

Content

General Information, Safety Instructions	5
Warranty Information	5
Support	5
Printing History.....	5
Safety symbols in the manual	6
Safety instructions for all DEWETRON systems	7
Environmental Considerations	8
DAQ-DAQ-BOX	9
Connectors	10
Internal Wiring	11
DAQ-BOX installation guide	12
DEWESoft configuration.....	13
DEWESoft licensing	14
DEWESoft settings	14
EC-Certificate of conformity	C1

Technical Reference

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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:

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

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Printing History

Please refer to the page bottom for printing version.

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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.

DAQ-BOX for USB 2.0

Features

- 16 analog inputs
- 500 kS/s sample rate
- 16-bit resolution

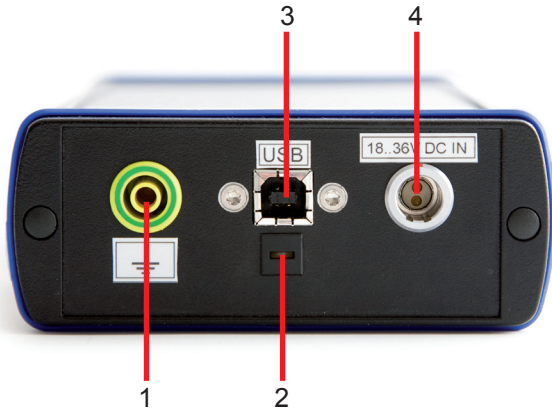


Specifications

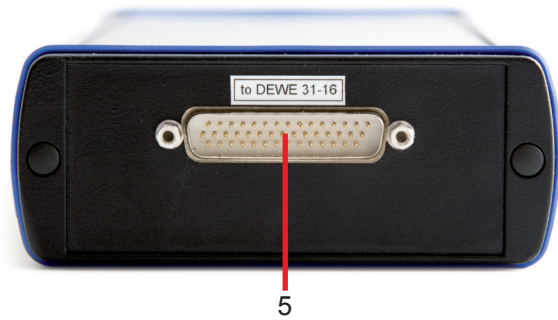
Analog input			
Number of inputs	16 SE		
Resolution	16-bit		
Programmable gain	1,2,4,8		
Range	16-bit		
Effectiv number of bits	± 10 V, 5 V, 2.5 V, 1.25 V		
A/D throughput	Successive approximation (SAR)		
Single channel	500 kS/s		
Multiple channel	500 kS/s (aggragate) ± 0.05 %		
A/D conversion time	2 μ s		
Channel acquisition time	$\pm 1/2$ LBS, 1 μ s typ.		
Sample and hold aperture uncertainty	2 ns typ.		
Sample and hold aperture delay	50 ns typ.		
System accuracy (% of FSR)	500 kHz	400 kHz	250 kHz
Gain = 1	± 0.05 %	± 0.03 %	± 0.01 %
Gain = 2 (5 V Range, default range)	± 0.06 %	± 0.04 %	± 0.02 %
Gain = 4	± 0.07 %	± 0.05 %	± 0.02 %
Gain = 8	± 0.09 %	± 0.07 %	± 0.03 %
Bipolar input range	± 10 V		
Common Mode Input Voltage	± 11 V		
Common Mode rejection ratio	Gain = 1 @ 1 k Ω 74 dB 80 dB		
Maximum input voltage without damage			
Power on	± 35 V		
Power off	± -20 V		
Input impedance	< -93 dB		
Off channel	100 M Ω , 10 pf		
On channel	100 M Ω , 10 pf		
Bias current	± 20 nA		
Nonlinearity	<1/2 LSB		
Differential Nonlinearity	1/2 LSB		
Inherent quantizing error	1/2 LSB		
A/D zero drift	± 10 μ V / $^{\circ}$ C		
Gain drift (of FSR / $^{\circ}$ C)	± 30 ppm / $^{\circ}$ C		
Differential Linearity drift (of FSR / $^{\circ}$ C)	± 3 ppm ± 2 ppm		

