Balanced differential
Output impedance:	< 1Ohm
Output current.	±60 mA
Bandwidth:	Please refer to chapter ‚bandwidth & cable length'.
-5 %	500 kHz max.
-3 dB	1.5 MHz max.
Gain accuracy:	typ. ±0.08 % (±0.15 % max.)
Gain linearity:	< 0.04%
Output offset:	typ. < ±0.8 mV (±5 mV max.)
Ouput offest drift:	< 10 µV/K
Ouput noise: (0.1 Hz to 500 kHz)	< 0.08 mVRMS
Power consumption:	
with output load	2.5 W
maximum	8 W

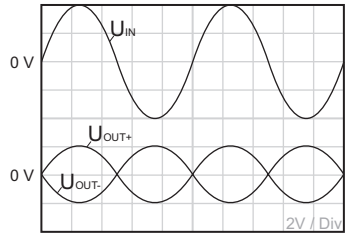
37-pin female SUB-D connector for option 30-32-DIFF-OUT



37-pin SUB-D connector

General description

Having wide distance between the DEWE-30-xx and the data acquisition unit (DEWE-5000, DEWE-4010, DEWE-3020, DEWE-2010 …) causes some problems if high bandwidth and low distortion and noise is required. Similar to all high speed digital signal layer protocols (LAN, IEEE1394, USB, PCI-Express) symmetric signal transfer using twisted pair cables have to be used to achieve this. The 30-32-DIFF-OUT converts the standard single ended DEWE-30 output to a balanced differential output with high output current, needed to drive cables up to 500 m without loosing the high accuracy of the signal amplifier.

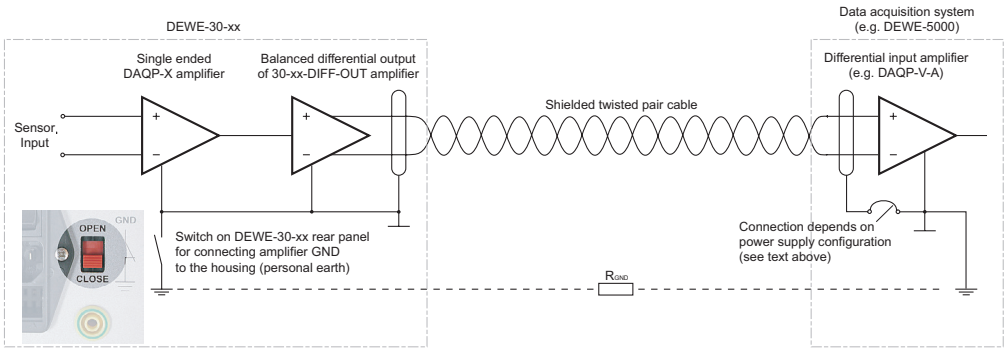


Cable configuration

The usage of shielded twisted pair cables is recommended for the connection between DEWE-30-xx and the data acquisition unit.

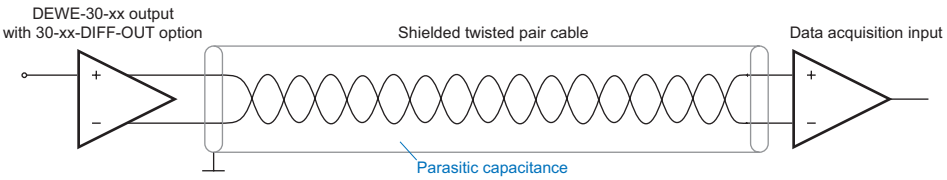
Please note that at the data acquisition unit differential input amplifiers are needed.

The shield of the cable have to be connected to the GND pin of the 37-pin female SUB-D connector of the DEWE-30-xx. In usual system configuration the GND of the DEWE-30-xx and the GND of the data acquisition unit are tied together via the personal earth of the AC power supply. Therefore the cable shield should not be connected to the GND of the data acquisition system to avoid GND loops. But if the GND of both devices are nowhere tied together (at power supply without protected earth) it is also recommended to connected the shield to the GND of the data acquisition device.



Bandwidth and cable length

Although the bandwidth of the 30-32-DIFF-OUT amplifier itself is above 1 MHz the total reached bandwidth is depending on the used cable length. The longer the cable the lower the efficient bandwidth. The reason is the parasite cable capacitance which is around 30-200 pF per meter.



