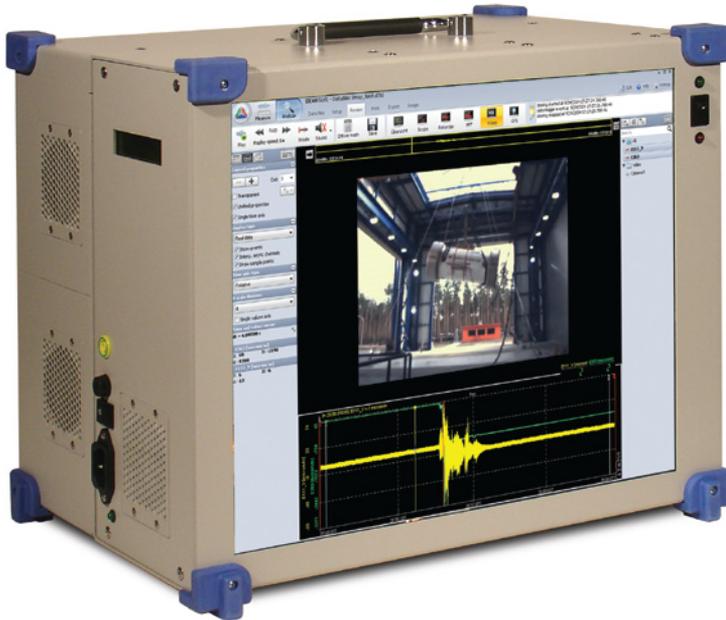


Automotive
Energy & Power Analysis
Aerospace
Transportation
General Test & Measurement



BENCHTOP SUREHAND / DEWE-3200 SERIES

DEWE-3041 SideHAND series

Benchtop Data Acquisition Systems

In 2004 Dewetron broke all the rules by creating a powerful data acquisition system that could run for hours without any external power connected. Our unique SideHAND BATTERY POWER technology won all kinds of awards, but more importantly, it changed the way test engineers could work.

The extreme flexibility of the SideHAND series allows to connect all kind of analog signals, digital I/Os, counters, CAN-bus or GPS and even video – all synchronized! One system clock controls the whole instrument, either generated internally or from external sources like GPS-CLOCK or IRIG-CLOCK.

Now the SideHAND DEWE-3041 adds MORE channels and a bigger screen to this platform. The DEWE-3041 model accepts up to 96 dynamic inputs channels, plus up to 8 counter/encoders, 80 digital inputs, as well as interfaces like CAN, ARINC 429, 1553, PCM and more!

Please use the information herein to learn more about this exciting data acquisition system, or visit us on-line.

Key Features

- Benchtop data acquisition instrument
- 16-, 22- or 24-bit resolution A/D card(s)
- Fast data streaming up to 100 MB/s to hard disk
- 16, 32, 64 or 96 built-in dynamic analog inputs
- Easy to use, intuitive DEWESoft user interface
- 2 synchronous counter inputs (8 max.)
- Optional CAN BUS, ARINC 429, 1553, and PCM interfaces
- Optional video cameras and inertial sensors
- Runs from AC, and hot-swappable batteries (no AC/DC converter required!)
- Tough carrying bag, with pouches, handle, strap
- MIL-STD construction
- Made in USA

