Universal transport monitoring

MONI LOG ® EnDaL curve

- Measures variable impact, temperature, humidity, inclination and pressure
- Records local coordinates from external GPS receivers
- Suitable for overseas transport, packaging optimization and use in clean rooms
- Long operating time
- Small, lightweight, robust with universal accessories
- Powerful analysis software

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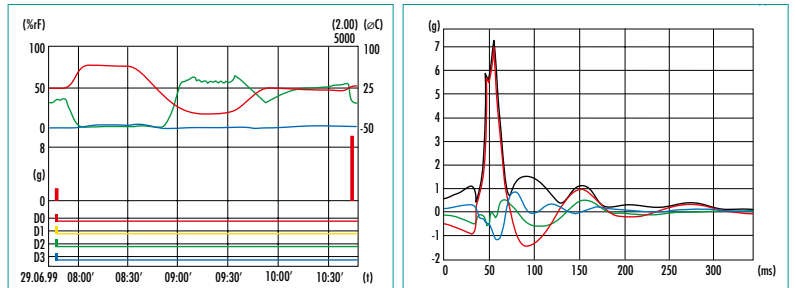
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MONI LOG® EnDaL curve

EnDaL curve is a highly versatile modifiable data logger that records mechanical shocks, temperatures and air humidity at the same time, over a long period of time. In addition, the time sequence for up to 20 acceleration peak values is stored. For customer-specific requirements, additional sensors for air pressure, stack pressure or inclination and up to 4 digital signals can be connected to the data logger.

The EnDaL curve data logger also allows the connection of a special GPS receiver, which records the location coordinates for each event and the entire transport route.

All recorded measurement data can be transferred to a PC via an RS-232 interface or a USB-RS-232 adapter and analysed with an external program.

A convenient software for programming and comprehensive evaluation of the measured data is included in the delivery. EnDaL curve is manufactured in compliance with EC directives.

Technical data

Parameters:	Acceleration (a) in three directions (x, y, z), temperature (T), humidity (% rH); other sensors can be connected and parametrised to analog and digital inputs
Measuring ranges:	Acceleration: 2, 5, 10, 20, 50, 100, 200 g with internal sensor or 100, 200, 500, 1,000, 2,000 pC with external sensors (switchable); temperature: -40 …+ 75 °C; humidity: 0.2 … 100 % rH; analog channel 0 … 2.5 V; digital channel (4 inputs); low: 0 … 0.8 V; High: 2.4 … 12 V
Memory:	16,384 acceleration values, 16,384 temperature and humidity values each, 10 or 20 acceleration-time graphs corresponding to the peak events, 4,096 digital events
Analogue filters for acceleration measurement (frequency response):	Filter type: Bessel 4th order, low pass Upper limit frequency: 16 to 1000 Hz can be set together for all channels Lower limit frequency: 0.2 Hz for internal B-sensors, 0.5 Hz for external B-sensors
Acceleration sensor:	Internal three-axial piezo-electric sensor and/or up to 3 external uni-axial sensors, special low-power 3D-ICP® acceleration sensors connected with voltage amplifier input, optional specifical ICP-sensor, sensitivity of the charge and voltage amplifier configurable
Temperature sensor:	Internal or external sensor in a sensor tube
Humidity sensor:	Capacitive polymer sensor, arranged together with the temperature sensor in the sensor tube
Operating time:	1,000h (rechargeable NiCd battery), 1,500 h (rechargeable NiMh battery), 2,500 h (alkaline battery). Alternatively, the device can be supplied by an external power source (10 … 32 V DC)
Data storage:	Min. 6 years, irrespective of battery status Graph recording mode: 2 kHz sampling rate, max. 2 s recording per event
Channel selection:	All acceleration measuring channels can be activated individually
Dimensions and weight:	180 x 106 x 37 mm / IP 65 / 800 g / aluminum sensor tube, dia. 17 mm, 80 mm long, max. 10 m cable
Data interfaces:	RS-232 port + USB-Adapter
Programming:	Sensitivity, and channel selection and frequency range for acceleration measurements; acceleration response threshold: 5 … 75 % of the measuring range; recording duration for acceleration-time graphs; time interval of temperature and humidity measurements and analog channel; up to three measurement periods; password protection; alarm thresholds

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