

Highly accurate digital reference pressure gauge LR-Cal TLDMM-3.0

The LR-Cal TLDMM-3.0 is a professional digital pressure pressure meter manufactured with the most modern technologies to ensure a high degree of reliability, versatility and practicality. A monolithic sensor made of stainless steel, which can also withstand very dynamic pressures and a robust housing made of painted, reinforced technopolymer guarantee great robustness and high long-term stability.

The device was developed for use in metrological laboratories, calibration systems, in automation technology in general and in process control, where it is also necessary, for example, to monitor, record and transmit data.

During the production cycle, the LR-Cal TLDMM-3.0 is calibrated and supplied with a DAkkS-approved ACCREDIA certificate to guarantee a measurement uncertainty of better than 0.025% or 0.05% in 30 different pressure ranges, gauge pressure, including manovacuum ranges, and absolute pressure.

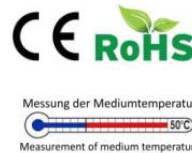
With the LR-Cal TLDMM-3.0 it is possible to simultaneously measure the pressure generated by air, gas, oil, water or any other type of non-corrosive liquid and the temperature of the pressurized medium.

The LR-Cal TLDMM-3.0 is powered by an internal, rechargeable lithium-ion battery with up to 50 hours of continuous operation (without backlight). To charge the battery, you can use the USB port with the 5 VDC power supply or connect the device directly to the USB port of a PC. For continuous operation, the pressure gauge can be supplied with power via the USB port. For industrial applications, it is optionally possible to use an external power supply from 12 to 24 VDC (device then without built-in battery).

In the programming menu, which is accessible via the keypad, the behavior of the device can be adapted by setting various functions, such as DIGITAL FILTER, which makes it possible to keep the measured value display stable even with discontinuous pressures, resolution, unit of measurement, automatic switch-off, etc. ...

A positive and negative PEAK function (peak value) can be set via the keypad in order to record the maximum and minimum pressures determined during a test. There is a bar graph on the display, which is also always active in the programming menu.

For easier installation and better readability, the display can be aligned by up to 90°. The optional WIRELESS function is used for wireless transmission of measured values in a network of up to 32 devices. A communication protocol for the user's own PC software is available on request.



Rel. 20250901

Accuracies and pressure ranges:

Accuracy	optional with Code TLDMM-3.0-KL002 :	standard:	Standard:
Linearity + hysteresis	±0.025% FS	±0.05% FS	±0.1% FS
Relativdruck-Bereiche (Zero at ambient air pressure)	-/-	0...100 mbar	-/-
	-/-	0...250 mbar	-/-
	-/-	0...500 mbar	-/-
	-/-	0...1 bar	-/-
	-/-	0...2.5 bar	-/-
	0...5 bar	0...5 bar	-/-
	0...10 bar	0...10 bar	-/-
	0...20 bar	0...20 bar	-/-
	0...50 bar	0...50 bar	-/-
	0...100 bar	0...100 bar	-/-
	0...250 bar	0...250 bar	-/-
	0...350 bar	0...350 bar	-/-
	0...500 bar	0...500 bar	-/-
	0...700 bar	0...700 bar	-/-
	0...1,000 bar	0...1,000 bar	-/-
	0...1,500 bar	0...1,500 bar	-/-
	0...2,000 bar	0...2,000 bar	-/-
	-/-	-/-	0...2,500 bar
	-/-	-/-	0...3,000 bar
	Compound ranges (Zero at ambient air pressure)	-/-	-1...+1 bar
-/-		-1...+2.5 bar	-/-
-1...+5 bar		-1...+5 bar	-/-
-1...+10 bar		-1...+10 bar	-/-
-1...+20 bar		-1...+20 bar	-/-
-1...+40 bar		-1...+40 bar	-/-
-1...+60 bar		-1...+60 bar	-/-
Absolute pressure (Zero at absolute vacuum)	-/-	0...1 bar abs.	-/-
	-/-	0...2.5 bar abs.	-/-
	-/-	0...5 bar abs.	-/-
	-/-	0...10 bar abs.	-/-
Operating temperature	+15...+30°C	0...+50°C	
Storage temperature	-10...+60°C		

The standard measuring accuracy of the LR-Cal TLDMM-3.0 is $\pm 0.05\%$ of full scale for all measuring ranges up to and including 0...2,000 bar. For the measuring ranges 0...2,500 bar and 0...3,000 bar, the standard measuring accuracy is $\pm 0.1\%$ of full scale.