Online Information

www.dewamerica.com/DEWE-3041

Re-inventing Data Acquisition



www.dewamerica.com

SideHAND DEWE-3041



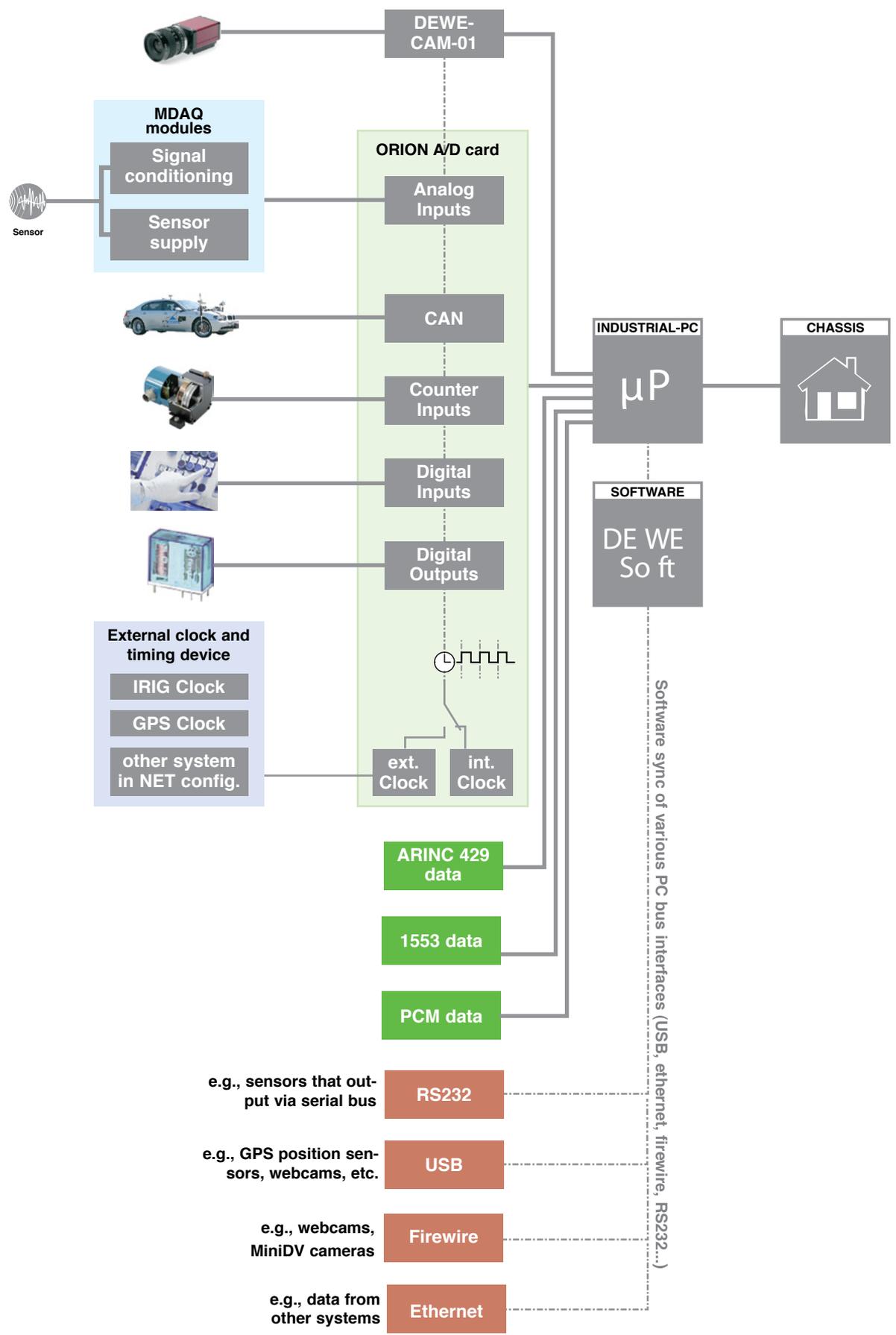
- Portable, powerful, tough
- Flexible signal conditioning
- 100% modular design
- Hot-swappable batteries

