KELLER

Tank Contents Measurement System

Castello

FOR ALL TANKS SHAPES AND SIZES

Castello… is a device to measure and display digitally the liquid content of any tank.
Castello… comprises an electronics enclosure and a pressure transmitter for level measurement.
Castello… adapts to unlimited tank shapes and sizes, offers high accuracy.
Castello… is fully waterproof whilst providing measurement relative to atmospheric pressure.
Castello… can be used as digital display for any 3-wire voltage output transmitter.

CA1

The electronic based micro-processor (µP) in the enclosure, energized by a battery, converts the analog signal of the transmitter into a digital value. The µP stores the pressure versus content curve of the tank, and indicates on the 14 mm high LED display the content of the tank in the desired unit, i.e. gallons or liters. The battery lasts for 6000 readings of 5 seconds each.

To make this calculation, the µP must first retrieve from the transmitter the information as to which pressure range the signal output corresponds. This information is stored in an EEPROM on the print of the transmitter. Each time the instrument is turned on, the µP first reads this information from the EEPROM. Further, it reads out the coefficients for a mathematical compensation method for the temperature, linearity and adjustment errors. For indicating the content, the µP first executes this error compensation calculation and deducts the atmospheric air pressure. Taking this accurate pressure value, the µP utilises the pressure/content curve of the tank to calculate and then display the content.

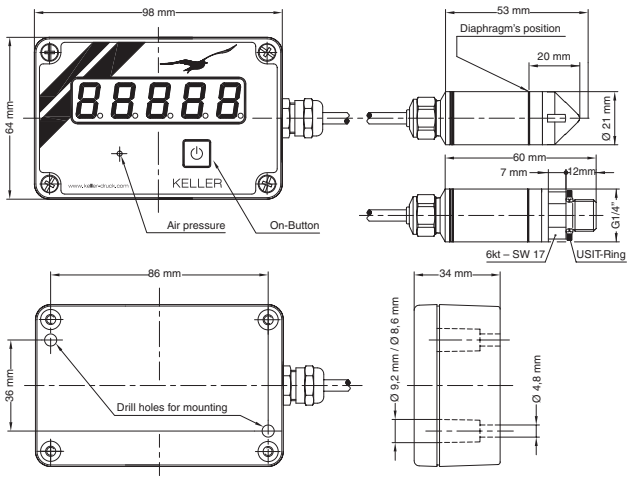
The atmospheric pressure is measured by a sensor mounted in the enclosure with the waterproof diaphragm exposed to the ambient. This method eliminates the need for capillary tubes, susceptible to water clogging, and makes the system waterproof.

The aluminum enclosure comes with two assembly holes for mounting (see drawing). The transmitter cable, cut to the required length, is let into the enclosure through a waterproof cable inlet (PG). The transmitter wires are screwed in marked electrical terminals, mounted on the print. On this print there is also a connector for the programming of the electronics with a PC.

Series 23 Y

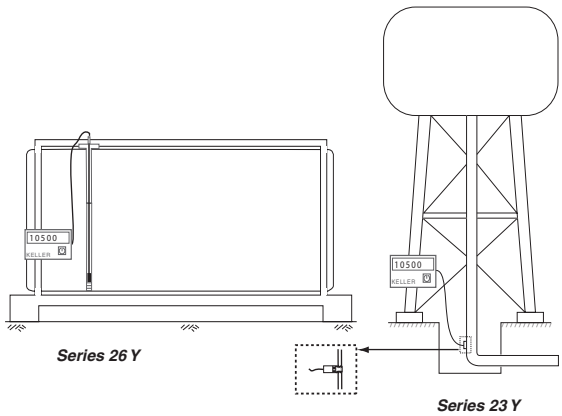
Series 26 Y

If standard voltage output transmitters without the signal versus pressure range information are used, the electronics can run a fixed programme for a specific transmitter. Accuracy is then defined by the accuracy of the transmitter.