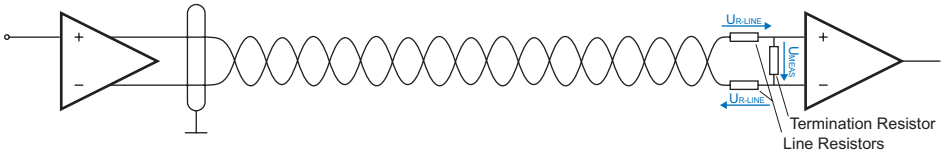
Therefore a 100 m cable can have a capacitance of around 10 nF. This capacitive load have to be driven by the 30-32-DIFF-OUT amplifier. The needed current for driving this load depends on the signal level but also of the signal frequency since

$$X_C = \frac{1}{2 \cdot \pi \cdot f \cdot C}$$

So current needed for driving a 100 m cable at 5 Vpp and 100 kHz is already around 30 mA. The maximum output current of the 30-32-DIFF-OUT is specified with ±60 mA. If the signal frequency increase or the cable is longer it is possible to get out of this specification.

Cable termination

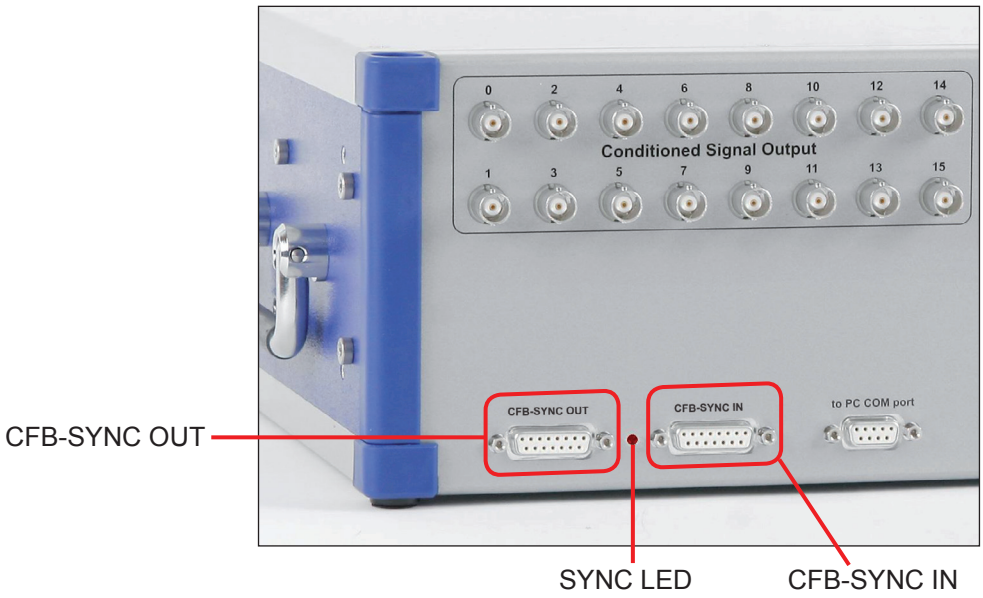
Like in any higher frequency application (RS-485, CAN, IEEE1394 …) the cable has to be terminated at the end to avoid signal reflections at the signal line. The value of this resistor should have to be the same value like the characteristic impedance of the used cable. This resistor causes on the one hand additional load for the 30-32-DIFF-OUT amplifier but on the other hand also errors because of the voltage dropout at cable.



For example a 100 meter 2 x 0.25 mm² cable has a line resistance of around 7 Ohm. If the termination resistor is 120 Ohm (typical value for twisted pair cable) this error is already around 5%. This influence should be recognized in the measurement result or should be rescaled in the measurement setup.

Option DAQP-CFB-SYNC

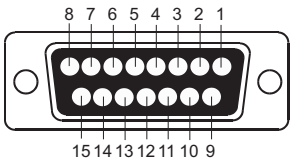
If more than one DEWE-30 is equipped with DAQP-CFB modules and these DEWE-30 are used together the carrier frequency of the master DAQ-CFB must also be connected from one DEWE-30 to the other in order to keep synchronisation.



If a signal is connected to CFB-SYNC IN the SYNC LED is turned on!
The DAQP-CFB connectors replace the standard RS-485 In/Out sockets.

