



LEO1

Digital gauge and peak value detection

Features

- High accuracy
- Insulated and encapsulated piezoresistive pressure sensor
- Energy-efficient: up to 1000 hours of battery life
- Perfect for recording rapid pressure spikes
- Optional: Intrinsically safe version LEO1-Ei available for use in hazardous environments

Functions

- Wide range of pressure units to choose from
- Zero point calibration via buttons
- Automatic shutdown
- Min./max. display
- Switchable between standard measurement mode (2 Hz) and rapid measurement mode (5 kHz)

Typical applications

- HVAC service device
- Fluid technology
- Pump applications
- Detecting pressure spikes or surges in systems
- Actual value display for calibration pump



Accuracy

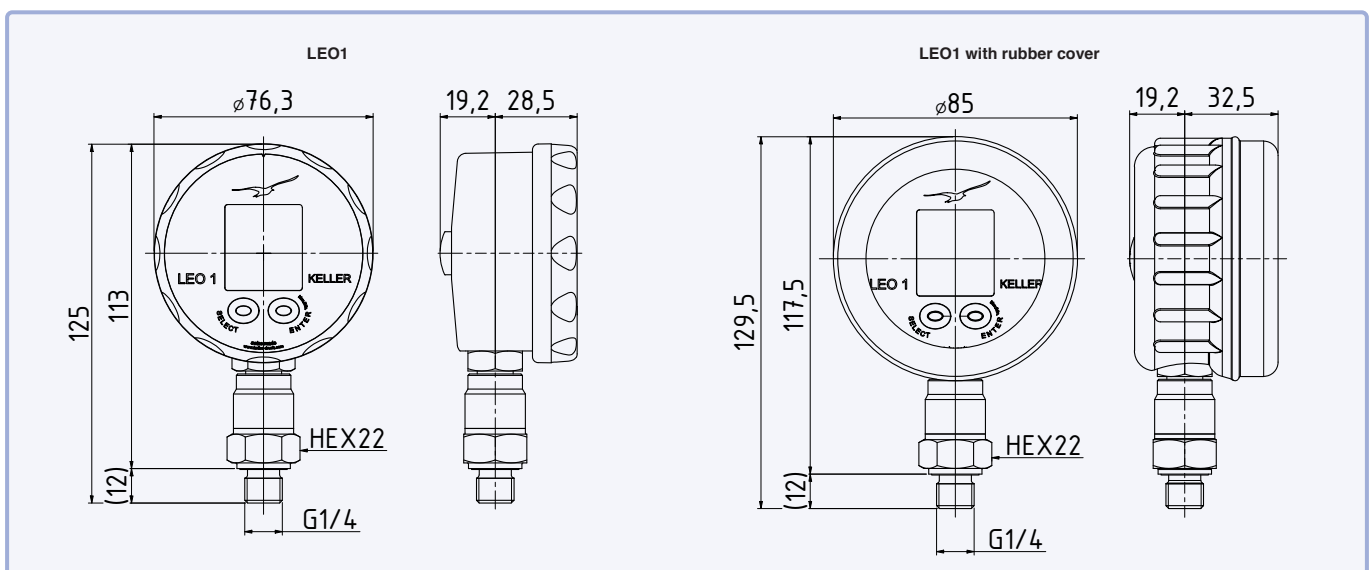
± 0,1 %FS

Total error band

± 0,2 %FS

Pressure ranges

-1...3 bar to 0...1000 bar





LEO1 – Specifications

Standard pressure ranges

Relative pressure PR	Absolute pressure PAA	Absolute pressure PA	Proof pressure	Display resolution (LC)
-1...3	0...4		12	0,001
-1...10	0...11		30	0,002
-1...30	0...31		90	0,01
	0...61		180	
	0...101		300	0,2
		0...300	600	0,1
		0...700	1200	0,2
		0...1000	1200	0,2
bar rel.	bar abs.	bar abs.	bar	bar
Reference pressure at atmospheric pressure	Reference pressure at 0 bar abs. (vacuum)	Reference pressure at 1 bar abs.	Relating to reference pressure	

