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

DEWE-561

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-561?

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.

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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.

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

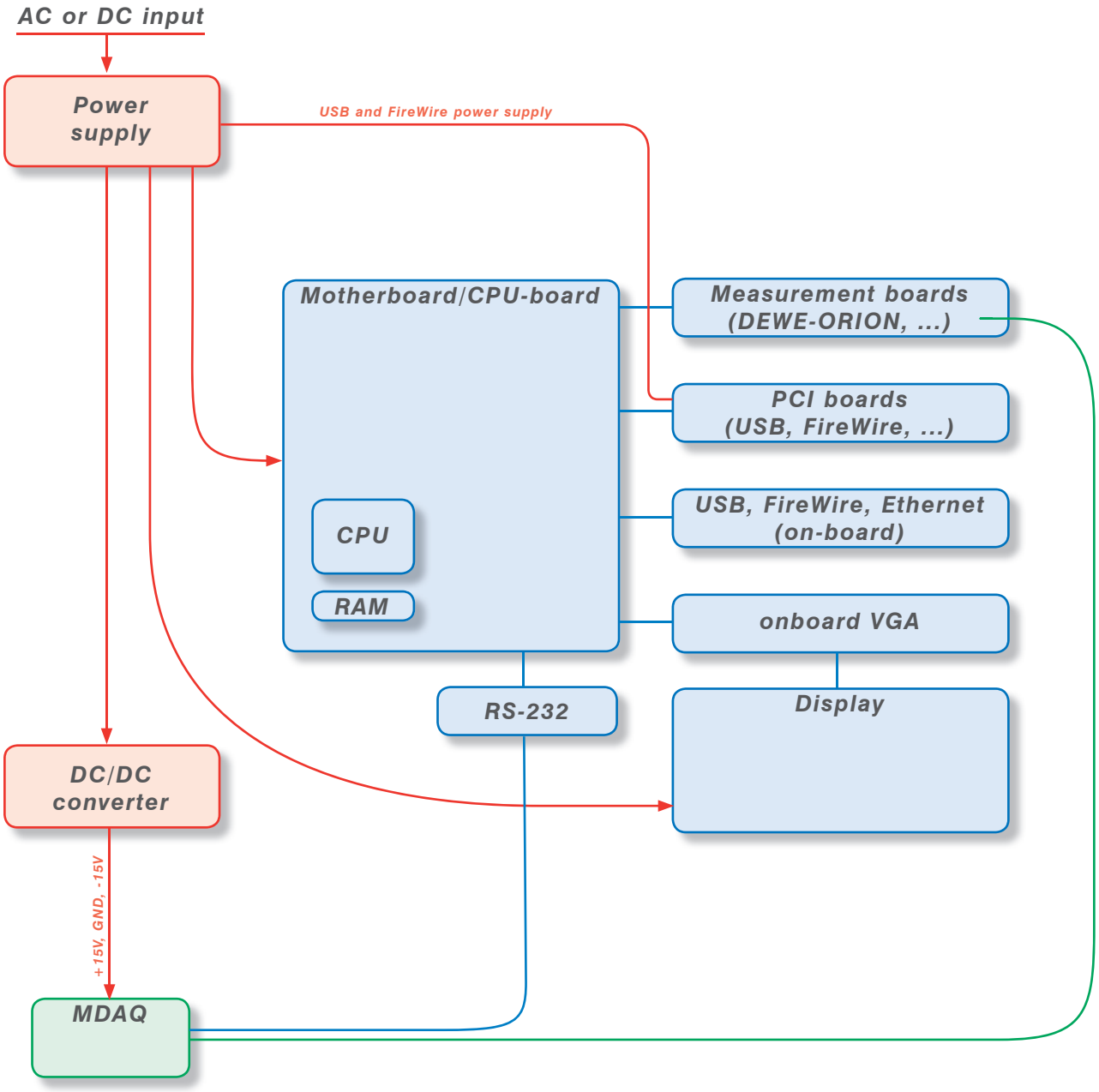
Production of these components required the extraction and use of natural resources. The substances contained in the system could be harmful to your health and to the environment if the system is improperly handled at it's end of life! Please recycle this product in an appropriate way to avoid an unnecessary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