DAQ-BOX

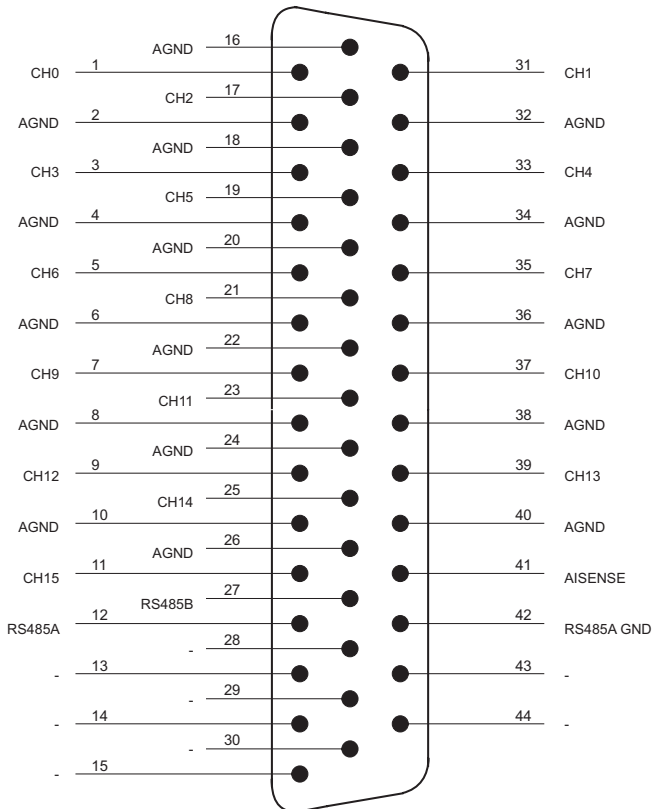
Connectors



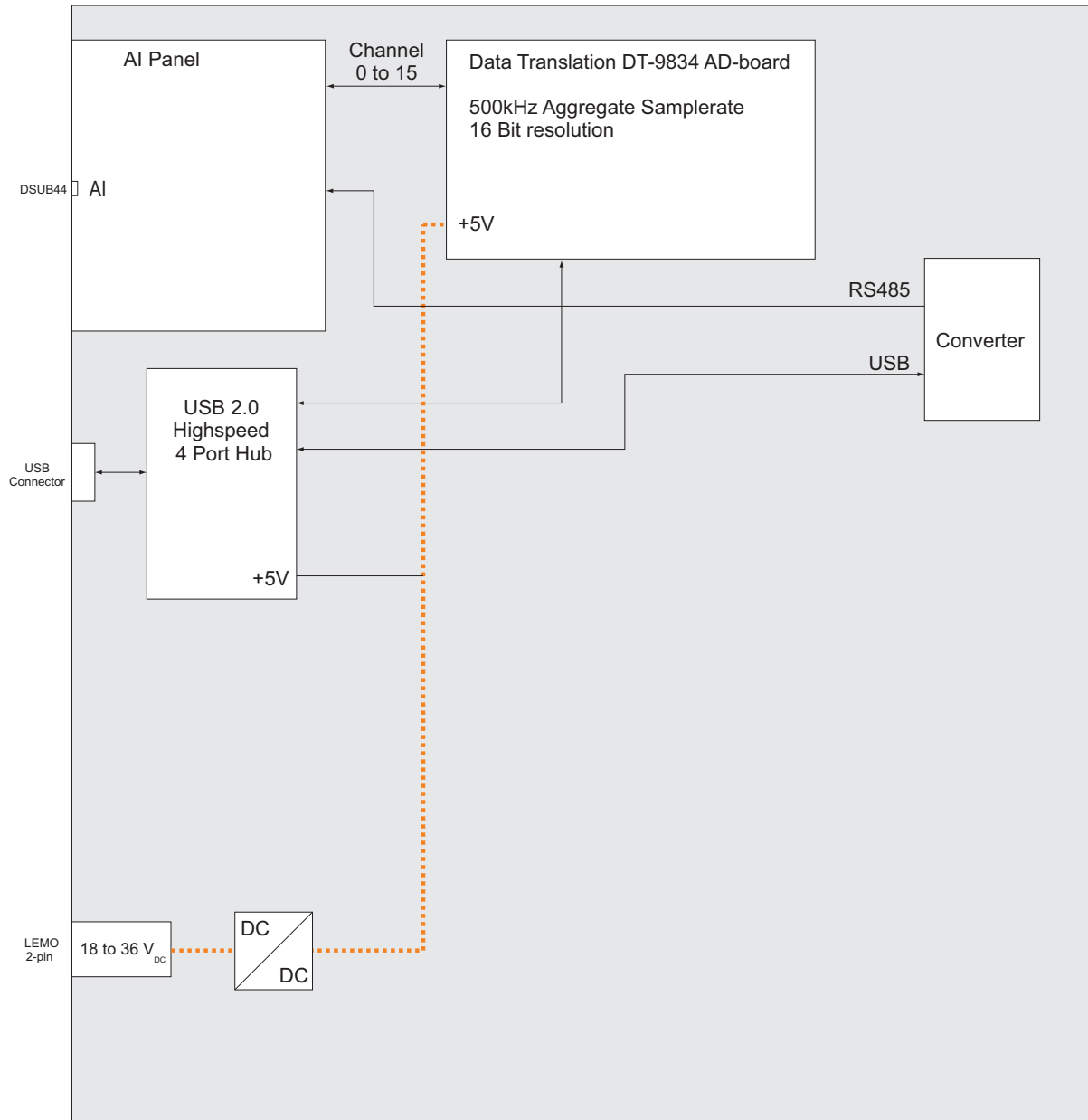
1. Ground connector
2. Fuse
3. USB interface connector
4. Power supply connector (18 - 36 V_{DC})
5. Analog Input connector (44-pin SUB-D connector)