Performance

Pressure

Accuracy @ RT (20...25°C)	$\leq \pm 0,1$ %FS	Non-linearity (best fit straight line, BFSL), pressure hysteresis, non-repeatability, zero point deviation and amplification deviation
Total error band (0...50°C)	$\leq \pm 0,2$ %FS	Maximum deviation within the specified pressure and temperature range Experience shows that, outside the compensated temperature range, the total error band in the ambient temperature range is expanded by 0,1 %FS.
Compensated temperature range	0...50°C	
Long term stability	$\pm 0,2$ %FS	Per year under reference conditions, yearly recalibration recommended
Position dependency	$\leq \pm 1,5$ mbar	Calibrated in vertical installation position with pressure connection facing downwards
Pressure range reserve	$\geq \pm 10\%$	Valid measured values outside the pressure range, no overflow/underflow

Electrical data

Battery	3V, type CR2430	Only CR2430 from Renata permitted for hazardous application areas
Battery life	Up to 1000 hours	Continuous use, mano mode
	Up to 150 hours	Continuous use, peak mode

Electromagnetic compatibility

CE conformity as per 2014/30/EU (EMC)	EN 61326-1 / EN 61326-2-3 / EN 61000-6-1 / EN 61000-6-2 / EN 61000-6-3 / EN 61000-6-4
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LEO1 – Specifications

LC display

Dimensions/appearance	Width x height: 27,8 mm x 30 mm (see Dimensions and options)
Number of digits on LC display	2 rows with 4 1/2 digits each
Display mode	Pressure + min./max.
Measuring rate (mano mode)	2 samples per second (SPS)
Measuring rate (peak mode)	5000 SPS (display rate 0,5 Hz)
Configurable pressure units	bar, mbar, hPa, kPa, MPa, PSI, kp/cm ²

Mechanical data

Materials in contact with media

Pressure connection	Stainless steel AISI 316L	Others on request
Pressure transducer diaphragm	Stainless steel AISI 316L	
Pressure transducer seal (internal)	None	
Pressure connection seal (external)	FKM (75 Shore, -20...200°C)	Others on request

Other materials

Display housing	Faradex AS-1003	
Front glass	LEXAN® 163R	
Pressure transducer oil filling	Silicone oil	Others on request

Further details

Pressure connection	G1/4 male	See Dimensions and options
	1/4 NPT male	
Diameter x height x depth	76 mm x 118 mm x 42 mm	
Weight	approx. 220 g	
Protection	IP65	

Environmental conditions

Media temperature	-40...85°C	Icing not permitted	
Ambient temperature	-10...60°C		
Storage temperature	-20...70°C		
Vibration resistance	10 g, 10...2000 Hz, ± 10 mm	IEC 60068-2-6	
Shock resistance	50 g, 11 ms	IEC 60068-2-27	
Load cycles @ RT (20...25°C)	> 10 million pressure cycles	0...100 %FS	For pressures > 600 bar on request
Note	Readability of the LC display is guaranteed between 10°C and 50°C Outside this range it may be limited		

Explosion protection

LEO1-Ei

Intrinsically safe version LEO1-Ei in accordance with 2014/34/EU (ATEX) and IECEx	LCIE 01 ATEX 6001 X IECEx LCIE 18.0035 X Zone 0: Ex II 1G Ex ia IIC T5 Ga	The intrinsically safe version may only be operated using the CR2430 battery from RENATA Max. permitted ambient temperature range -10...80°C
Note	The conditions for safe use can be found in the operating instructions	



LEO1 – Dimensions and options

LC display

Front cover	Content	Dimensions
		Width x height: 27,8 mm x 30,0 mm Digit size: top: 8 mm x 3 mm bottom: 7 mm x 3 mm

Available pressure connections

G1/4	1/4-18NPT
DIN EN ISO 1179-2	ASME/ANSI B 120.1

Other pressure connections available on request.

Other customer-specific options

- Other compensated pressure ranges
- Other compensated temperature ranges
- Parts that come into contact with media made from Hastelloy C-276, Inconel 718 or titanium
- Customer-specific front covers
- Customer-specific firmware (e.g. application-specific calculations or leak measurement)
- Other pressure units can be configured ex works



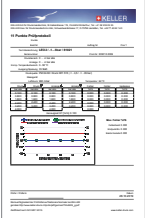



LEO1 – Scope of delivery and accessories

Scope of delivery

Plastic case	CR2430 battery	Operating instructions D/E/F
		

Accessories

Rubber cover	KELLER 5-point report	KELLER 11-point report	Calibration certificate
			
For additional protection in harsh environments	Deviation at room temperature	Deviation at room temperature with hysteresis	Issued by the external calibration laboratory of the German accreditation body DAkkS or the Swiss accreditation body SAS