



LIFT STATION LEVEL TRANSMITTER

NON-FOULING DESIGN FOR WASTEWATER APPLICATIONS

Specifically designed for extended service in sewage lift station environments, the LevelRat by KELLER America features a wide sensing diaphragm yet small overall size. Unlike competing models which feature a fragile Teflon®-coated rubber diaphragm, the LevelRat incorporates a monolithic diaphragm which combines the non-stick quality of Teflon with superior toughness and abrasion resistance.

The LevelRat utilizes proven piezoresistive silicon measurement technology combined with KELLER's state-of-the-art, microprocessor-based signal conditioning circuitry to provide outstanding accuracy and reliability over a wide compensated temperature range.

Perfectly suited for pump control applications, the LevelRat is compatible with any standard 2-wire, 4...20 mA current loop or 3-wire voltage systems. The RS485 interface allows users to scale the analog output to any desired range within the standard pressure range. The LevelRat is typically suspended into the liquid by a standard PE-jacketed cable that is both self-supporting and vented. Optional Hytrel or Tefzel-jacketed cables are available, should the installation require greater protection against chemical interaction.

KELLER America's guaranteed lightning protection makes this transmitter ideal for installation in areas prone to chronic damage due to transients caused by lightning.

For more information on the LevelRat, or any other KELLER product, please contact KELLER America, or view the entire KELLER catalog at kelleramerica.com.

FEATURES

4...20mA models include guaranteed lightning protection at no additional cost.

16-bit internal digital error correction for cost-effective low Total Error Band (TEB)₃.

316L stainless construction standard - Optional Titanium for severe applications.

Non-fouling diaphragm with superior resistance to puncture.

2-year warranty covers defects in materials and workmanship.

User-rangeable analog output ensures compatibility as requirements change.

RS485 modified-MODBUS compatible interface allows up to 128 transmitters on a single bus.

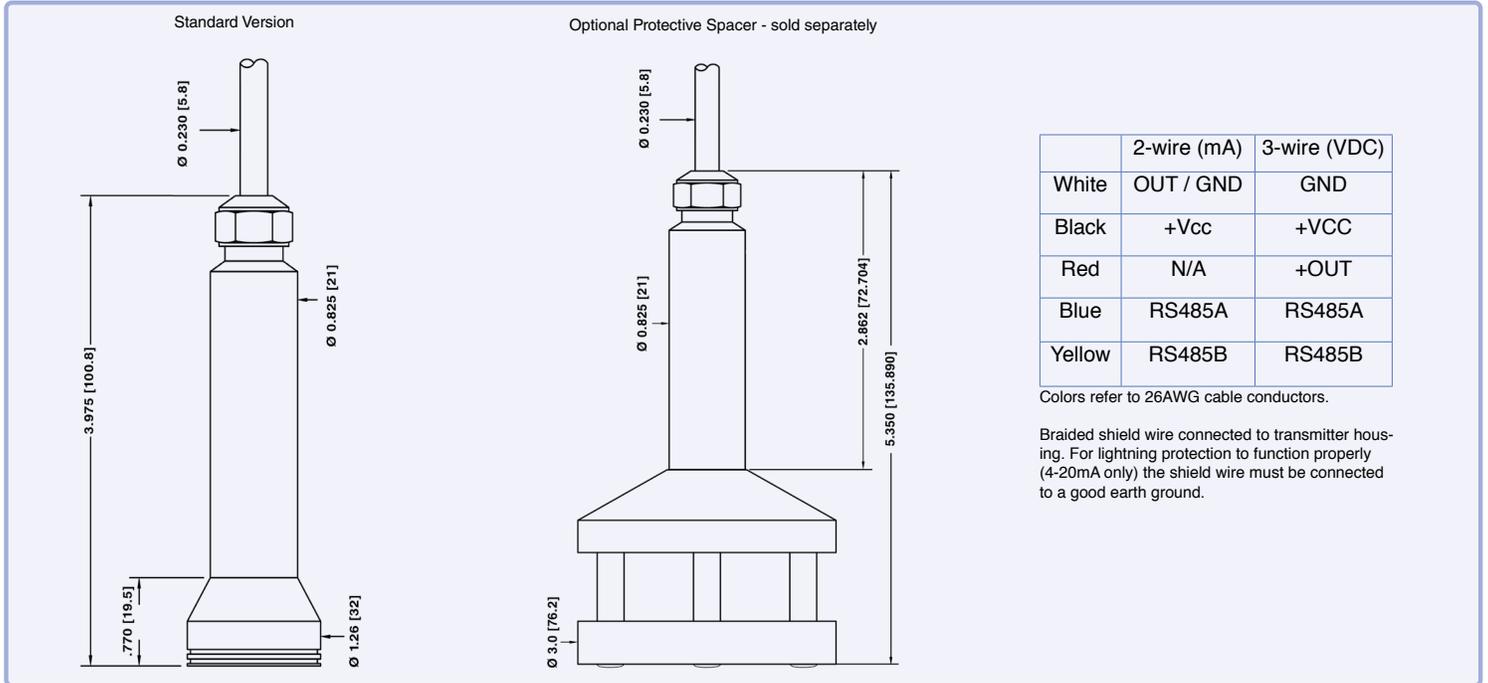
Standard dual (analog & RS485) outputs simplify interface to controls, data collection, and telemetry systems.