SideHAND-EXP basic specifications	
Input specifications	DEWE-3041
Dynamic input channels	Up to 12 MDAQ-SUB modules can be installed (96 channels) of strain gage (full, half, and quarter bridge), voltage, accelerometers, and more
Slower input channels	Up to 128 channels of EPAD2 or CPAD2 channels for thermocouples, RTDs, DC voltages
Counter input channels	2 powerful counter/encoder inputs are included on each ORION series A/D card as standard. Up to 8 counter/encoder inputs are available optionally.
Digital input channels	16 TTL level digital I/O channels are included on each ORION series A/D card as standard. Up to 80 digital inputs are available optionally
Other interfaces available	CAN BUS (2, 4, or 6), ARINC 429 (up to 16R and 16T), MIL-STD-1553 (single or dual function, 1 or 2 channels), PCM data interface (bit sync/frame sync/decom)
A/D card specifications	
ORION card series	All Dewetron ORION cards are simultaneous sampling of all channels. Available in these basic models: 16-bit series: 16-ch @ 100 kS/s, 32-ch @ 100 kS/s, 16-ch @ 500 kS/s, 8-ch @ 1 MS/s 22-bit series: 16-ch @ 100 kS/s, 32-ch @ 100 kS/s 24-bit series: 16-ch @ 200 kS/s, 8-ch @ 200 kS/s Note: ORION series cards provide the advanced counter/encoder inputs shown throughout this catalog
AD card series	All AD series cards provide multiplexed sampling, for less demanding applications. AD16-1000-16: 16-channels, 1 MS/s aggregate @16-bit (due to multiplexing, if all 16 channels are active, then the max sample rate per channel is 62.5 kS/s) Note: AD series cards provide only simple counters, not the advanced counter/encoder inputs shown throughout this catalog
Main system	
Total PCI slots	3 x 12" long PCI slots
Hard disk	250 GB removable drive (larger drives, additional drives, and solid state drives optionally available)
Data throughput to disk	50 MB/s typical, up to 100 MB/s with RAID HDD
Power supply	Hot-swappable batteries power the system for 2-3 hours at a time. 120/240VAC power input also built-in. AC power will recharge the batteries when connected.
Display	17" SXGA display, 1280x1024px, with touchscreen
Processor	Intel Core2Duo 2 GHz CPU, on a standard industrial grade MiniITX mainboard
RAM	2 GB (expandable to 3 GB)
Ethernet	2 x ethernet interfaces standard (one of them is 1 Gb speed)
USB	Four x USB 2.0 interfaces available
RS232	One serial interface on a DB9 connector available
Optical drive	DVD+-CD-RW drive built-in. CD burning capability built into Windows XP
Operating system	Microsoft Windows XP Professional included
Dimensions (W x D x H)	425 x 340 x 320 mm (16.7 x 13.4 x 13 in.)
Weight (typical)	25 lbs (11 kg) typical, without batteries
Environmental specifications	
Operating temperature	-20 to 50C (0 to 45C with batteries installed) (storage temp -20 to 60C)
Humidity	10 to 80% non-condensing, 5 to 95% relative humidity
Vibration	MIL-STD-810F, EN 60068-2-6, EN 60721-3-2 class 2M2
Shock	MIL-STD-810F, EN 60068-2-27

SideHAND system options	
Option	Description
NEUTRINO-4	Four battery charger and auxiliary DC power supply
BATT-95WH	Lithium-ion smart battery for Dewetron systems, 14.4V Wh, max 8A
BAT-CHARGER-1	Simple desktop charger for one battery at a time, including AC adapter
CC-3041	Common carrier rated shipping case for DEWE-3041, with pull-out handle and wheels
RAM-2048-3072	Upgrade from 2 GB to 3 GB RAM (included already in the DEWE-3031-EXP model)
HDD-300-SSD-128	Upgrade to 128 B flash disk (replaces the standard HDD, or it can be installed in addition)

System architecture at a glance

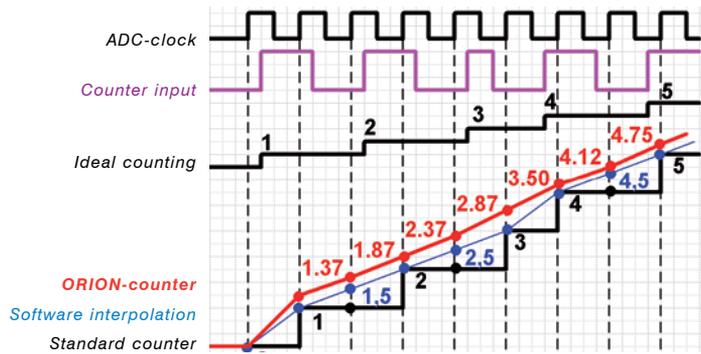
... it's all about DEWE-ORION and system clock



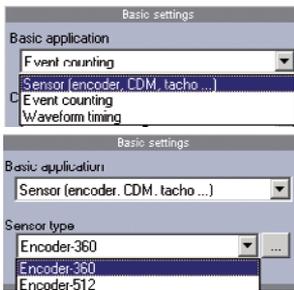
Counter input features

DEWETRON has advanced the state-of-the-art in counter/encoder inputs in our data acquisition systems, improving yet again our ORION-counters.

The key advancement is that our counters are PHASE SYNCHRONIZED. Referring to the diagram, you can see that a standard counter is always a sample behind. With software interpolation you can get closer, but only with DEWETRON's advanced time shifting technology are both the phase and amplitude fully corrected!