Bottom View Side View

Mounting Options



Subject to alterations 11/06

KELLER AG für Druckmesstechnik | St. Gallerstrasse 119 | CH-8404 Winterthur | Tel. +41 (0)52 - 235 25 25 | Fax +41 (0)52 - 235 25 00
KELLER Ges. für Druckmesstechnik mbH | Schwarzwaldstrasse 17 | D-79798 Jestetten | Tel. +49 (0)7745 - 9214 - 0 | Fax +49 (0)7745 - 9214 - 60

KELLER

CASTELLO

Ordering Information: CA1 (CASTELLO) + KELLER Standard Transmitter Ø ≥ 21 mm with EEPROM Y (i.e. CA1-23 Y, CA1-26 Y,…)
" " without EEPROM (i.e CA1-23, CA1-26,…)

Specifications for CASTELLO

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	9 V Block Battery Type 6LR	
Battery Life	6'000 Measurements (display 5 seconds on)	
Interface	RS485 (internal)	
	Air Pressure Probe	Level Probe
Temperature Range	-20…+70 °C	0…50 °C
Accuracy (Error Band)	max. 0,5 mbar	2 mbar (1,8 bar range)
		3 mbar (2,3 bar range)
Typ. Measuring Accuracy		
Indicated (RT)	1 cm	
Overpressure	1,5 x Nominal Range	

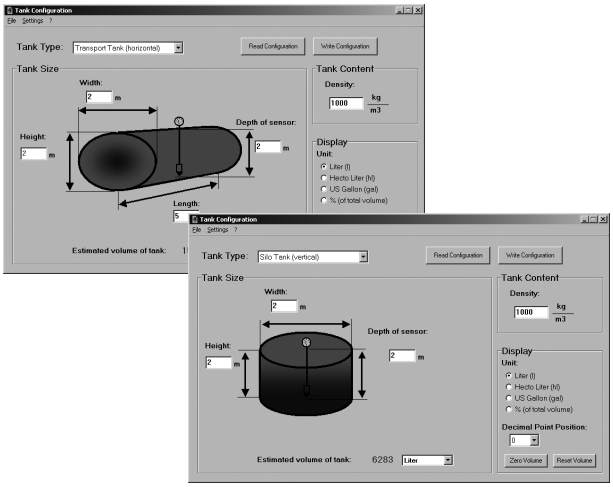
Indicator	5 digits – 14 mm high
	7 segments LED
Resolution	Min. 2'000 Points
Indicator Material	Aluminum / Steel / PVC
Level Probe Material	Stainless Steel AISI 316L
Cable Type	Hytrel 4,60 mm Ø
Probe Protection	IP 68
Indicator Protection	IP 65
Probe Certification	Ex II 1 G EEx ia IIC T6
	LCIE 02 ATEX 6124 X
Indicator Certification	In Progress

Configuration PC-Software

The software to configure CASTELLO can be downloaded from our website or ordered on CD for a handling charge. CASTELLO can be connected to the PC via KELLER converter cable K-107. CASTELLO can be configured for standard or EEPROM transmitters. For sealed gauge pressure transmitters, the air sensor is taken out of the calculation.

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.
For tank shapes not found in the software, please specify the exact dimensions and KELLER will include them in the software.

The software also foresees the application for free standing water towers, where the distance of the tank to the position of the transducer can be chosen.



Options

– Face plate with various measuring units and customer's logo
– Carrying case

Subject to alterations 11/06

KELLER AG für Druckmesstechnik St. Gallerstrasse 119 CH-8404 Winterthur Tel. +41 (0)52 - 235 25 25 Fax +41 (0)52 - 235 25 00
KELLER Ges. für Druckmesstechnik mbH Schwarzwaldstrasse 17 D-79798 Jestetten Tel. +49 (0)7745 - 9214 - 0 Fax +49 (0)7745 - 9214 - 60