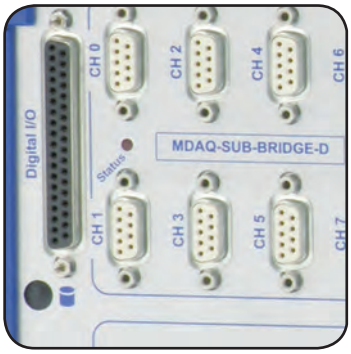


First steps

1

Power-on your system.

2

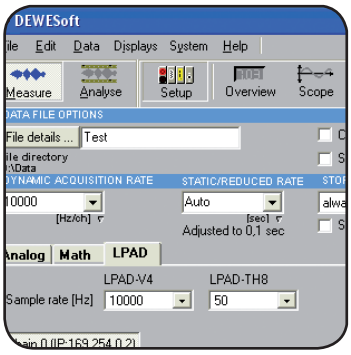


Connect your sensors to the system.

3

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

4



Start recording your data!

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-561 - All-in-one Instrument

- Portable data acquisition system
- Up to 16 channels with differential inputs
  (in conjunction with DEWE-MDAQ modules)
- 4 Voltage inputs
  (in conjunction with MDAQ-PQL-SUB-HV)
- up to 28 current inputs for current clamps
  (in conjunction with MDAQ-PQL-SUB-HV)
- Internal 12.1" TFT display
  (not supported with DEWE-561-PNA-4U28I)

System specifications

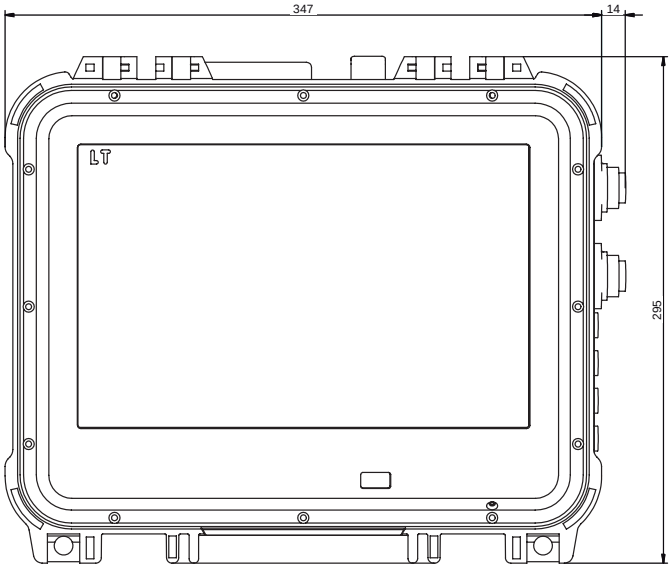
	DEWE-561															
	MDAQ-DIRECT	MDAQ-V-10	MDAQ-V-100	MDAQ-SUB-V-200	MDAQ-SUB-ACC-x	MDAQ-SUB-ACC-A-x	MDAQ-SUB-BRIDGE	MDAQ-SUB-STG	MDAQ-BASE-5	MDAQ-BASE-10	MDAQ-FILT-5-BU	MDAQ-FILT-5-BE	MDAQ-FILT-5-BU-S1	MDAQ-FILT-10	MDAQ-FILT-10-S1	MDAQ-AAF4-5-BU
Channel 0 to 7 Channel 8 to 15	❑	❑	❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑ ❑	❑	❑	❑	❑	❑	❑	❑	❑