RPM-Measurement



Encoder



Tacho



Gearhooth, CDM



Gearhooth, TRG, CDM and TRG



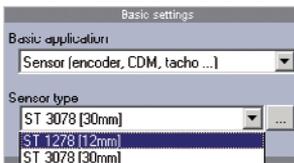
Gearhooth with missing teeth



Gearhooth with double teeth



Length-measurement



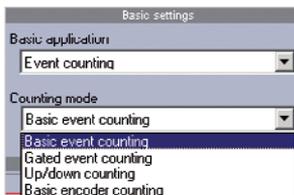
Linear encoder



Linear pulse sensor



Event Counting



Basic counting



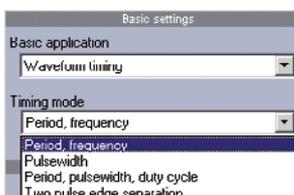
Gated counting



Up/down counting



Waveform Timing



Period frequency



Two pulse edge separation



Period, pulse width, frequency, duty cycle



DEWE-3041 Configuration guide

1. 32 channels: Choose any 4 MDAQ-SUB series 8-channel modules, with any connector
- 64 channels: choose any 8 MDAQ-SUB series 8-channel modules, with any connector
- 96 channels: choose any 12 MDAQ-SUB series 8-channel modules, with any connector
- 128 channels: choose any 8 MDAQ-SUB series 8-channel modules with BNC connectors only
2. Choose any ORION or AD series A/D card(s) (must equal the number of channels chosen above)
3. Add any bus interface cards that you need (e.g., ARINC 429, 1553...)
4. Choose any compatible system upgrades or accessories from the tables
5. Add any external conditioners that you need (e.g., EPAD modules)



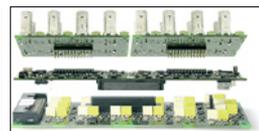
Typical rear panel view of the DEWE-3041, configured with 96 dynamic MDAQ input channels. Also along the top are the two standard counter inputs, with expansion holes for up to 8 counters. Below that is the DB37 connector with all of the digital I/O lines, trigger input, camera sync input, and more. Also included: EPAD connector and 12VDC auxiliary power connector.

MDAQ Series Amplifiers

- Multi channel
- Small form factor for high channel density
- Cost effective
- High bandwidth up to 300 kHz



SUB Modules for MDAQ-BASE-x						
Module	# CH	Input type	Input 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) <i>for strain gage application:</i>	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) <i>for strain gage sensors:</i>	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: <i>for safety reasons, max. 120 V_{DC} or 50 V_{AC} are allowed at this connector</i>				
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: <i>for safety reasons, max. 120 V_{DC} or 50 V_{AC} are allowed at this connector</i>				
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 <i>3.4 Hz highpass filter for noise and shock response measurement</i>				
		MDAQ-SUB-ACC-BNC-S1 <i>0,16 Hz for structural and modal analysis, human body vibration measurement (rest same as MDAQ-SUB-ACC-BNC)</i>		■	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 <i>0.16 Hz for structural and modal analysis, human body vibration measurement</i> <i>3.4 Hz for noise and shock response measurement</i>				
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 <i>0.16 Hz for structural and modal analysis, human body vibration measurement</i> <i>3.4 Hz for noise and shock response measurement</i> Option: test signal input for all channels				



MDAQ modules - available in most of the DEWETRON multichannel systems.

DEWE-51-USB2-32
2x MDAQ-SUB-BRIDGE-D,
2x MDAQ-SUB-ACC-A
modules and USB-I/F

Typical combination with
two SUB modules mounted
on a BASE module, and
FILTER board (optional)

All MDAQ boards are
equipped with highest qual-
ity components

SideHAND Configuration guide

Channel Expansion

You can select between expansion by:

- Analog cable
- PCI expansion
- Expansion via Ethernet

■ Channel expansion by analog cable

A very popular way of expanding the analog inputs is to install more ORION cards into the instrument and connect external signal conditioning amplifiers via analog cables. Each SideHAND instrument has two spare PCI-slots which can be used to install additional ORION cards. Select a suitable external DEWE-30 or DEWE-31 series signal conditioning rack, the required amplifiers and directly connect the analog outputs to the ORION cards by analog signal cables.

