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


# DEWE-43
# Universal Data Acquisition Instrument

*When connected to the high speed USB 2.0 interface of any computer the DEWE-43 becomes a powerful measurement instrument for analog, digital, counter and CAN-bus data capture.*

*Eight simultaneous analog inputs sample data at up to 204.8 kS/s and in combination with DEWETRON Modular Smart Interface modules ( MSI ) a wide range of sensors are supported*

- *Voltage*
- *Pressure*
- *Temperature*
- *Position*
- *Torque*
- *Velocity*
- *Acceleration*
- *Force*
- *Sound*
- *RPM*
- *Frequency*
- *And more*

*The included DEWESoft application software adds powerful measurement and analysis capability, turning the DEWE-43 into a dedicated recorder, scope or FFT analyzer.*

**Key Features**

- *Best price/performance ratio*
- *Connects to any computer via USB interface*
- *8 simultaneous sampled analog inputs*
- *24-bit resolution, up to 204.8 kS/s per channel*
- *8 counter inputs or 24 digital inputs*
- *2 high speed CAN interfaces*
- *CPAD2 expansion for static signals*
- *DEWESoft instrument software included*

*The DEWE-43 is a perfect fit for*

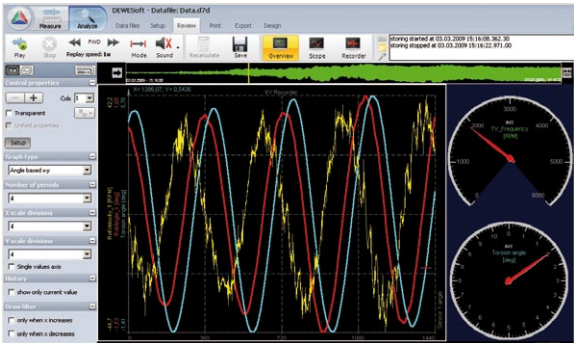
- *Mobile applications*
- *Field-service*
- *Maintenance*
- *Debug and diagnostic tasks*

PORTABLE INSTRUMENTS
DEWE-43

worldwide
DEWETRON
www.dewetron.us

Re-inventing Data Acquisition

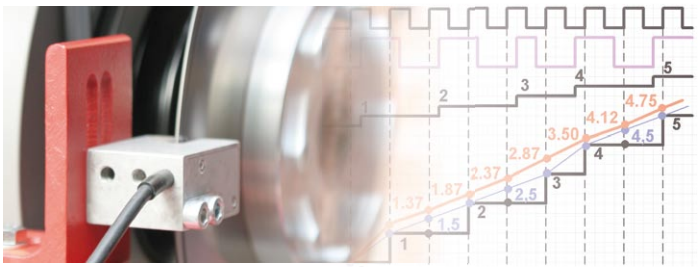
# Connectivity



### Analog

*There are eight analog inputs, each has its own sigma-delta A/D converter and is sampled at up to 204.8 kS/s at 24-bit resolution. Anti-aliasing filters are included for each channel and all are our "universal" type, which can handle full bridges and voltages up to ±10 V natively and support our tiny Modular Smart Interfaces (MSI). MSIs are able to convert any of the analog inputs to a different input type, including IEPE accelerometer / microphone, ±200 V, RTDs, thermocouples and charge.*

### Counter / Digital input



*The DEWE-43 offers eight Lemo sockets where each can either be used as one counter input or as three digital inputs – this is a software selection and can be set individually for each socket.*

*Thanks to the special DEWETRON technology, they are acquired absolutely synchronously to the analog channels. DEWETRON counters are able to perform*

- *Basic counting*
- *Gated counting*
- *Up/down counting*
- *Two pulse edge separation*
- *Frequency measurement*
- *Pulse width measurement*
- *Period time measurement*
- *Duty cycle*

### CAN

*The two high speed CAN interfaces are able to acquire data from vehicle CAN – or vehicle OBDII interface – as well as from any sensor outputting CAN data. Additionally DEWETRON CPAD2 modules can be connected to the CAN interface for adding slow channels like temperature.*