Analog input connector



Internal Wiring



DAQ-BOX

DAQ-BOX installation guide

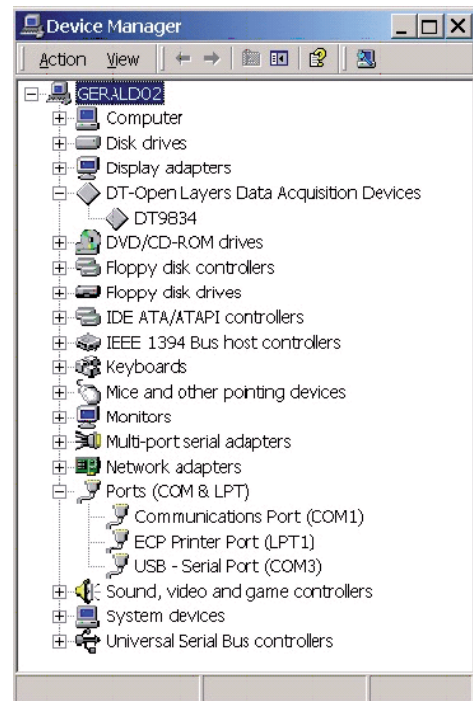
System requirements

- Windows 2000 / XP
- Intel Pentium 4, 1 GHz processor or higher
- 512 MB RAM
- 50 MB free hard disk space
- USB2.0 port

Hardware driver installation

CAUTION: do not connect the DAQ-BOX to the PC until all the drivers are installed!

- Insert the DEWE-System DVD
- Change to the directory \Install\Drivers\6_DAQBoards\DT
- Start the SetupOEMWin32.exe and follow the instructions.
- This will install the basic AD-board driver to your computer.
- Change to \Install\Drivers\7_Communication\DEWE-USB
- Start TI3410inst.exe
- This will install the internal USB to RS485 converter driver.
- Connect the DAQ-BOX to the power supply and turn it on.
- Connect the DAQ-BOX to a USB2.0 port of the PC.
- The operating system will automatically detect the new device and install the appropriate driver.
- Follow the individual driver setups from the AD-board and the USB-serial-converter.
- The vector CAN driver is automatically detected on the DEWE-System DVD.
- After finishing restart your computer.
- Check in the device manager if everything is installed properly. If there is a device missing or marked with a yellow sign proceed with trouble shooting on page..
- Keep the COM port number of the USB-serial-port within mind. It is the port that has to be selected in DEWESoft.



WARNING: It is strongly recommended to connect the DAQ-BOX to the same USB connector of the computer all the time. Otherwise the COM port number changes and the installation becomes slow.