Pin assignment of 15-pin female SUB-D connector

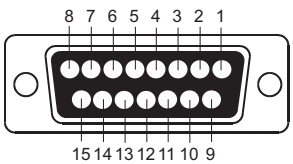
CFB-SYNC IN



Pin assignment

1:	RS485 A	8:	CFB-SYNC IN+
2:	RS485 B	9:	n.c.
3:	GND	10:	n.c.
4:	n.c.	11:	n.c.
5:	GND	12:	n.c.
6:	n.c.	13:	n.c.
7:	CFB-SYNC IN-	14:	GND
		15:	+12 V fused (1A)

CFB-SYNC OUT



Pin assignment

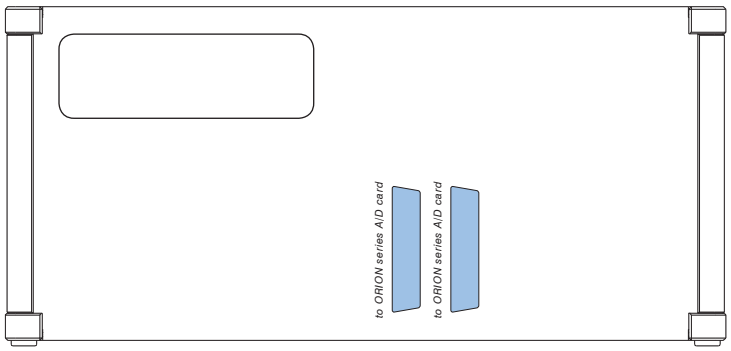
1:	RS485 A	8:	CFB-SYNC OUT
2:	RS485 B	9:	n.c.
3:	GND	10:	n.c.
4:	n.c.	11:	n.c.
5:	GND	12:	n.c.
6:	n.c.	13:	n.c.
7:	GND	14:	GND
		15:	+12 V fused (1A)

Bandwidth

Standard DEWE-30-32 configuration

- 300 kHz standard
- no bandwidth limitation with 30-HSI option

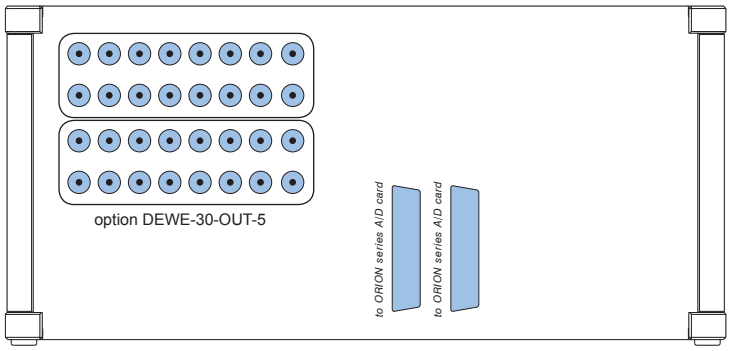
HSI ready
by option 30-HSI



DEWE-30-32 with option DEWE-30-OUT-5

- 300 kHz
- no bandwidth limitation with 30-HSI option

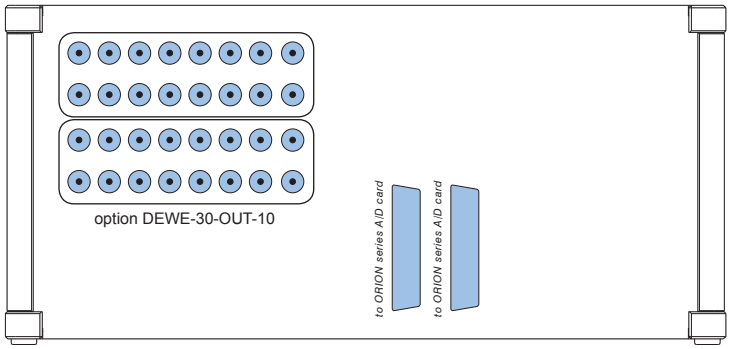
HSI ready
by option 30-HSI



DEWE-30-32 with option DEWE-30-OUT-10

- 300 kHz

not compatible with HSI modules



Option 30-HSI

CAUTION: If option 30-HSI is installed, the cable lenght of the anlog output cable is limited to 4 m and the following modules are not supported:

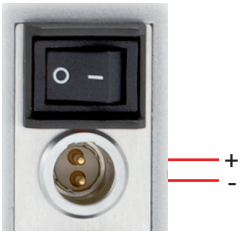
DAQP-CHARGE-A
DAQP-FREQ-A

Already phased out models which are also not supported if 30-HSI option is installed:

DAQN-THERM
DAQN-RTD
DAQN-OHM
DAQN-POT
DAQN-BRIDGE
DAQP-BRIDGE-B
DAQP-V-B-x
DAQP-V-A-x
DAQP-TRQ
DAQP-µV

Option 30-32-DC

This connector is only available with option 30-32-DC. The DC power supply (9 .. 40 V_{DC}) replaces the standard AC power supply, incl. 2 m DC connection cable with banana jacks.