Built in the U.S.A. ARRA Section 1605 Compliant.

Standard 3-day lead time.

LEVELRAT





| | 2-wire (mA) | 3-wire (VDC) |
|--------|-------------|--------------|
| White | OUT / GND | GND |
| Black | +Vcc | +VCC |
| Red | N/A | +OUT |
| Blue | RS485A | RS485A |
| Yellow | RS485B | RS485B |

Colors refer to 26AWG cable conductors.

Braided shield wire connected to transmitter housing. For lightning protection to function properly (4-20mA only) the shield wire must be connected to a good earth ground.

Pressure Ranges_{1,2}

Relative Infinite between 0...5 and 0...100 ft W.C.

- The LevelRat can be provided with custom calibration at no extra cost. For fluids other than water, the specific gravity must be given at the time the order is placed.
- Intermediate ranges are realized by deranging the analog output from the next highest basic range: 1, 3, and 10 bar (relative). Level range may be specified in units of lb/in²(psi), inches WC or feet WC. KELLER America uses the International Standard conversion of 2.3067 feet WC/psi.

Accuracy₃

Static Standard $\pm 0.5\%$ FS
 Total Error Band Standard $\pm 1\%$ BR

- Static accuracy includes the combined effects of non-linearity, hysteresis, and non-repeatability at room temperature (25°C). Total Error Band (TEB) includes the combined effects of non-linearity, hysteresis, and non-repeatability as well as thermal dependencies, over the compensated temperature range, expressed as a percentage of the basic range (BR).

The calculation for maximum TEB on intermediate ranges (IR) is: $TEB_{IR} = (BR/IR) \times TEB_{BR}$

Output₄

Current 4...20mA + RS485
 Voltage 0...5, 0...10VDC + RS485
 Resolution 0.002%₅

- Other voltage output options available on request.
- Resolution applies to digital output only. Analog resolution is continuous and limited by the process meter and not the instrument.

Certifications

CE EN50081-1, EN50082-2

Electrical₆

Supply (4-20mA) 11...32 VDC
 Supply (0-5VDC) 8...32 VDC
 Supply (0-10VDC) 13...32 VDC
 Load Resistance (mA) $< (\text{Supply} - 11V) / 0.022A$
 Load Resistance (VDC) $> 4k \text{ ohm}$

- Nominal values may be higher depending upon cable length. Internal lightning protection increases the minimum-required supply voltage from 8VDC to 11VDC, due to internal resistance of the surge protectors. In addition, cable resistance (~70Ω / 1000ft) adds to the supply requirement. In order to insure proper system operation, calculate the minimum required supply voltage (at the source) as follows:

For two-part (internal+external) system (recommended):
 MINIMUM SUPPLY VOLTAGE = $11.6 + 0.022 (\text{CABLE LENGTH} \times 0.07) \text{ VDC}$

For internal only protector (standard with 4-20mA output):
 MINIMUM SUPPLY VOLTAGE = $11 + 0.022 (\text{CABLE LENGTH} \times 0.07) \text{ VDC}$

Environmental

Protection Rating IP68
 Operating Temp. -10...60° C
 Compensated Temp. 0...50° C
 Wetted Materials 316 L Stainless Steel
 Titanium Optional (Transmitter Only)
 Kynar
 Cable & Sealing PE & EPDM for water / wastewater
 Hytel & Viton for hydrocarbons
 Tefzel & Viton or EPDM as required for chemical interaction



KELLER

Optional Accessories



Protective Spacer
(316L SS Only)



1/2" NPT Conduit Fitting



Drying Tube Assembly



Bellows Assembly



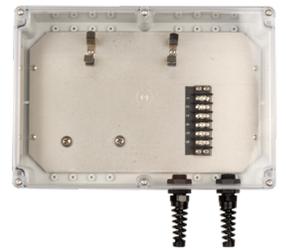
Sour Gas Trap



Stabilizing Weight



Cable Hanger



Termination Enclosure



Pressure Test Adapter



Interface Converter



Process Meter



Signal Line Surge Protector