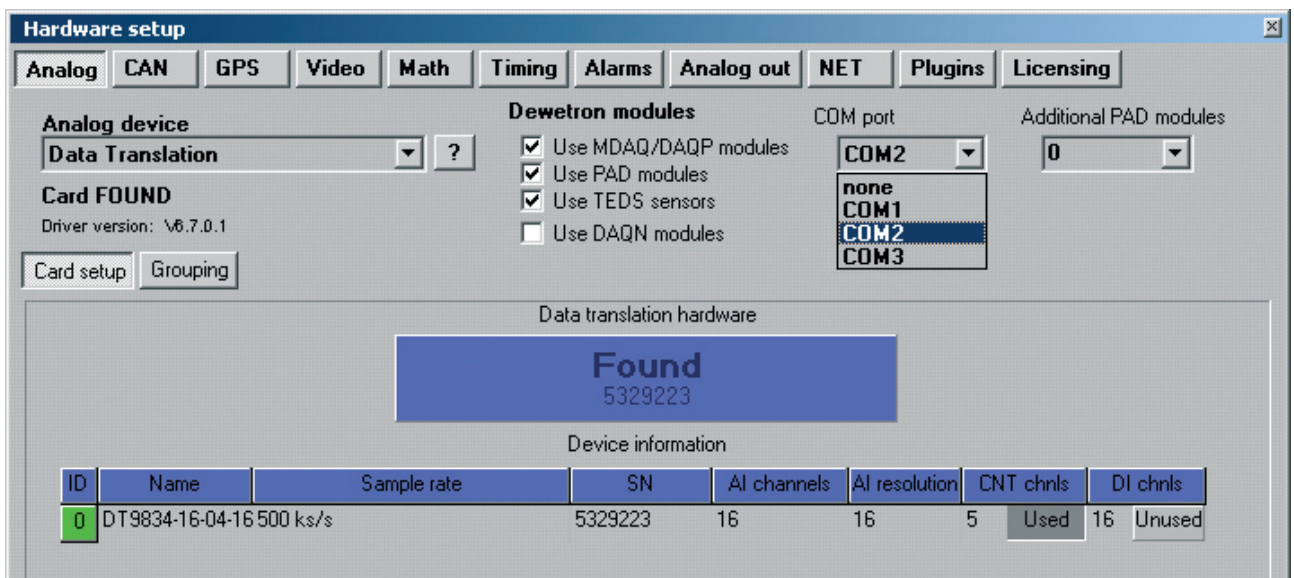
DEWESoft configuration

- To configure your modules in the DEWETRON-system please install the software "DEWESoft" from your system-DVD and choose the option "DEWESoft for DEWEConfig mode" After the installation please start DEWESoft and enter the COM port where your modules are connected. (Note: Please don't change the setting "Analog device" - it should be set to "No A/D Hardware"). Confirm the new settings with "OK", exit this menu and choose "Setup". In this overview you can add / remove modules and change the ranges and the addresses. (A detailed description can be found in the online manual of DEWESoft.)

NOTE: This steps above only have to be made if you did not order DEWESoft with your DAQ-BOX and want to install your system afterwards. Otherwise refer to the following steps of the DEWESoft configuration chapter.

After installing DEWESoft you have to make following settings in the hardware setup:

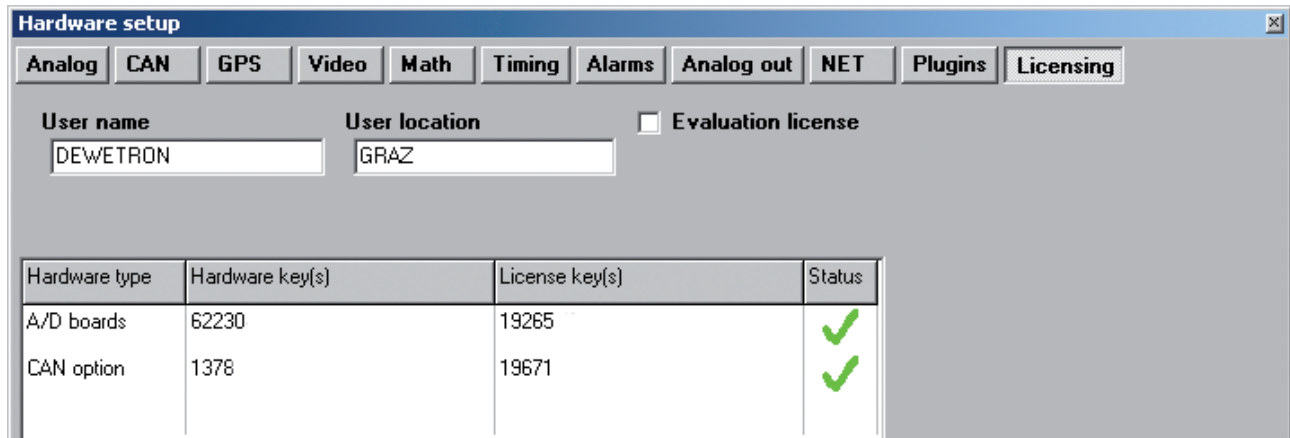
- Select as analog device "Data translation"
- Select as COM port the internal USB-serial-port of the DAQ-BOX. It is listed as "USB-serial-port" in your device manager



