

HIGH ACCURACY digital pressure reading instrument

Model: LR-Cal TLDMM 2.0

Accuracy $\pm 0.05\%$ FS, above 2,000 bar $\pm 0.1\%$ FS

Pressure ranges from 0...100 mbar to 0...3,000 bar

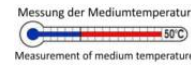
USB interface

Optional with data logging functionality

Measurement and indication of medium temperature

Always visible analogue bargraph pressure indication

Chargeable battery, easy charging via USB



The digital reference pressure gauge **LR-Cal TLDMM 2.0** is featured with an outstanding longterm stability. It is perfect for reference pressure measurements, for testing and calibration purposes.

Together with the portable pressure test pumps **LR-Cal LPP 40**, as well as **LR-Cal LPP 700** or **LR-Cal LPP 1000** it can be use mobile, on site. For higher pressure values we recommend our pressure comparison pumps **LR-Cal LSP**.

The **LR-Cal TLDMM 2.0** is powered by a rechargeable li-ion battery and is fitted with an USB interface. The instrument measures also the temperature of the pressure medium. A transit case, an USB charger and a DAkkS-approved ACCREDIA certificate (ranges $\geq 2,500$ bar and absolute pressure ranges: factory certificate) are included in standard delivery.

- Options:**
- Version for panel mounting with pressure port at the back side, additional order-code **TLDMM-2.0-EB**
 - With data logger functionality, additional order-code **TLDMM-2.0-DL**
 - Version for external power supply 12...24 VDC (instead of battery operation), additional order-code **TDLMM-2.0-ES**

Technical Data:






Accuracy (Linearity and Hysteresis)	$\leq \pm 0.05\%$ FS (ranges 2,500 bar and 3,000 bar: $\leq \pm 0.1\%$ FS)
Pressure ranges:	Gauge pressure, absolute pressure, compound ranges, see table on next page
Pressure units (selectable):	bar, mbar, psi, Mpa, kPa, kg/cm ² , mHg, mmHg, mmH ₂ O, mH ₂ O
Temperature units (selectable):	°C, °F
Resolution medium temperature display:	0.1°C
Accuracy medium temperature display:	$\pm 1^\circ\text{C}$
Reference temperature:	0...50°C
Operating temperature:	-10...+60°C
Relative humidity:	<90%, non-condensing
Temperature effect (1°C):	$\leq \pm 0.002\%$
Internal resolution:	24 bit
Conversions per second:	10 (100 ms)
Display:	7 segments, backlight, height 13 mm
Resolution pressure display:	1, 2, 5 or 10, settable
Function: digital filter	from 0 to 5, settable
Function: zero setting	100% FS
Function: PEAK	Positive and negative (vakuum) = MAX peak and MIN peak
Funktion: LOOP	Automatic switch between pressure and medium temperature indication
Funktion: Lock	Changement of parameters only after entering of password
Interface:	USB 2.0 (transmission on key press or continuously, settable)
Transmission rate:	10 values per second at continuous transmission
Maximal distance:	5 m
Power supply:	1 chargeable li-ion battery 3.6 V - 1800 mA/h
Autonomy:	50 hours continuously
Battery charging:	via USB interface (5 VDC)
Optional external power supply:	12...24 VDC
Pressure limit values:	Steady pressure 100% FS; pulsating/dynamic pressure 75% FS
Overpressure and burst pressure:	150% FS, burst pressure >300% FS
Pressure port:	1/2" BSP male, for ranges $\geq 1,000$ bar two sealing cones 60° are supplied Optional: 1/2" NPT male, for ranges up to 700 bar also 1/4" BSP male or 1/4" NPT male
Recommended sealing:	USIT A 63-18, for ranges ≥ 1000 bar use one of the supplied sealing cone 60°
Tightening torque:	28 Nm
Protection class (EN 60529):	IP 40
Materials:	Sensor/pressure port: stainless steel AISI 630; Housing: stainless steel AISI 304, black coated
OPTIONS:	Order-Code:
Data logger functionality:	TLDMM-2.0-DL Integr. real time clock; 130,000 pressure values or 65,000 pressure values plus 65,000 temperature values Settable storing rate (max. 1 s); max. recording duration: 10,000 h (it may be necessary to recharge the instrument)
Panel built-in version:	TLDMM-2.0-EB Glass-fiber reinforced technopolymer housing
External power supply:	TLDMM-2.0-ES No internal battery, supply from 12 to 24 VDC required