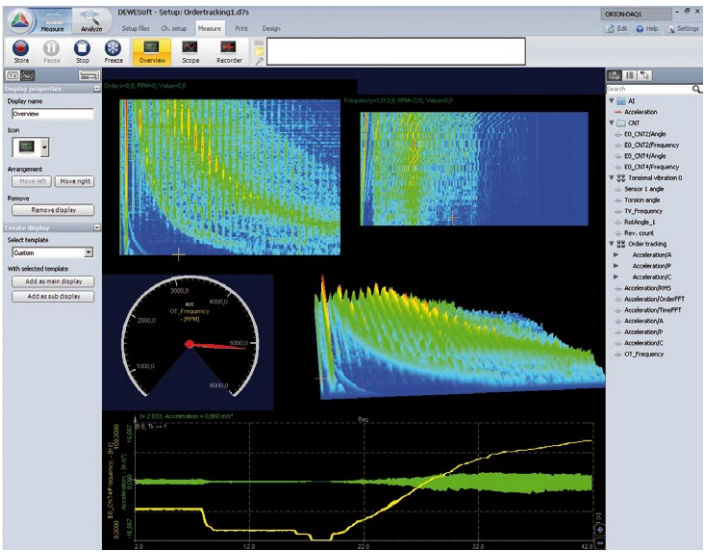

# DEWESoft - Data Acquisition Software

*The powerful and very easy to use data acquisition software DEWESoft turns the DEWE-43 into a complete measurement instrument.*

*Synchronous data acquisition of different sources, data export to almost any analysis software as well a the powerful online mathematics and filtering are just a few key features.*

- *Easy-to-use*
- *Synchronous data acquisition of different sources*
- *Data export to almost any analysis package*
- *Powerful online mathematics and filtering*
- *Extensions for special applications*
- *Networkable operation with synchronization*
- *DCOM programmable extensibility*

*The standard version of the DEWE-43 includes the basic version DEWESoft-SE and is sufficient for many applications. For measurement tasks like Order Tracking, Human Body Vibration, FRF, Rotational & Torsional Vibration or Sound Level measurement there is an extended DEWE-43-DSA version available which includes the powerful DEWESoft-DSA software. DEWE-43-DSA additionally offers a faster sampling rate of 204.8 kS/s per channel (standard DEWE-43 has 51.2 kS/s per channel).*



| SPECIFICATIONS | | DEWE-43-DSA | DEWE-43 |
|---|---|---|---|
| **ANALOG INPUT** | | | |
| Number of channels | | 8 (simultaneously sampled) | |
| Measured values | | Voltage, full bridge (IEPE, charge, thermocouple and RTD with MSI adapters) | |
| Resolution | | 24-bit | |
| Type of $A_{DC}$ | | Sigma-Delta | |
| Sampling rate | | 204.8 kS/s | |
| -3 dB bandwidth | | 76 kHz @ 204.8 kS/s | |
| Input Ranges | Voltage | ±0.01 V, ±0.1 V, ±1 V, ±10 V | |
| | Voltage via MSI-BR-V200 | up to ±200 V | |
| | Full bridge | ±10 mV/V, ±100 mV/V, ±1000 mV/V | |
| | Half or quarter bridge | With external bridge completion | |
| | IEPE via MSI-BR-ACC | ±0.1 V, ±1 V, ±10 V | |
| | Thermocouple via MSI-BR-TH-x | Full range of thermocouple type (isolated thermocouple only) | |
| | Pt100, Pt200, Pt500, Pt1000, Pt2000 and resistance via MSI-BR-RTD | -200°C to 1000°C and 0 to 6.5 kOhm | |
| **AMPLIFIER CHARACTERISTICS** | | | |
| Accuracy | | ±0.1 % of range, ±0.5 mV | |
| Input impedance | | 10 MΩ\|\|33 pF (common mode), 20 MΩ\|\|47 pF (differential mode) | |
| CMRR | | >80 dB | |
| Sensor supply voltage | | ±5 V 0.1 % @ 50 mA, 12 V @ 100 mA per channel (total max. 5W) | |
| Voltage mode coupling | | DC | |
| Overvoltage protection | | ±70 V | |
| **DYNAMIC CHARACTERISTICS** | | | |
| Signal to noise @ fs<1000 Hz | | < 100 dB | |
| Crosstalk | | < 100 dB | |
| **COUNTER/DIGITAL INPUTS** | | | |
| Number of channels | | 8 counters or 24 digital inputs (per software each counter can be selected to be 3x digital input) | |
| Counter modes | | Event counting, encoder input, period, pulsewidth, duty cycle, frequency measurement | |
| Resolution | | 32-bit | |
| Time base | | 102.4 MHz | |
| Signal levels | | TTL/CMOS | |
| Input voltage protection | | 30 V | |
| **CAN INPUTS** | | | |
| Number of channels | | 2 | |
| Specification | | CAN 2.0B, up to 1 MBaud | |
| Physical layer | | High speed | |
| **ENVIRONMENTAL** | | | |
| Operating temperature | | 0 to 50°C | |
| Storage temperature | | -20 to 70°C | |
| Relative humidity | | 95 % non condensing @ 60°C | |
| **PROCESSING** | | | |
| System | | Requires PC based system with DEWESoft software | |
| Interface | | USB 2.0 | |
| **POWER REQUIREMENTS** | | | |
| Supply voltage | | 6 to 36 $V_{DC}$ | |
| Supply overvoltage protection | | 80 V | |
| Negative input voltage protection | | -30 V | |
| Typical power consumption | | Typ. 5 W (max. 11 W at full sensor supply load) | |
| **PHYSICAL** | | | |
| Dimensions (L x W x H) | | 223 x 78 x 45 mm (8.78 x 3.08 x 1.77 inch) | |
| Weight | | 0.72 kg | |
| **SOFTWARE** | | | |
| Displays | | Recorder, Scope, FFT, 3D Waterfall FFT, Octave, ... | |
| Triggers | | Edge, Filtered Edge, Window, Pulsewidth, Slope, FFT, ... | |
| Online standard mathematics | | Formula editor, FIR-, IIR-, FFT-filter, basic statistics, reference curve | |
| Online special mathematics | | DEWE-43-DSA: Human Body Vibration, Order Tracking, Rotational & Torsional Vibration, Sound Level, Frequency Response Function | - |