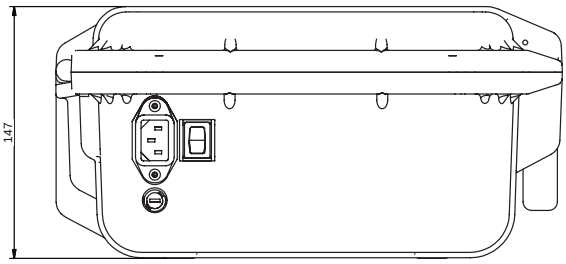
❑ DEWE-561-PNA	Channel 0 to 3: Channel 4 to 7:	Voltage inputs (V_{LX}) with MDAQ-SUB-PQL-HV (U) Current inputs (I_{LX}) with MDAQ-SUB-PQL-HV (I)
❑ DEWE-561-PNA-4U12I:	Channel 0 to 3: Channel 4 to 15:	Voltage inputs (V_{LX}) with MDAQ-SUB-PQL-HV (U) Current inputs (I_{LX}) with MDAQ-SUB-PQL-HV (I)
❑ DEWE-561-PNA-4U28I:	Channel 0 to 3: Channel 4 to 31:	Voltage inputs (V_{LX}) with MDAQ-SUB-PQL-HV (U) Current inputs (Ix_{LX}) with MDAQ-SUB-PQL-HV (I)
Power supply:	300 W AC power supply (P1S-6300V)	
Operating temperature: discharging batteries charging batteries without batteries	 0 °C to +50 °C 0 °C to +45 °C -5 °C to +50 °C	
Storage temperature:	-20 °C to +60 °C	
Humidity (operating):	10 % to 90 %, 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. 360 x 300 x 150 mm (14.2 x 11.8 x 5.9 in.)	
Weight:	typ. 5 kg (11 lbs), depending on configuration	

*) tested with SSD disc.

Main System

Dimensions*

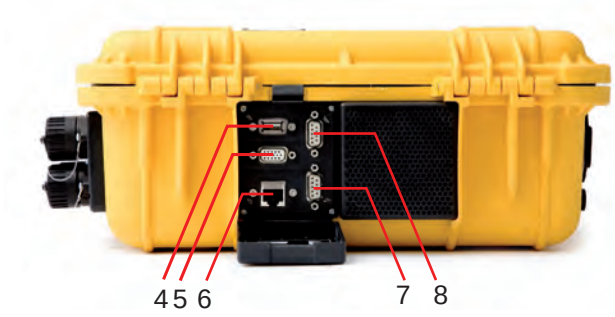




* Dimensions in mm
(1 inch = 25.4 mm)

DEWE-561 at a glance

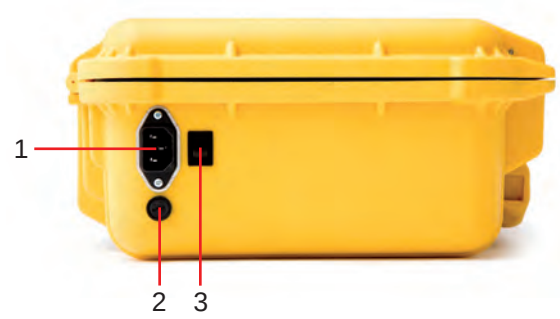
Typical DEWE-561 rear view



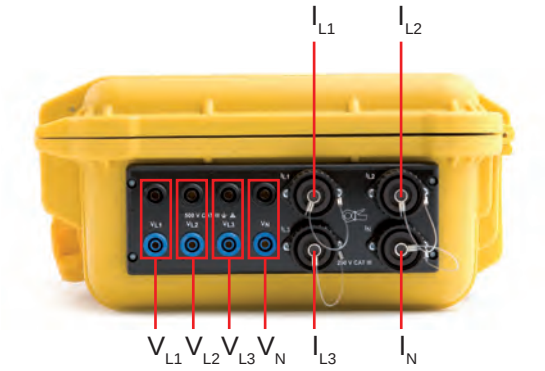
Connector overview:

1 Power supply connector
2 Fuse
3 Power supply switch
4 USB interface connector
5 VGA connector
6 Ethernet LAN connector
7 PAD interface connector /
RS-232 interface connector (optional)
8 Digital I/O connector

Typical DEWE-561 left side view



Typical DEWE-561 with MDAQ-PQL-SUB-HV module (side view)



Typical DEWE-561-PNA-4U28I with 7x MDAQ-PQL-SUB-HV module (top view)