Order-Codes and Pressure Ranges:

Order-Code	Range	bar		mbar		psi		Mpa	
		Display	Resolut.	Display	Resolut.	Display	Resolut.	Display	Resolut.
Gauge Pressure									
TLDMM-2.0-8010	0...100 mbar	0.1000	0.0001	100.00	0.01	1450	0.002	0.0100	0.0001
TLDMM-2.0-8025	0...250 mbar	0.2500	0.0001	250.00	0.05	3620	0.002	0.0250	0.0001
TLDMM-2.0-8050	0...500 mbar	0.5000	0.0001	500.00	0.05	7200	0.002	0.0500	0.0001
TLDMM-2.0-0001	0...1 bar	10000	0.0001	1000.0	0.1	14500	0.002	0.1000	0.0001
TLDMM-2.0-0002	0...2.5 bar	25000	0.0005	2500.0	0.5	36200	0.005	0.2500	0.0001
TLDMM-2.0-0005	0...5 bar	50000	0.0005	5000.0	0.5	72500	0.010	0.5000	0.0001
TLDMM-2.0-0010	0...10 bar	10000	0.001	10000	1	145.00	0.02	10000	0.0001
TLDMM-2.0-0020	0...20 bar	20000	0.002	20000	2	290.00	0.02	20000	0.0002
TLDMM-2.0-0050	0...50 bar	50000	0.005	50000	5	725.00	0.10	50000	0.0005
TLDMM-2.0-0100	0...100 bar	100.00	0.01	99900	10	1450.0	0.2	10000	0.001
TLDMM-2.0-0250	0...250 bar	250.00	0.02	99900	20	3620.0	0.5	25000	0.002
TLDMM-2.0-0350	0...350 bar	350.00	0.05	99900	50	5000.0	0.5	35000	0.005
TLDMM-2.0-0500	0...500 bar	500.00	0.05	99900	50	7250.0	0.2	50000	0.005
TLDMM-2.0-0700	0...700 bar	700.00	0.05	99900	50	10000	0.2	70000	0.005
TLDMM-2.0-1000	0...1000 bar	1000.0	0.1	99000	100	14500	2	100.00	0.01
TLDMM-2.0-1500	0...1500 bar	1500.0	0.2	99000	200	21700	5	150.00	0.02
TLDMM-2.0-2000	0...2000 bar	2000.0	0.2	99000	200	29000	5	200.00	0.02
TLDMM-2.0-2500	0...2500 bar *)+**)	2500.0	0.2	99000	200	36250	5	250.00	0.02
TLDMM-2.0-3000	0...3000 bar *)+**)	3000.0	0.2	99000	200	43500	5	300.00	0.02
Compound Pressure									
TLDMM-2.0-1001	-1...+1 bar	10000	0.0001	1000.0	0.1	14500	0.002	0.1000	0.0001
TLDMM-2.0-1002	-1...+2.5 bar	25000	0.0005	2500.0	0.5	36200	0.005	0.2500	0.0001
TLDMM-2.0-1005	-1...+5 bar	50000	0.0005	5000.0	0.5	72500	0.010	0.5000	0.0001
TLDMM-2.0-1010	-1...+10 bar	10000	0.001	10000	1	145.00	0.02	10000	0.0001
TLDMM-2.0-1020	-1...+20 bar	20000	0.002	20000	2	290.00	0.02	20000	0.0002
TLDMM-2.0-1040	-1...+40 bar	50000	0.005	50000	5	725.00	0.10	50000	0.0005
TLDMM-2.0-1060	-1...+60 bar	50000	0.005	50000	5	725.00	0.10	50000	0.0005
Absolute Pressure									
TLDMM-2.0-001A	0...1 bar *)	10000	0.0001	1000.0	0.1	14500	0.002	0.1000	0.0001
TLDMM-2.0-002A	0...2.5 bar *)	25000	0.0005	2500.0	0.5	36200	0.005	0.2500	0.0001
TLDMM-2.0-005A	0...5 bar *)	50000	0.0005	5000.0	0.5	72500	0.010	0.5000	0.0001
TLDMM-2.0-010A	0...10 bar *)	10000	0.001	10000	1	145.00	0.02	10000	0.0001