User tip: The standard analog cable length is 2 m but these can be as long as 15 m.



Channel Expansions					
System specifications	DEWE 30-16	DEWE-30-32	DEWE-30-48	DEWE-31-16	DEWE-31-32
DAQ / PAD amplifier slots	16	32	48	-	-
MDAQ amplifier input channels	-	-	-	up to 16 (BNC and/or DSUB)	up to 32 (BNC and/or DSUB)
A/D converter	DEWE-ORION-16xx in main system				
Power supply	115 / 230 V _{AC} 50 / 60 Hz	115 / 230 V _{AC} 50 / 60 Hz	115 / 230 V _{AC} 50 / 60 Hz	Directly from DEWE-ORION-16xx series board	115 / 230 V _{AC} 50 / 60 Hz
Dimensions (W x D x H)	435 x 133 x 245 mm 17.1 x 5.2 x 9.6 in.	435 x 223 x 245 mm 17.1 x 8.8 x 9.6 in.	408 x 340 x 200 mm 16.1 x 13.4 x 7.9 in.	208 x 95 x 108 mm 8.2 x 3.7 x 4.3 in.	435 x 133 x 245 mm 17.1 x 5.2 x 9.6 in.
Weight	4 kg (9 lbs)	7 kg (15 lbs)	11 kg (24 lbs)	1.6 kg (3.5 lbs)	4 kg (9 lbs)



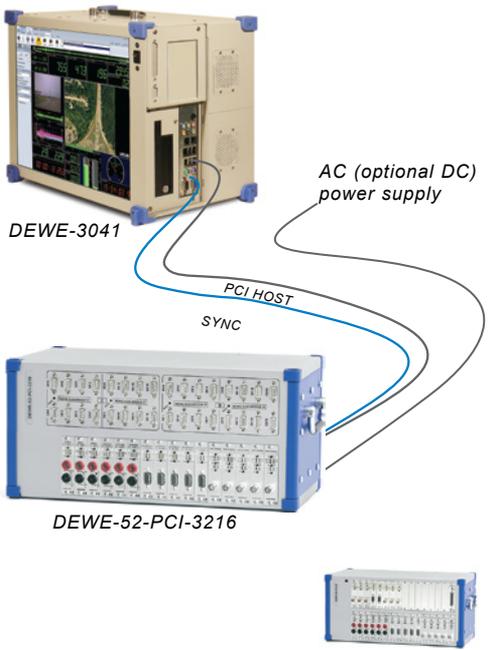
Convenient battery power

You can plug the DEWE-3041 directly into line power and operate it like any other instrument. However, the three 95Wh lithium ion batteries behind a hinged door on the bottom cover will protect you against accidental power interruptions. Batteries take over within microseconds of a power failure, and the system will run for hours without any external AC power input!

Best yet, you can "hot swap" these batteries one at a time when they start to get low, running the DEWE-3041 forever from batteries.

There are several external battery chargers available, so that you can charge up batteries off line for this purpose.

Of course, batteries are charged automatically within the system when AC power is restored.



■ PCI expansion

The PCI expansion is an alternative especially if high channel count is needed. When using an expansion only one PCI slot is occupied in the DEWE-3041 instrument by a PCI-HOST-CARD. The DEWE-50, DEWE-51 and DEWE-52 ADC racks can be connected by a 1m PCI cable. The ORION cards are installed inside the DEWE-5x unit and you simply have to select the suitable signal amplifiers for your needs.

Important notice: The DEWE-3041 and the DEWE-5x must be equipped with ORION-SYNC option.

User tip: with an additional ECARD-34 or 54 the DEWE-5x also can be used as an independent system in combination with a laptop computer.