If the option item no. **TLDMM-3.0-KL002** is also ordered, the measuring accuracy is doubled to $\pm 0.025\%$ of full scale. This option is available for all gauge pressure and compound measuring ranges from 0...5 bar to 0...2,000 bar and from -1...+5 bar to -1...+60 bar.

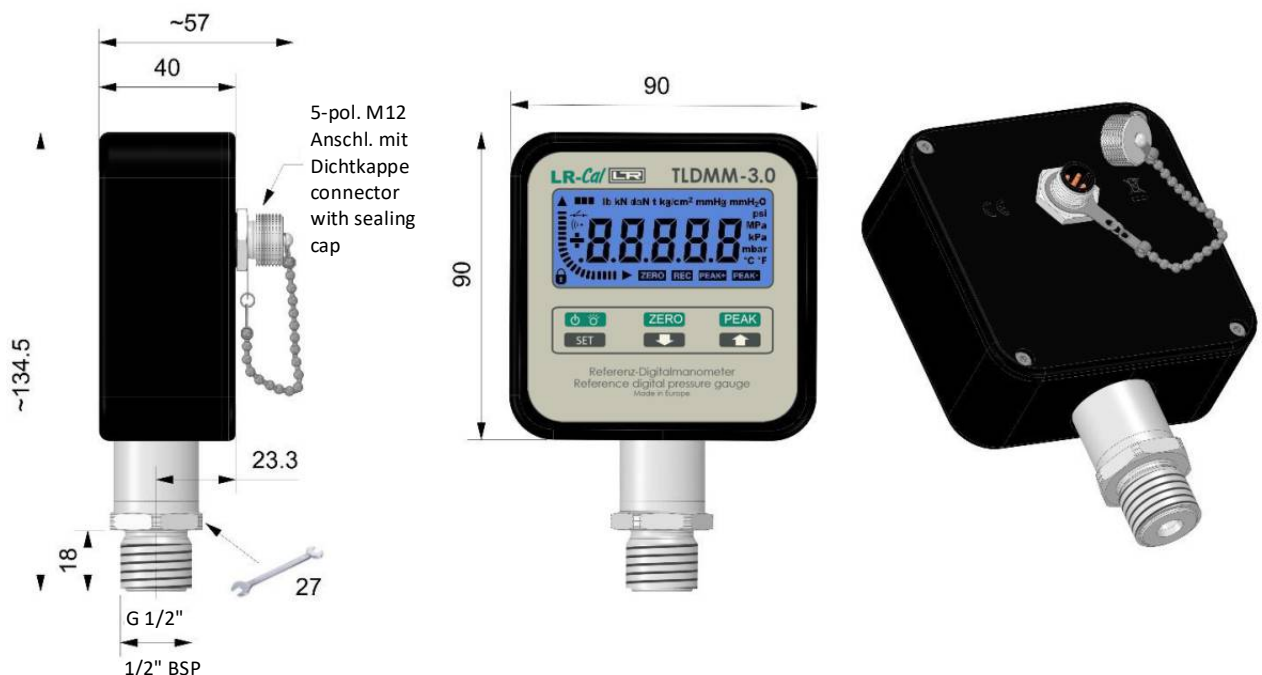
For all absolute pressure measuring ranges and the gauge pressure measuring ranges 0...2,500 bar and 0...3,000 bar, an acceptance test certificate in accordance with DIN EN 10204 is supplied as standard instead of a DAkkS-approved ACCREDIA certificate (ISO 17025).

Technical data:

Permitted air humidity:	<90% non-condensing
Pressure units:	bar, mbar, psi, MPa, kPa, kg/cm ² , mHg, mmHg, mmH ₂ O, mH ₂ O
Temperature measurement (medium temperature)	Resolution: 0.1°C Accuracy: $\pm 1^\circ\text{C}$
Temperature units:	°C, °F
Temperature effect (1°C):	at zero point $\leq \pm 0.002\%$ sensitivity $\leq \pm 0.002\%$
Internal resolution:	24 bit
Response time:	100 ms (10 measurements per second)
Display:	7-segment LCD
Digit height:	13 mm
Resolution:	1, 2, 5, 10 digits adjustable
Digital filter function:	from 0 to 5 adjustable
Zeroing function:	can be activated from 0...100% of the full scale value
Peak function:	positive and negative
Indication toggle function:	continuous change between pressure and temperature display
Menu lock function:	programmable protection
Interface:	USB 2.0 (cable length max. 5 m)
Power supply: *)	1 internal Lithium-Ion battery 3.7 V, 2000 mA/h
Continuity:	50 hours of continuous operation (without display backlight)
Battery charging:	via USB interface, 5 VDC
External supply:	via USB interface, 5 VDC
Pressure port:	1/2" BSP male (others as option)
Sealing:	up to 1,000 bar USIT A 63-18, from 1,500 bar sealing cone
Width across flats:	Open-end wrench 27 mm
Tightening torque:	28 Nm
Protection class (EN 60529) (only bottom connection)	IP 65 with cable connected to USB port or when cover cap is screwd onto USB port
Material pressure sensor:	Stainless steel 17-4 PH (INOX)
Material housing:	Glass fiber reinforced technopolymer

*) When not in use, we recommend charging the device at lease once every 6 month to protect the battery from becoming fully discharged.

Dimensions standard version (direct mounting, radial bottom connection):

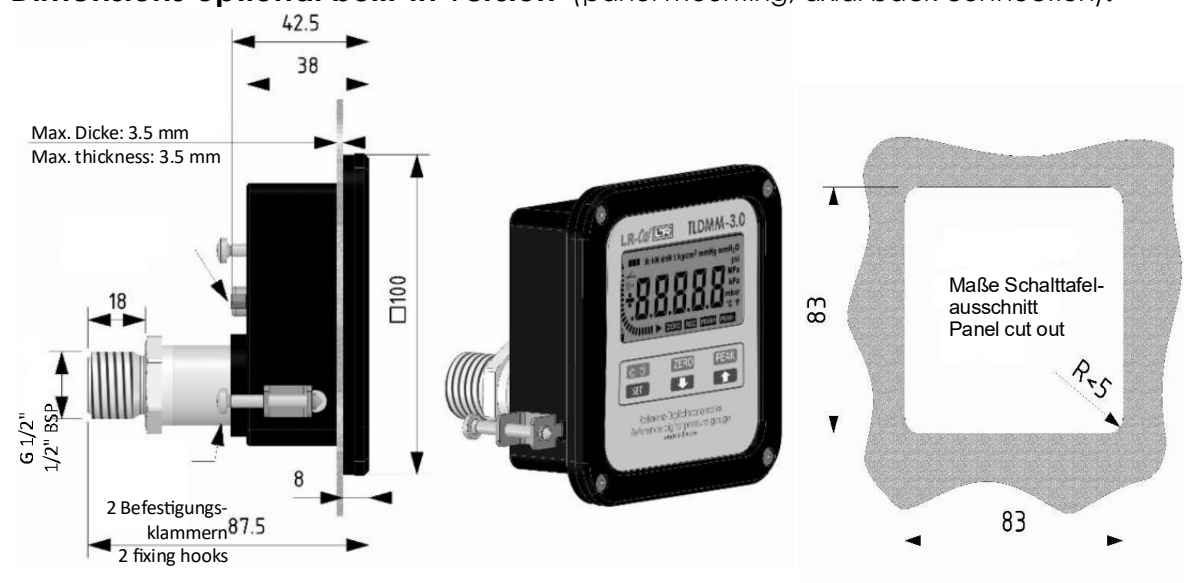


TLDMM-3.0

Digital reference pressure gauge
Accuracy $\pm 0.025/\pm 0.05\%$ FS



Dimensions optional built-in version (panel mounting, axial back connection):