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.

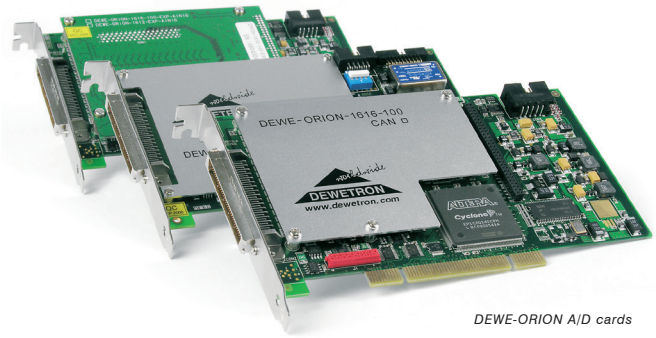
Besides the analog inputs DEWESoft™ supports the digital I/Os, counters and CAN interfaces of DEWETRON hardware.

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.

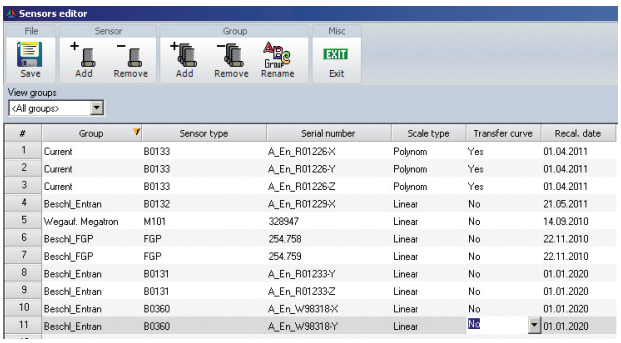
DAQx modules



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.

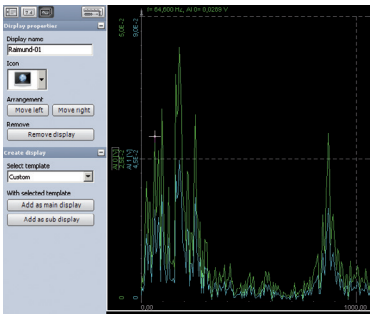


#	Group	Sensor type	Serial number	Scale type	Transfer curve	Recal. date
1	Current	B0133	A_En_R01226-X	Polynom	Yes	01.04.2011
2	Current	B0133	A_En_R01226-Y	Polynom	Yes	01.04.2011
3	Current	B0133	A_En_R01226-Z	Polynom	Yes	01.04.2011
4	Beschl_Entran	B0132	A_En_R01229-X	Linear	No	21.05.2011
5	Wegaul. Megatron	M101	328947	Linear	No	14.09.2010
6	Beschl_FGP	FGP	254.758	Linear	No	22.11.2010
7	Beschl_FGP	FGP	254.759	Linear	No	22.11.2010
8	Beschl_Entran	B0131	A_En_R01233-Y	Linear	No	01.01.2020
9	Beschl_Entran	B0131	A_En_R01233-Z	Linear	No	01.01.2020
10	Beschl_Entran	B0360	A_En_W98318-X	Linear	No	01.01.2020
11	Beschl_Entran	B0360	A_En_W98318-Y	Linear	NL	01.01.2020

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

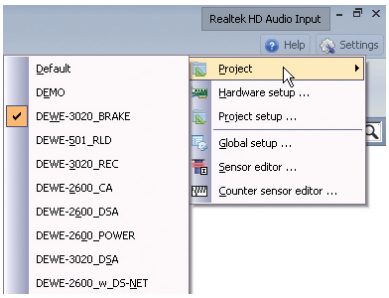


In the properties panel there is a function that allows you to edit the properties of the selected display, and to create new displays, and rearrange them. You can rename any display, and select a different icon for it. Of course you can add sub-displays to any main display.

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

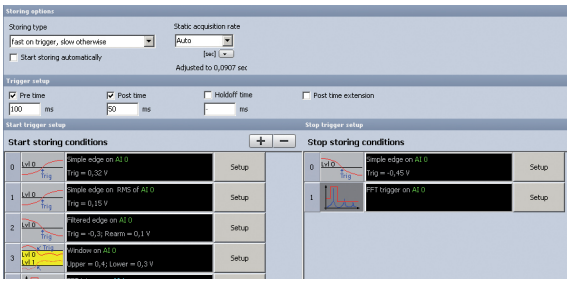


The project files setup the measurement instruments in seconds including complete hardware setup, measurement configuration, and sensor calibration.

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.