DAQ-BOX

DEWESoft licensing

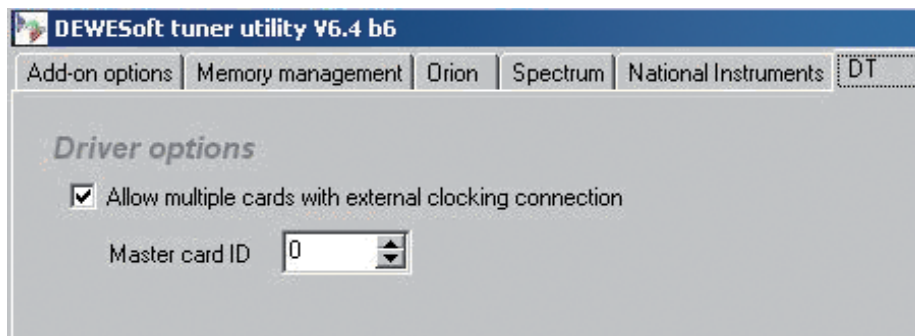
Enter in the hardware setup of DEWESoft the license keys from the license certificate you got with your DEWESoft.



DEWESoft settings

DEWESoft automatically changes to the multi-board-mode if it detects more than one device installed in the system. If you do not want to do this, it is possible to deactivate it in the DEWESoft tuner located in the DEWESoft directory. Also the master board can be changed there.

WARNING: If DEWESoft is in multi-board-driver-mode and there is no external sync cable it would not measure. (Measured values will be zero all the time.)



Example of DEWESoft hardware setup

Hardware setup

Analog device
 Data Translation

Card FOUND

Dewetron modules
 Use MDAQ/DAQP modules
 Use PAD modules
 Use TEDS sensors
 Use DAQN modules

COM port
 COM2
 9600

Data translation hardware

Found 2 cards
27078

Device information

ID	Name	Multicard (Singlecard) sample rate	AI channels	AI resolution	CNT chnls	DI chnls
M0	DT9816-A	153.85 (153.85) ks/s	6	16	0	0
S1	DT9834-16-04-16	250 (500) ks/s	16	16	5 <input type="button" value="Used"/>	16 <input type="button" value="Used"/>

DAQ-BOX

Notes

EC-Certificate of conformity

EC-Certificate of conformity

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

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

Tel.: +43 316 3070 0

Fax: +43 316 3070 90

e-mail: sales@dewetron.com

http://www.dewetron.com

Name of product:

DAQ-BOX

Kind of product:

Data translation box

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

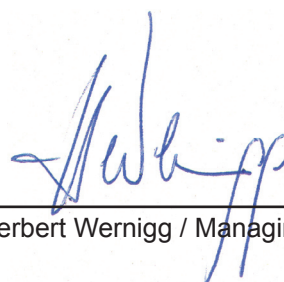
"Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility amended by the directives 91/263/EEC, 92/31/EEC, 93/68/EEC and 93/97/EEC"

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

L V E M C	Safety	IEC/EN 61010-1:1992/93 IEC/EN 61010-2-031	IEC 61010-1:1992/300 V CATIII PoI. D. 2 IEC 1010-2-031
	Emissions	EN 61000-6-4	EN 55011 Class B
	Immunity	EN 61000-6-2	Group standard

Graz, April 25, 2008

Place / Date of the CE-marking



Ing. Herbert Wernigg / Managing director

Notes