Order-Codes and indications

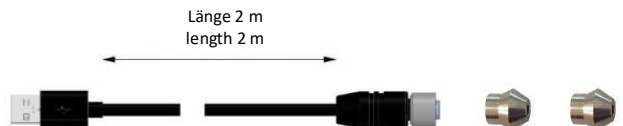
Order-Code	Pressure range	bar		mbar		psi		Mpa	
		Ind.	Res.	Ind.	Res.	Ind.	Res.	Ind.	Res.
gauge pressure									
TLDMM-3.0-8010	0...100 mbar	0.1000	0.0001	100.00	0.01	1.450	0.002	0.0100	0.0001
TLDMM-3.0-8025	0...250 mbar	0.2500	0.0001	250.00	0.05	3.620	0.002	0.0250	0.0001
TLDMM-3.0-8050	0...500 mbar	0.5000	0.0001	500.00	0.05	7.200	0.002	0.0500	0.0001
TLDMM-3.0-0001	0...1 bar	1.0000	0.0001	1000.0	0.1	14.500	0.002	0.1000	0.0001
TLDMM-3.0-0002	0...2.5 bar	2.5000	0.0005	2500.0	0.5	36.200	0.005	0.2500	0.0001
TLDMM-3.0-0005	0...5 bar	5.0000	0.0005	5000.0	0.5	72.500	0.010	0.5000	0.0001
TLDMM-3.0-0010	0...10 bar	10.000	0.001	10000	1	145.00	0.02	1.0000	0.0001
TLDMM-3.0-0020	0...20 bar	20.000	0.002	20000	2	290.00	0.02	2.0000	0.0002
TLDMM-3.0-0050	0...50 bar	50.000	0.005	50000	5	725.00	0.10	5.0000	0.0005
TLDMM-3.0-0100	0...100 bar	100.00	0.01	99900	10	1450.0	0.2	10.000	0.001
TLDMM-3.0-0250	0...250 bar	250.00	0.02	99900	20	3620.0	0.5	25.000	0.002
TLDMM-3.0-0350	0...350 bar	350.00	0.05	99900	50	5000.0	0.5	35.000	0.005
TLDMM-3.0-0500	0...500 bar	500.00	0.05	99900	50	7250.0	0.2	50.000	0.005
TLDMM-3.0-0700	0...700 bar	700.00	0.05	99900	50	10000	0.2	70.000	0.005
TLDMM-3.0-1000	0...1,000 bar	1000.0	0.1	99000	100	14500	2	100.00	0.01
TLDMM-3.0-1500	0...1,500 bar	1500.0	0.2	99000	200	21700	5	150.00	0.02
TLDMM-3.0-2000	0...2,000 bar	2000.0	0.2	99000	200	29000	5	200.00	0.02
TLDMM-3.0-2500	0...2,500 bar	2500.0	0.2	99000	200	36250	5	250.00	0.02
TLDMM-3.0-3000	0...3,000 bar	3000.0	0.2	99000	200	43500	5	300.00	0.02
compound pressure									
TLDMM-3.0-1001	-1...+1 bar	1.0000	0.0001	1000.0	0.1	14.500	0.002	0.1000	0.0001
TLDMM-3.0-1002	-1...+2,5 bar	2.5000	0.0005	2500.0	0.5	36.200	0.005	0.2500	0.0001
TLDMM-3.0-1005	-1...+5 bar	5.0000	0.0005	5000.0	0.5	72.500	0.010	0.5000	0.0001
TLDMM-3.0-1010	-1...+10 bar	10.000	0.001	10000	1	145.00	0.02	1.0000	0.0001
TLDMM-3.0-1020	-1...+20 bar	20.000	0.002	20000	2	290.00	0.02	2.0000	0.0002
TLDMM-3.0-1040	-1...+40 bar	50.000	0.005	50000	5	725.00	0.10	5.0000	0.0005
TLDMM-3.0-1060	-1...+60 bar	50.000	0.005	50000	5	725.00	0.10	5.0000	0.0005
absolute pressure									
TLDMM-3.0-001A	0...1 bar *)	1.0000	0.0001	1000.0	0.1	14.500	0.002	0.1000	0.0001
TLDMM-3.0-002A	0...2.5 bar *)	2.5000	0.0005	2500.0	0.5	36.200	0.005	0.2500	0.0001
TLDMM-3.0-005A	0...5 bar *)	5.0000	0.0005	5000.0	0.5	72.500	0.010	0.5000	0.0001
TLDMM-3.0-010A	0...10 bar *)	10.000	0.001	10000	1	145.00	0.02	1.0000	0.0001

Device components:


- (1) Manufacturer logo
- (2) Device type
- (3) Display
- (4) Keypad
- (5) Nominal pressure in bar, serial number and CE sign
- (6) Pressure port (standard: 1/2" BSP), 90° rotatable for adjusting the display (optimal orientation)
- (7) 5-pole M12 socket with IP 65 protection, use for charging, USB- or optional Rs232 port or for external power supply. The socket must be fitted with the protective cap if not in use