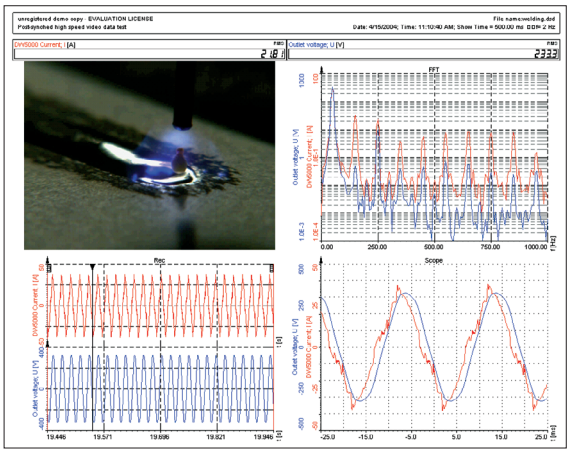
Recording



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.

Notes

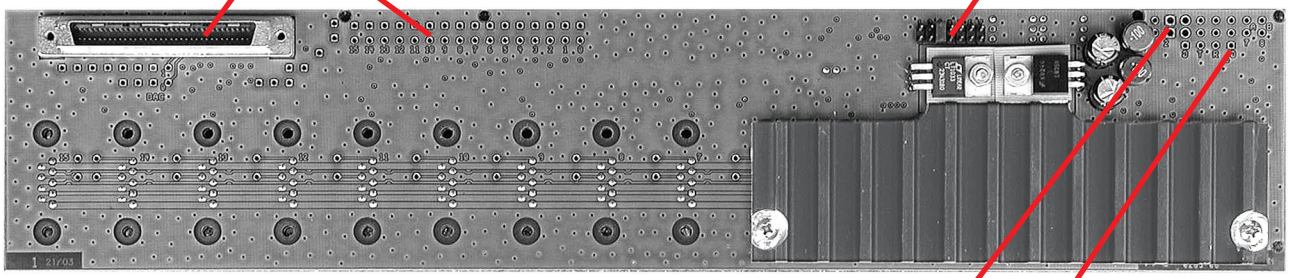
16 slot DEWE-MOTHERBOARD

I/O connectors

Ixx: Analog input xx (leads to DAQ-modul pin 1 in slot xx)
Oxx: Analog output xx (leads to DAQ-modul pin 7 in slot xx)
G: GND (reference for A/D card)
68-pin high-density sub-D connector

Baud rate for onboard RS-232/485 converter

1	115000
2	57600
3	38400
4	19200
5	9600
6	4800
7	2400



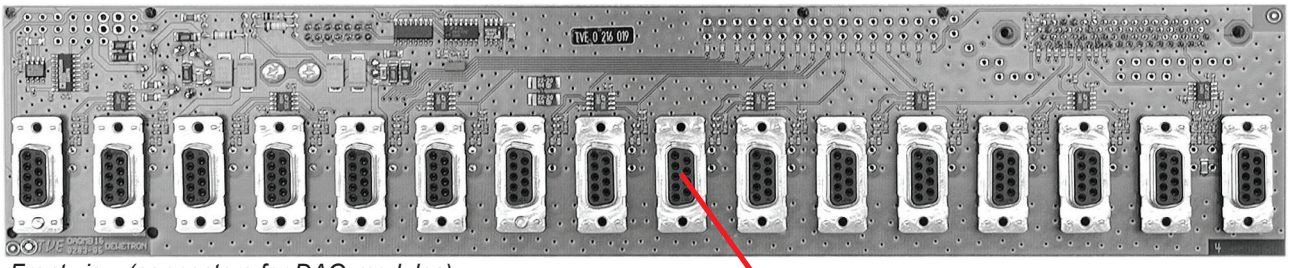
Rear view

Supply voltages, RS-485 connection

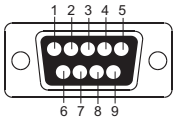
1	+12 V (supply voltage)
2	GND (system ground)
3	GND (referenced ground)
4	-12 V (supply voltage)
5	+Vcc (sensor supply, normally +12 V, leads to DAQ-module pin 6)
6	-Vcc (normally not connected, leads to DAQ-module pin 8)
7	A (RS-485)
8	B (RS-485)

RS-232 connection

G	GND
T	Transmit
R	Receive
G	GND



Front view (connectors for DAQ-modules)



9-pin SUB-D connector

Interface 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 / sensor supply
7	Module output (from A/D board)
8	reserved
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

Notes

CE-Certificate of conformity

CE

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-30-32**

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