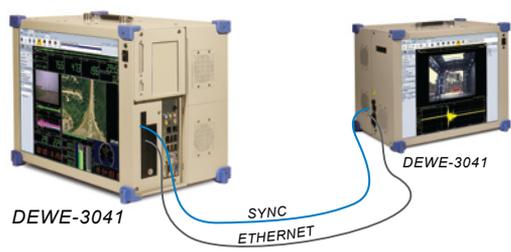
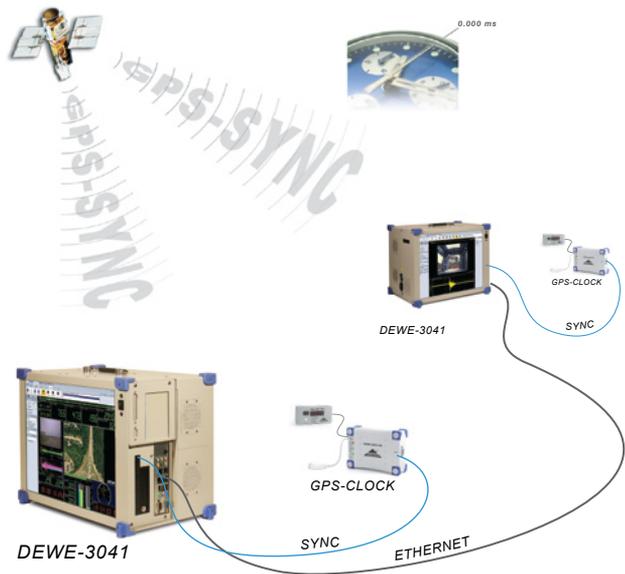


DEWE-5x-PCI Series: ADC Racks					
System specifications	DEWE-50-PCI-32	DEWE-50-PCI-64	DEWE-51-PCI-64	DEWE-51-PCI-128	DEWE-52-PCI-3216
DAQ / PAD amplifier slots	32	64	-	-	16
MDAQ amplifier input channels	-	-	64	128	up to 32
Internal PCI slots	4	7	4	13	4
Power supply	115 / 230 V _{AC} 50 / 60 Hz	115 / 230 V _{AC} 50 / 60 Hz	115 / 230 V _{AC} 50 / 60 Hz	115 / 230 V _{AC} 50 / 60 Hz	115 / 230 V _{AC} 50 / 60 Hz
Dimensions (W x D x H)	435 x 287 x 223 mm (17.1 x 11.3 x 8.8 in.)	408 x 287 x 410 mm (16.1 x 11.3 x 16.1 in.)	435 x 287 x 178 mm (17.1 x 11.3 x 7.0 in.)	408 x 287 x 267 mm (16.0 x 11.3 x 10.5 in.)	435 x 287 x 223 mm (17.1 x 11.3 x 8.8 in.)
Weight	10 kg (22 lbs)	15 kg (33 lbs)	6 kg (13 lbs)	9 kg (20 lbs)	9 kg (20 lbs)

■ Expansion via Ethernet

The NET expansion is a fantastic way to combine two or more SideHAND instruments to one multichannel system. Each instrument must have installed hardware option ORION-SYNC and software option DEWESoft-NET. Synchronization of all units is required too. There are two ways of synchronization: First is a simple cable connection for distances up to 200 m, second one is GPS- or IRIG-CLOCK which is useful for long distances when a cable connection is not possible. DEWESoft-NET software offers full remote setup, online data transfer up to the limit of the network connection and offline data transfer between the instruments.

User tip: The NET expansion allows multiple usages of the PC power and fast storing capability. Multiple decentralized hard disks offer almost no limit for fast data storing.



DEWESoft

DEWESoft turns your 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 this is a difficult balancing act: providing lots of capability and performance, without making the user interface hard to learn. But we have done it!

DEWESoft is the solution to acquire signals synchronous from different sources, display and store them together and offer the data for post analysis.

Measure



Scope



Recorder



FFT



Video



Export



Print



Dewesoft has set a whole new standard when it comes to easy to use data acquisition systems. Nothing else even comes close!

It starts with easy channel setup, a built-in sensor database that you can populate yourself - or automatically when TEDS sensors are connected.