Connector overview:

- $V_{LX,}$ V_N - Voltage inputs
- $Ix_{LX,}$ Ix_N - Current inputs for current clamps (Ampflex or direct current (5A)

Typical DEWE-561-PNA-4U12I side view

Connector overview:

- $V_{LX,}$ V_N - Voltage inputs
- $I_{LX,}$ I_N - Current inputs for current clamps (Ampflex, voltage input)

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

Main System

Power-on button

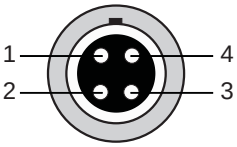
The power-on push button has to be used to switch on the system.

Power supply input connector

For details see chapter power supply.

EPAD connector (LEMO, optional)

To connect DEWETRON EPAD modules to the system.



Lemo EGG.1B.304

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

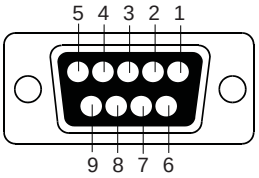
USB interface connectors (Universal Serial Bus)

The USB interface connectors meets standard USB pin assignment.

Digital I/O connector

This connector supports the 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.

9-pin SUB-D connector (female)



Schematic

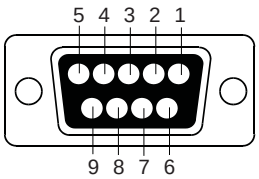
Pin assignment
1: Digital IN 1 (max. 24 V_{DC})
2: n.c.
3: n.c.
4: Digital IN 2 (max. 24 V_{DC})
5: n.c.
6: Relais output (normally open)
7: Relais output (normally open)
8: n.c.
9: Common

CAUTION: Relais output: max. 60 V / 1 A AC!

PAD interface connector

The PAD interface connector offers the possibility to connect additional PAD modules to your DEWE-561.

9-pin SUB-D connector (female)



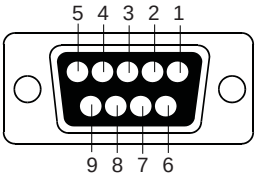
Schematic

Pin assignment
1: n.c.
2: RS485-A
3: RS485-B
4: n.c.
5: n.c.
6: n.c.
7: n.c.
8: +12 V
9: GND

RS-232 interface connector (optional)

The RS-232 interface connector (female) is located on the rear panel of the DEWE-561. It is configured as standard RS-232 interface COM 2 and can be used for mouse or other peripheral units.

9-pin SUB-D connector (female)



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)

Ethernet connector

The DEWE-561 system supports 10/100/1000 BaseT Ethernet with standard RJ45 connector.

RS-485 interface connector (optional)

The RS-485 interface connector (male) is located on the rear side of the DEWE-561. It meets standard RS-485 pin assignment.

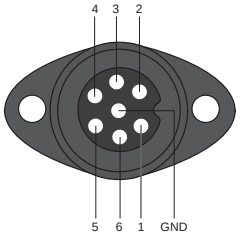
VGA connector

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

Current connector for current clamps

7-pin AMPFLEX connector (male)

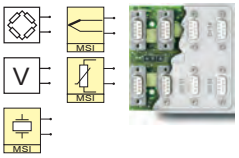
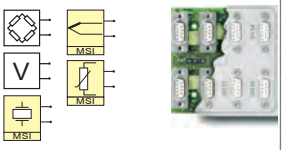
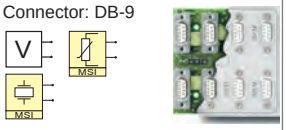
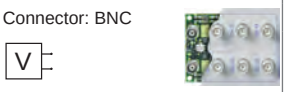
Schematic



Pin assignment
1: (+) Direct current 5A
2: (-) Direct current 5A
3: (+) AmpFLEX Input
4: (-) AmpFLEX Input
5: Internal use
6: (+) Current clamp
GND: (-) Current clamp

CAUTION: The Voltage input of the current connector is not isolated!
Do not use this for any shunt measurement!