*) with factory certificate instead of DAkkS-approved ACCREDIA certificate | **) $\pm 0.1\%$ FS instead of $\pm 0.05\%$ FS

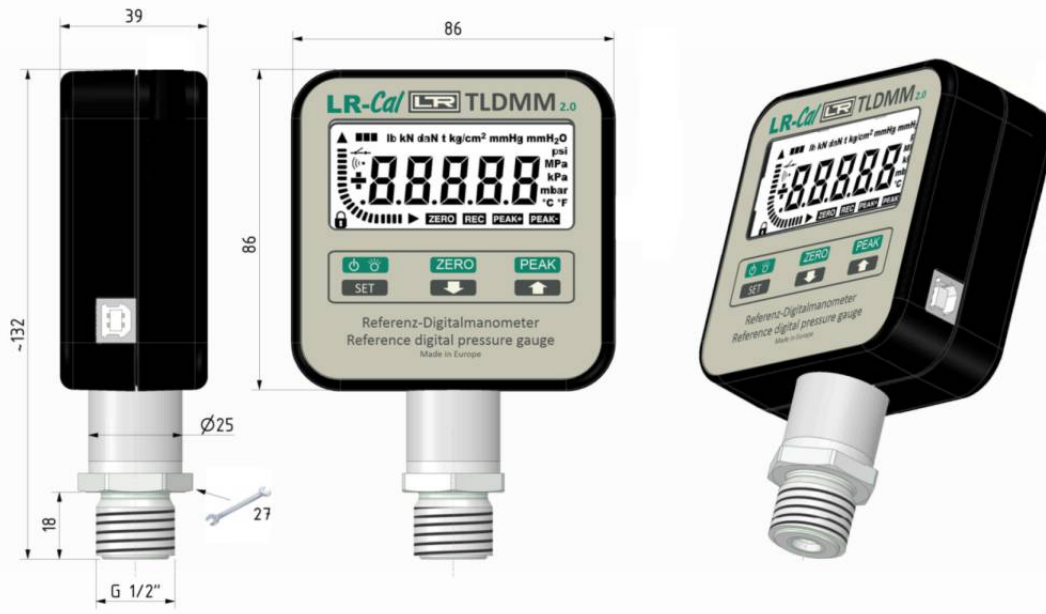
Scope of delivery:

- Instrument LR-Cal TLDMM 2.0 
- Transit case with foam insert 
- Operating manual
- DAkkS-approved ACCREDIA certificate (ranges from 2,500 bar and absolute pressure ranges: factory certificate)
- At pressure ranges 1,000 bar or higher: 2 sealing cones 60° 
- USB charger(5 VDC/700 mA) 
- USB cable 

Accessory (to be ordered separately):

- For version for external power supply:
External power supply 220 VAC to 12 VDC.
Order-Code: **TLDMM-2.0-NT** 
- For protection of the device:
yellow rubber protection cap
Order-Code: **LDM80-GK** 

Dimension:



Dimension of version for panel mounting:

Additional order-code: **TLDMM-2.0-EB** (Glass-fiber reinforced technopolymer housing)



Ordering examples:

0...100 bar, standard version:

No.: **TLDMM-2.0-0100**

0...100 bar, with data logging functionality:

No.: **TLDMM-2.0-0100 + TLDMM-2.0-DL**

0...100 bar, for external power supply:

No.: **TLDMM-2.0-0100 + TLDMM-2.0-ES**

0...100 bar, for panel mounting, for ext. power supply:

No.: **TLDMM-2.0-0100 + TLDMM-2.0-EB + TLDMM-2.0-ES**

0...100 bar, with data logging, for panel mounting:

No.: **TLDMM-2.0-0100 + TLDMM-2.0-DL + TLDMM-2.0-EB**

For process connection other than 1/2" BSP male, one of the following order-codes must be ordered separately:

Order-Code **MP-12-NPT**: 1/2" NPT male (for all pressure ranges available)

Order-Code **MP-14-BSP**: 1/4" BSP male, only for pressure ranges up to 700 bar

Order-Code **MP-14-NPT**: 1/4" NPT male, only for pressure ranges up to 700 bar