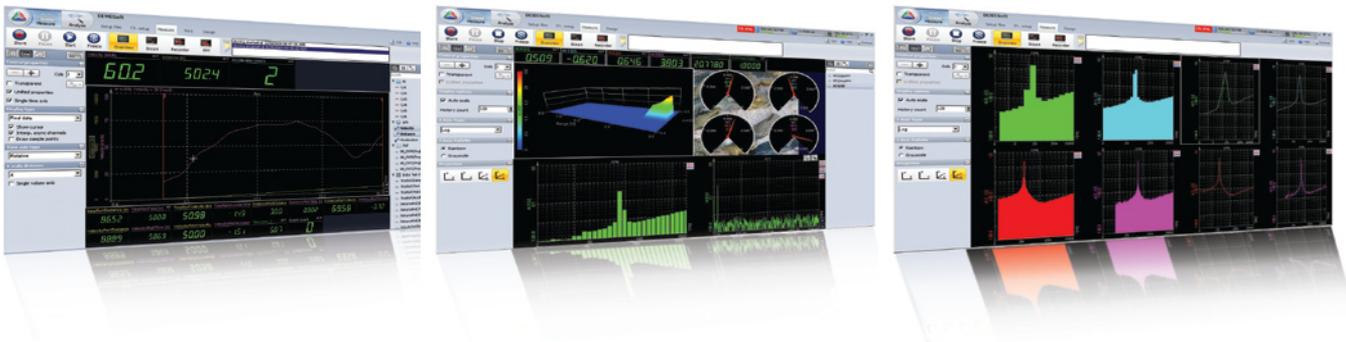
Complete control over all of the hardware and interfaces installed is next ... and not just the A/D card and signal conditioners, but your video camera, GPS sensor, IRIG time code interface, multiple CAN BUS interfaces, ARINC 429 and MIL-STD-1553 ports, and many more. The list of interfaces continues to grow as we add new ones per your requests!



Measure Mode

INCREDIBLE DISPLAYS - including create your own screens

Of course we build the basic screens for you, like scope, recorder, FFT, and more... but you can make whatever screens you need. Name and sort them freely. But whatever display types on them that you like: analog and digital meters, graphs, tabular displays, X-Y graphs, GPS tracks, scopes, and more. DEWESoft users tell us that designing their own screens is their favorite part of using DEWESoft.



Amazing MATH functions ONE-LINE and OFF-LINE CALCULATIONS

Years ago, there were only two basic types of math channels that you could create inside DEWESoft: IIR filters and user-programmed formulas. But today it's a whole new world - there are literally dozens of useful math functions built into DEWESoft, including statistical calculations, IIR, FIR, and FFT filtering, strain gage rosette calculations, a powerful formula writer that allows you to create just about anything, and much more!

Create a MATH channel and then choose from a wide variety of types, starting with arithmetic functions, trigonometry, algebra, boolean logic, and more. Multiply channels together, and then add a constant, or a third channel. That's simple. Now how about taking the cosine of channel 1, multiplying it by PI, and the dividing by the tangent of another channel -- but only when channel 9 is greater than 112.321? All that and more are possible - even EASY - within DEWESoft. You can even use MATH channels within another MATH channel -- it's that versatile.

There are numerous built-in measurement functions, too, for measuring the distance in time between user-definable conditions -- or delta amplitudes between user-defined conditions, just to name a few.

And starting in version 7 we added the ability of math channels to be created and run AFTER you record your data - so you can record the data "raw" to disk and then apply filters and every other math function afterwards! This is a great addition to the software, and a great additional tool in your chest!

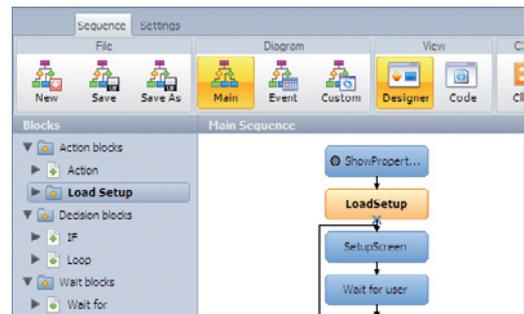
New advanced features in DEWESoft 7

We've also added array based mathematics and three dimensional displays to version 7. And a powerful new sequencer allows you to create an entire test and then let DEWESoft step through it automatically, pausing when you want it to, or need to make a choice, for example. It can even talk to you using text-to-speech technology, and play multimedia audio and video files.

Analyze Mode REPLAY, EXPORT, SHARE DATA!

Here you can replay any captured data file, zoom in with the recorder graph cursors, make measurements, print in full color to any Windows printer, and export the data to a wide variety of formats compatible with today's popular analysis software packages, like Flexpro, Matlab, Excel, and many more.