Scope of delivery standard version (direct mounting, radial bottom connection):

- Digital reference pressure gauge LR-Cal TLDMM-3.0 with standard accuracy
- DAkkS approved ACCREDIA certificate (except absolute pressure and ranges 0...2,500/3,000 bar) (5 test points at increasing and decreasing pressure, with 2 repetition cycles at 50% FS)
- USB plug-in power supply 5 VDC, 700 mA
- Special USB cable, 2 m length, USB-A / 5-pole M12
- Small case with foam insert
- Operating manual (german/english)
- At measuring ranges from 1,000 bar: 2 sealing cones



Scope of delivery optional build-in version (panel mounting, axial back connection):

- Digital reference pressure gauge LR-Cal TLDMM-3.0 with standard accuracy, with option code [TLDMM-3.0-EB](#) (built-in version)
- 2 mounting brackets
- DAkkS approved ACCREDIA certificate (except absolute ranges and ranges 0...2,500/3,000 bar) (5 test points at increasing and decreasing pressure with 2 repeating cycles at 50% FS)
- USB plug-in power supply 5 VDC, 700 mA
- Special USB cable, 2 m length, USB-A / USB-B
- Small case with foam insert
- Operating manual (german/english)
- At measuring ranges from 1,000 bar: 2 sealing cones



Options:

- Order-Code [TLDMM-3.0-KL002](#)
Accuracy $\pm 0.025\%$ (gauge pressure and compound pressure ranges 0...5 bar to 0...2,000 bar and -1...+5 bar to -1...+60 bar only, see page 2)
- Order-Code [TLDMM-3.0-DL](#)
Internal data logger with real time clock, max. 130,000 values (130,000 pressure values or 65,000 pressure + 65,000 temperature values, storing rate settable 1s...24h. Maximal data logger duration 365 days (for long durations of data logging it may be necessary to supply the instrument externally or recharge it periodically)
- Order-Code [TLDMM-3.0-WF](#)
WIRELESS data transmission 868 Mhz, internal antenna, 40 m max. distance in free space, max. 32 instruments per network.
- Order-Code [TLDMM-3.0-EB](#)
Built-in version for panel mounting, pressure port axial back
- Order-Code [TLDMM-3.0-ES](#)
For external power supply 12...24 VDC, without battery, power supply and USB cable
- Order-Code [MP-14-BSP](#)
Pressure port 1/4" BSP male
- Order-Code [MP-14-NPT](#)
Pressure port 1/4" NPT male
- Order-Code [MP-12-NPT](#)
Pressure port 1/2" NPT male
- Order-Code [TLDMM-3.0-RS232](#)
Rs232c communication interface (instead of USB. USB port here used for charging/powering only)

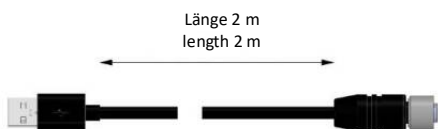
Accessories:

- Order-Code [TLDMM-3.0-GK](#)
Rubber protection cap, yellow
- Order-Code [VRS-G12](#)
Volume reducer (recommended if used as reference gauge with pneumatic pressure test pumps LR-Cal LPP 10, LR-Cal LPP 40 und LR-Cal LPP 60 as well as pneumatic pressure comparison pump LR-Cal LPP 60-T)
- Order-Code [PC-WIRELESS](#)
Wireless receiver for PC/Laptop (USB port)



Spare parts:


- Order-Code [LHM-LDM80-LADEGERÄT](#)
USB plug-in power supply 5 VDC, 700 mA



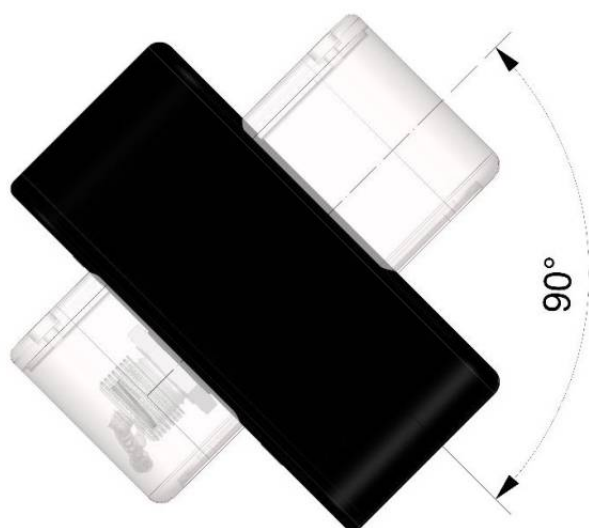
- Order-Code [TLDMM-3.0-USBM12](#)
Special USB cable, length 2 m, USB-A / 5-pole M12