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				

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

300 W AC power supply

AC power supply	300 W AC power supply (P1S-6300V)
Input:	
Rated input voltage:	100 to 240 V_{AC} (max. 90 to 264 V_{AC})
Input frequency:	47 .. 63 Hz
Max. input current:	4.5 A @ 115 V / 2 A @ 230 V
Output:	
Output power:	300 W
Output voltages:	+3.3 V (max. 17 A) +12 V2 (max. 16 A) +5 V (max. 18 A) -12 V (max. 0.3 A) +12 V1 (max. 8 A) +5 VSB (max. 2.5 A)

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.

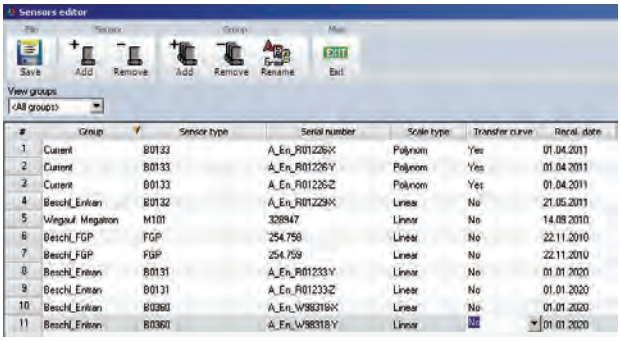
For position and speed measurements there is a choice of high performance DEWE-VGPS sensors. Or use low-cost sensor which is NMEA compatible for simple position plotting and mapping applications.

DAQx modules

DEWE-ORION A/D cards

Sensor Database and TEDS (Technical Electronic Data Sheet)

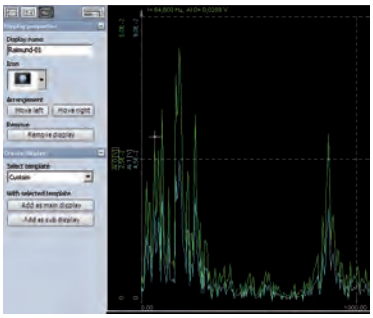
The DEWESoft™ data acquisition software suite was developed especially for measurement technicians, thus simple sensor "connection" is a major topic. Basic settings like sensor setup are easily done. TEDS technology of newer sensors is supported on both the hardware and software side, so that all settings 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

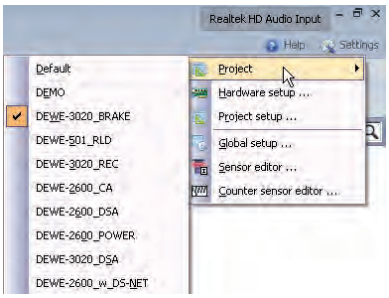


In the properties panel there is a function that allows you to edit the properties of the selected display, and to create new displays, and rearrange them. You can rename any display, and select a different icon for it. Of course you can add sub-displays to any main display.

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.

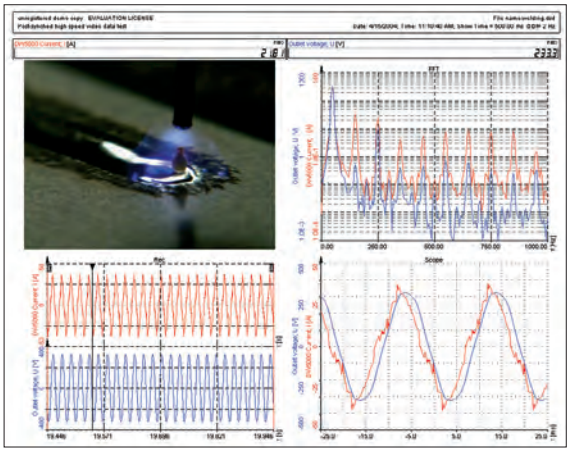
Even when using the same hardware, projects allows using different folders for setup, data and exported files. So you can create John and George projects for different users and work without interfering or you can create e.g. Road-Load and DSA projects for different tasks.

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 & D/A Conversion

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

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

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-561**

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