# Applications

## Recorder

*Synchronous recording of different signals*

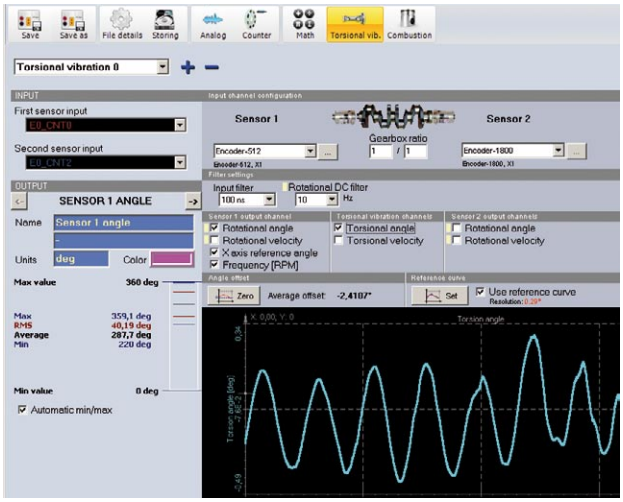
- *Voltage*
- *Pressure*
- *Temperature*
- *Position*
- *Torque*
- *Velocity*
- *Acceleration*
- *Force*
- *Sound*
- *RPM*
- *Frequency*
- *And more*

## Order Tracking

- *Dedicated re-sampling method for sharp order separation*
- *Measurement in time domain to keep all benefits*
- *2D, 3D waterfall in order or frequency domain*
- *Amplitude, phase extraction*
- *Recalculation in post processing*
- *Phase synchronous RPM input with 12.5 ns resolution*
- *EASY TO SETUP*

## Torsional and Rotational Vibration

- *Time domain measurement*
- *Angle based view*
- *Additional to all other functions (analog, CAN, GPS, video, ...)*
- *Configurable display*
- *Direct sensor connection*
- *80 MHz time base*
- *High resolution ±0.03rpm ±2 mdeg@12000 rpm*




## Balancing

- *User interface which guides through all steps*
- *Order tracking based balancing method*
- *Single or dual plane*
- *Multiple balancing for two directions saves time*
- *2D graph for plane view*
- *RPM channel with color indicator (RPM range)*
- *Alarm output if velocity exceeds predefined value*
- *Displays tacho probe time signal to set trigger*
- *Vector polar plots of 1st order of all runs (initial, trail, ...)*
- *Weight splitting*
- *Acceleration, velocity, displacement in recorder*
- *Time domain measurement*

***The shown applications are only a few examples, many more can be covered using the DEWE-43 instrument.***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