

DIGITAL MANOMETER FOR TANK CONTENT DISPLAY

FOR VENTILATED OR PRESSURISED TANKS

LEO 5 CA offers a user-friendly way to represent the pressure measurement at the bottom of a tank as the quantity of remaining liquid. At the push of a button, the micro-controller performs the calculations using the information of the tank shape and dimensions and displays the remaining tank content quantity on the clearly legible 5-digit LED display in the desired unit (litres, gallons etc.).

The unit is configured using a PC and the easy-to-use software so that the filling level, which determines the pressure, can be converted into an appropriate filling quantity. First the tank shape is selected, then the tank dimensions and the specific gravity of the liquid are entered. It contains the most current tank shapes. The program covers the most common tank shapes, but also enables any shape by entering the parameters into a specified table.

The exclusive use of absolute pressure sensors in the LEO 5 CA system eliminates the use of capillary vented cables with all the problems associated with a gauge pressure measurement. The LEO 5 CA housing integrates an air pressure sensor, ranged between 0,8 bar and 1,2 bar absolute. The sensors to measure the hydrostatic pressure at the bottom of the tank are calibrated from 0,8 to 1,8 bar abs for tanks up to 5 m in height, and 0,8 to 2,3 bar abs for tanks up to 10 m in height. The pressure difference, calculated by the micro-controller, is the relative hydrostatic pressure.

The content of a pressurised tank is determined using the difference between the measurements from two absolute pressure sensors located at the top and bottom of the tank.

An accuracy of the system of up to 2 mbar (corresponding to a 2 cm water column) is achieved using a computerised calibration and compensation procedure for the pressure sensors.

LEO 5 CA makes it possible to connect various pressure probe transmitter versions (with thread, front-flush with flange, or submersible sensors).

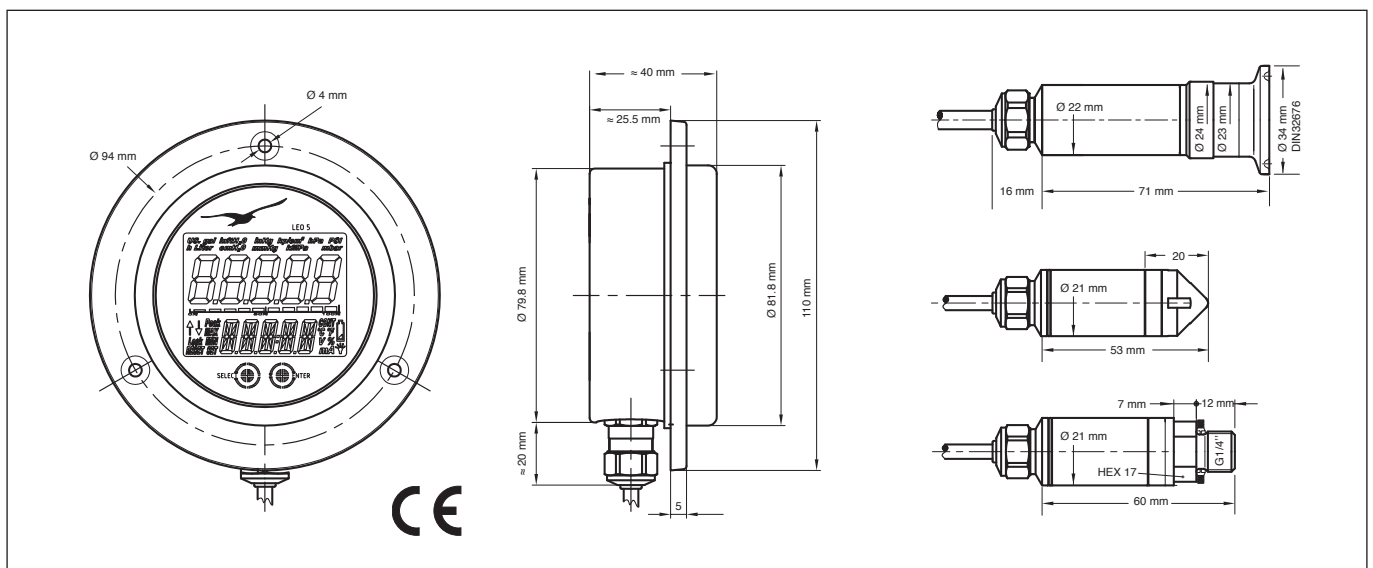
The power supply to the system (8 to 28 V) can be provided externally or internally from an accumulator or a battery. The display is obtained by pressing the button on the front, and the value appears for a configurable duration. The LEO 5 CA has two switch outputs with configurable functionality and threshold values. The device must be supplied externally if the switch outputs are used.



LEO 5 CA with and without mounting ring



A variety of pressure probes for connection to the LEO 5 CA



Subject to alterations

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Specifications for LEO 5 CA

Measuring / Pressure Ranges 5 m tank level (10 m standard cable): Range 0,8...1,8 bar abs.
10 m tank level (15 m standard cable): Range 0,8...2,3 bar abs.

Supply	Accumulator (optional: 9 V battery) Charging via USB.	Indicator	LCD, 5 digits
Accumulator charge	> 10'000 measurements with display for 10 sec.	Resolution	Min. 10'000 Points
Configuration interface	USB	Gauge Housing Material	Stainless Steel AISI 316L ¹⁾
Data Interface (optional)	RS-485	Level Probe Material	Stainless Steel AISI 316L ¹⁾
	<u>Level Probe</u>	Probe Protection	IP 68
	<u>Air Pressure Probe</u>	Indicator Protection	IP 67
Temperature Range	0...50 °C ¹⁾		
Total Error Band	≤ 2 mbar (1,8 bar range)		
	≤ 3 mbar (2,3 bar range)		
Overpressure	2 x Nominal Range		

¹⁾ Others by request

Installation

The LEO 5 CA is installed with the help of the front ring, which is available as an option. To install the probe, open the cover of the device, feed the cables through the screwed joints and connect the sensor cable to the device.

The LEO 5 CA is programmed via the interface (USB).

The LEO 5 CA is also designed for applications where there is a distance between the tank base and the position of the pressure sensor (e.g. water towers).

Functions and features

- LCD backlighting
- Easy-to-read 5-digit LCD thanks to digit height of 16 mm and bar graph
- Ideal choice for the toughest operating conditions thanks to the robust and waterproof stainless steel housing with its safety glass front
- Operation by „capacitive touch“ button
- For AA measurements: barometric sensor in the manometer housing
- Battery or accumulator operation, charging via USB interface

Options

- Custom software (Software update via serial interface)
- Radio interface (Bluetooth) for measurements in inaccessible locations with transmission to PC and recording on PC
- RS485 BUS interface
- Record function / recording of pressure and temperature
- Analog outputs 4...20 mA or 0...10 V
- 2 switching outputs: PNP 0,5 A
- External supply (8...28 VDC)
- Customized front cover

Configuration PC-Software

The software to configure LEO 5 CA can be downloaded from our website or ordered on CD for a handling charge. LEO 5 CA can be connected to the PC via a USB cable.

The software contains the pressure/content curves of the featured tanks. The dimensions of the tank of a certain shape and the specific gravity of the liquid is entered and the measurement unit for the display chosen.