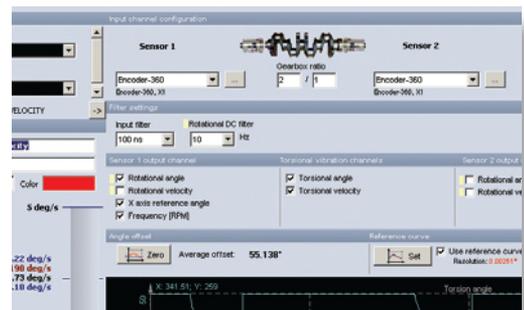
You can even export a AVI video file from your recorded data to create "moving documentation." NO LICENSE is needed to use DEWESoft in the ANALYZE mode, so you can install the software on ALL your computers, or even distribute it to your customers, and they can install it. In this way, all of your colleagues and customers can replay your data files and do all of the functions that you can - just give them the data file to open.



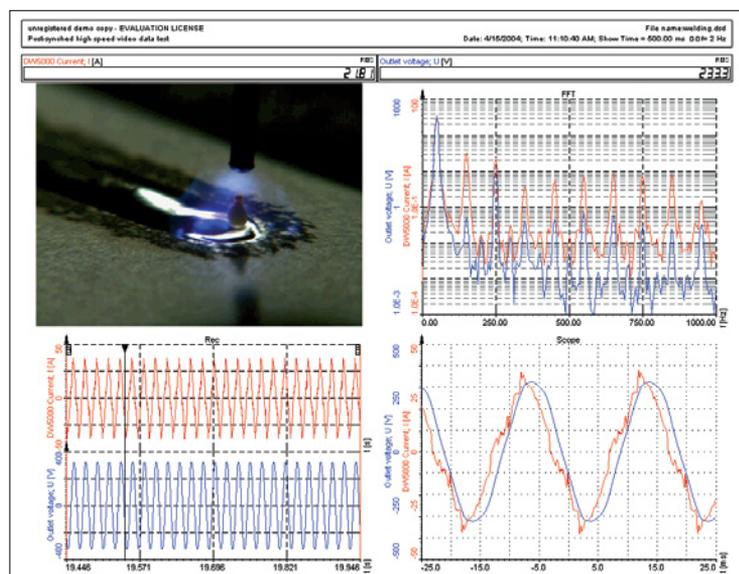
Create, edit, and run sequences right from the main screen in DEWESoft 7.



GPS sensors are simple to set up in DEWESoft - here you can see the satellites visible and in-use.



Powerful options like the TORSIONAL VIBRATION analyzer are available for DEWESoft



Born in the USA...

Each of the models below are built at our USA facility, located in Rhode Island. In a day when it seems like most companies are abandoning America and sending their production overseas, Dewetron is doing exactly the opposite - building more and more products right here. We are making an investment in American jobs, technology, science, and industry. Why? Because we're Americans.



- DEWE-3030 series - the original Dewetron BATTERY POWERED instrument
- DEWE-3100 series - the "DEWE notebook" award-winning innovation
- DEWE-3200 series - the bigger brother to the DEWE-3100 series, with more expandability
- DEWE-901 - top of the line Dewetron rack mounting acquisition systems, used by NASA, et al.

DEWE-3030 series



- 16 ~ 96 channels
- 15" touchscreen
- Desktop models
- Battery powered
- Made in USA

DEWE-3100 series



- 8 ~ 16 channels
- 15" touchscreen
- Most portable
- Battery powered
- Made in USA

DEWE-3200 series



- 8 ~ 32 channels
- 15" touchscreen
- Flip up display
- Battery powered
- Made in USA

DEWE-901 series



- 16 ~ 64 channels
- 19" display
- Rack-mounting
- Removable HDDs
- Ideal lab unit
- Made in USA

Service with a Smile!

When you build something, you have to support it. If it's an instrument, then you also need to be able to calibrate it according to international (ISO) and USA (NIST) standards. This is exactly what we can do for you, both in America at Dewetron, Inc., as well as in Europe at Dewetron in Austria. We have comprehensive service and support facilities around the globe, and traceable calibration facilities in the USA and Europe. We stand behind our products, which means that we stand behind you, our valued customer.

We are proud of our products, and we are ready, willing, and able to support them 100%, to ensure your satisfaction and continued patronage. Won't you give us a try, and find out for yourself about the Dewetron difference?

Re-inventing Data Acquisition

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Tel (+1) 401-284-3750 • Fax (+1) 401-284-3755 • sales@dewamerica.com