- Order-Code [TLDMM-3.0-NT](#)
Plug-in power supply for version for external power supply (code TLDMM-3.0-ES)



- Order-Code [TLDMM-DK](#)
Sealing cone (spare for pressure ranges from 1,000 bar)

90° alignment of the display (only standard version, radial bottom connection):


Blickwinkel
viewing angle

The pressure connection of the standard version (radial bottom connection) can be rotated by max. 90° to optimally align the display according to your requirements.

This enables optimum reading of the displayed measured values.

Free software LR-Cal LDM-COM

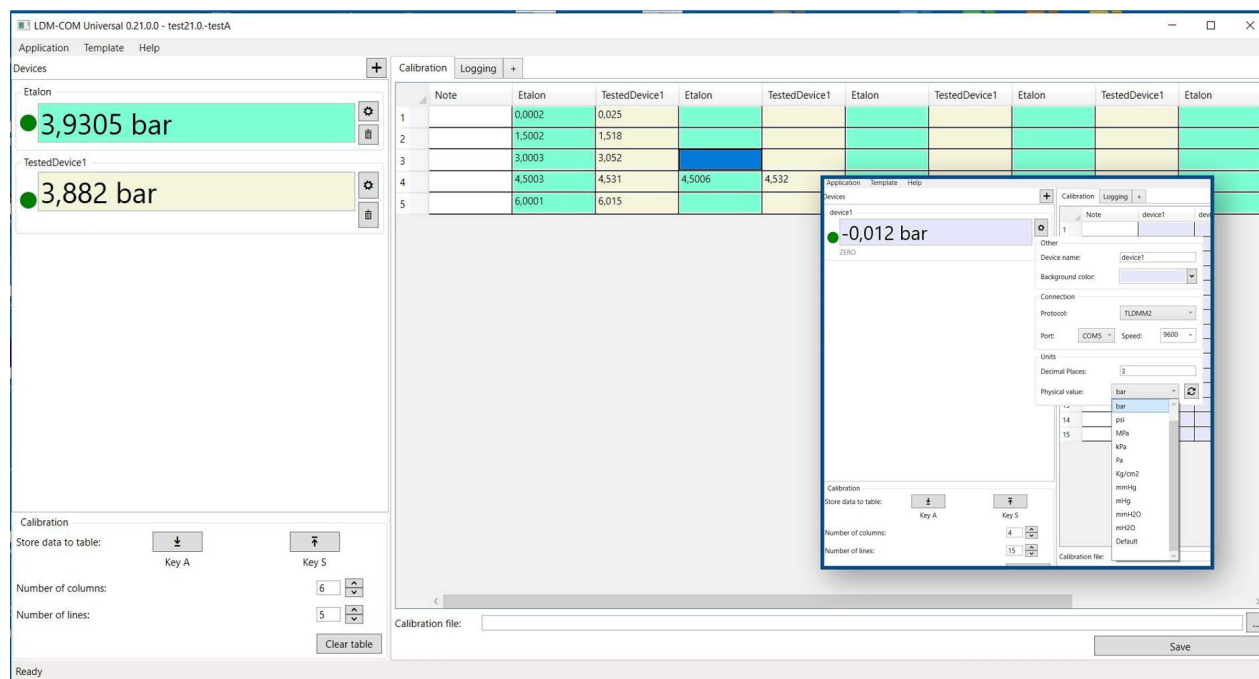
On our website we offer you a free software
(for Microsoft® Windows®) available for download.

<https://www.druck-temperatur.de/images/software/lm-com.zip>



The LR-Cal LDM-COM software offers you three operating modes:

- Calibration (calibration table)
Recording of the data measured during calibration of devices and storage in a data table.
- Data recording
Automatic recording of measured values (with date and time stamp) at an adjustable time interval.
- Read out memory (only for devices with optional data logger function)
Download data from the device's memory.



The data can be copied and pasted directly into spreadsheet software or saved as a comma-separated CSV file for further processing. For example, you can create a calibration certificate from the data in the calibration table.