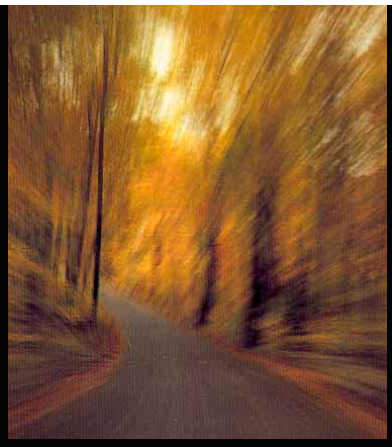
Universal electronic transport monitoring



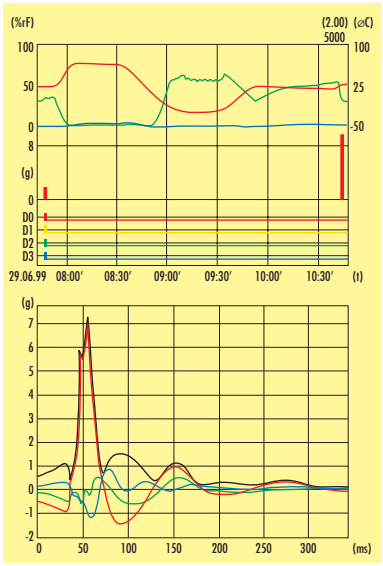
MONI LOG® EnDaL curve

- Measurement of shock, temperature, humidity, inclination, air pressure in variable combination
- Record the location coordinate
- Suitable for overseas shipment and optimization of packaging
- Long operation time
- Small, light-weight, robust unit and general-purpose accessories
- Specific device software

Universal electronic transport monitoring

MONI LOG® EnDaL curve

The EnDaL curve is a very **variable data logger** with sensors to measure and record mechanical shocks, temperature and humidity over an extended period. Any **other sensors** can be connected for an **optimal combination** for the measurement of air pressure, stack pressure, inclination etc. In addition for max. 20 events recorded with their absolute peak values of acceleration, the **time curves** are also recorded.
The **frequencies** of these curves can be **analysed** with an external program.
The data are transferred to a **PC** via the **RS-232 interface**. A second RS-232 interface allows the connection of a **GPS receiver** so that the **location** of each event and the shipment route can be recorded. The **software** supplied with the instrument provides the necessary functions to program the instrument and to evaluate the recorded data.



Technical data

Parameters:	Acceleration (a) in three dimensions (x,y,z), Temperature (T), relative humidity (% r.h.) Other sensors can be connected to analogue and digital outputs
Measuring ranges:	Acceleration: 2, 5, 10, 20, 50, 100 or 200 g or 100, 200, 500, 1 000, 2 000 pC, (selectable) Temperature: –40 ... +75 °C, Humidity: 0 ... 100 % r.h., Analogue channel 0 ... 2.5 V, Digital channel (4 inputs) Low: 0 ... 0.8 V High: 2.4 ... 12 V
Stored values:	16 384 values for acceleration, 16 000 values for temperature and humidity each 10 or 20 acceleration-time curves parallel to events, 4096 digital events
Analogue input filter:	0.2 to 16 – 1 000 Hz selectable / 4h order Bessel filter
Acceleration sensor:	Internal 3-axis piezoelectric sensor and/or up to 3 external sensors connected to charge amplifier input programmable sensitivity of charge amplifier
Temperature sensor:	Internal or external in sensor tube
Humidity sensor:	Capacitive polymer sensor in sensor tube together with temperature sensor
Operating time:	Rechargeable NiCd battery 1 000 h, Rechargeable NiMh battery 1 500 h, Alkaline battery 2 500 h, Lithium battery 2 500 h; the instrument can be supplied by an external alkaline battery pack or by vehicle voltage 10 to 32 VDC
Data preservation:	Min. 5 years, irrespective of state of battery
Graph recording mode:	Sampling rate 2 kHz, recording length max. 2 s per event
Channel selection:	Each acceleration measuring channel can be activated individually
Case / Weight:	180 x 106 x 37 mm / IP 65 / 800 g / aluminium Sensor tube: Ø 17 mm, 80 mm long, max. 10 m cable
Data interface:	RS-232 port, GPS receiver port
Programming:	Sensitivity, channel selection and frequency range of acceleration measurements; response threshold of acceleration: 10 – 75 % of measuring range; storage mode; recording time and channel selection in graph recording mode; time interval of temperature and humidity measure ments and digital channels; up to 3 measurement periods; password protection; alarm thresholds

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