

Automotive
Energy & Power Analysis
Aerospace
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

Re-inventing Data Acquisition



www.dewetron.com

PORTABLE INSTRUMENTS DEWE-43

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.

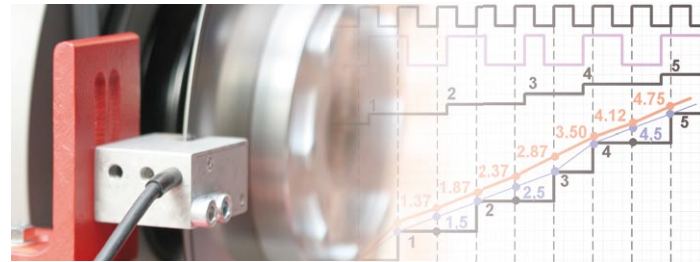


Counter / Digital input

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.



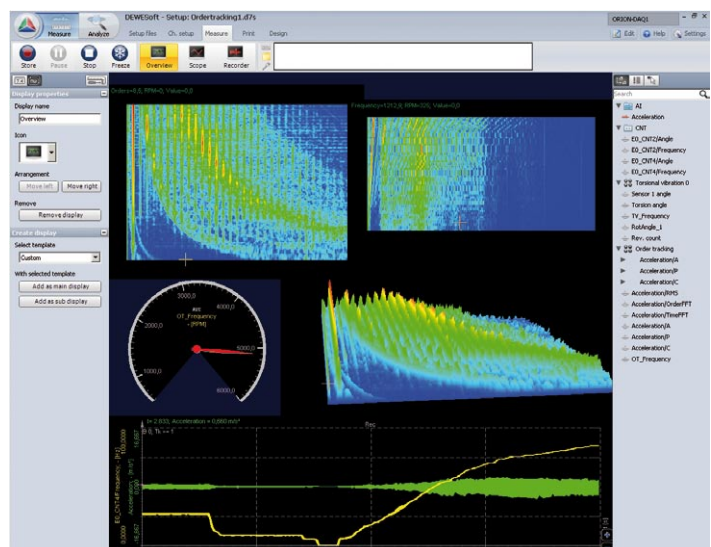
DEWESoft - Data Acquisition Software

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 as 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).



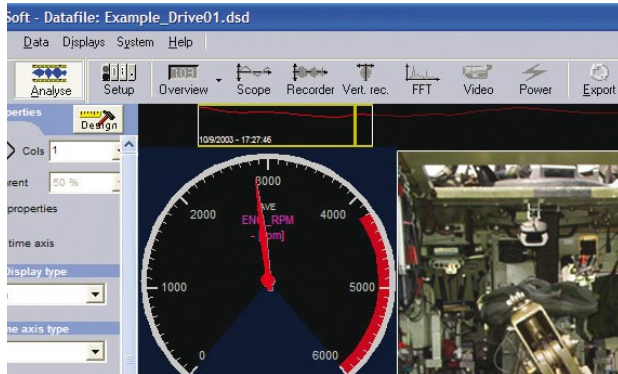
SPECIFICATIONS		DEWE-43-DSA	DEWE-43
ANALOG INPUT			
Number of channels	8 (simultaneously sampled)		
Measured values	Voltage, full bridge (IEPE, charge, thermocouple and RTD with MSI adapters)		
Resolution	24-bit		
Type of A_{DC}	Sigma-Delta		
Sampling rate	DEWE-43-DSA: 204.8 kS/s	DEWE-43: 51.2 kS/s	
-3 dB bandwidth	76 kHz @ 204.8 kS/s (25 kHz @ 51,2 kS/s)		
Input Ranges	Voltage	$\pm 0.01\text{ V}$, $\pm 0.1\text{ V}$, $\pm 1\text{ V}$, $\pm 10\text{ V}$	
	Voltage via MSI-BR-V200	up to $\pm 200\text{ V}$	
	Full bridge	$\pm 10\text{ mV/V}$, $\pm 100\text{ mV/V}$, $\pm 1000\text{ mV/V}$	
	Half or quarter bridge	With external bridge completion	
	IEPE via MSI-BR-ACC	$\pm 0.1\text{ V}$, $\pm 1\text{ V}$, $\pm 10\text{ V}$	
	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	$\pm 0.1\%$ of range, $\pm 0.5\text{ mV}$		
Input impedance	10 M Ω 33 pF (common mode), 20 M Ω 47 pF (differential mode)		
CMRR	> 80 dB		
Sensor supply voltage	$\pm 5\text{ V}$ 0.1 % @ 50 mA, 12 V @ 100 mA per channel (total max. 5W)		
Voltage mode coupling	DC		
Overvoltage protection	$\pm 70\text{ V}$		
DYNAMIC CHARACTERISTICS			
Signal to noise @ $f_s < 1000\text{ Hz}$	< 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 (7.78 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
- Acceleration
- Pressure
- Force
- Temperature
- Sound
- Position
- RPM
- Torque
- Frequency
- Velocity
- And more



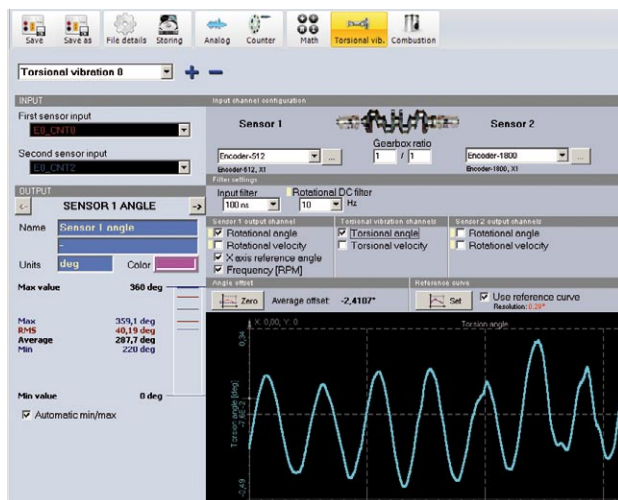
Order Tracking

- 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 $\pm 0.03\text{rpm} \pm 2 \text{ mdeg}@12000 \text{ rpm}$



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 tach 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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