

# LevelRat

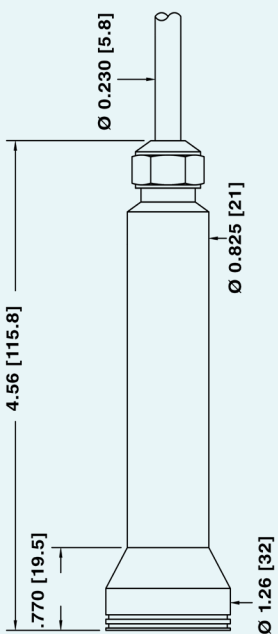
## Non-fouling wastewater level transmitter

### FEATURES:

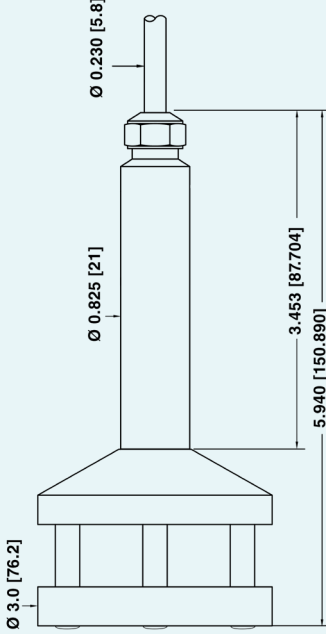
- UL / cUL certified intrinsically safe for installation in hazardous locations
- 0.25% static accuracy, 0.5% Total Error Band (TEB) accuracy
- 4...20mA models include guaranteed lightning protection at no additional cost
- 316L stainless construction standard - Optional Titanium for severe applications
- Non-fouling diaphragm with superior resistance to puncture. Optional Protective Spacer available for increased protection
- 2-year warranty covers defects in materials and workmanship
- Analog & optional RS485 outputs simplify interface to controls, data collection, and telemetry systems
- Optional user-rangeable analog output ensures compatibility as requirements change
- Optional RS485 modified-MODBUS compatible interfaces up to 128 transmitters on a single bus
- 2021 IIA Build America, Buy America-compliant configurations available
- Standard 3-day lead time





Standard Version



Optional Protective Spacer - sold separately



Output	White	Black	Red	Blue	Yellow
4-20 mA - IS Approved	N/A	OUT/GND	+Vcc	N/A	N/A
4-20 mA + RS485 (with or without lightning protection)	OUT/GND	+Vcc	N/A	RS485A	RS485B
0-5, 0-10 VDC	GND	+VCC	+OUT	RS485A	RS485B

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.

# LevelRat - SPECIFICATIONS

Pressure Ranges <sub>1,2</sub>	
Relative	Infinite between 0...5 and 0...100 ft WC.
<p>1. 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. 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.</p> <p>2. Intermediate ranges are realized by deranging the analog output from the next highest basic range: 1 and 3 bar relative - proof pressure 2 and 5 bar, respectively</p>	

Outputs	
Current	4-20 mA - IS-approved
	4-20 mA + RS485 with lightning protection
	4-20 mA + RS485 without lightning protection
Voltage <sup>3</sup>	0-5 VDC + RS485
	0-10 VDC + RS485
3. Other voltage output options available on request.	

Accuracy <sub>4</sub>	
Static	Standard $\pm 0.25\%$ FS
Total Error Band	Standard $\pm 0.5\%$ FS
<p>4. 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).</p> <p>The calculation for maximum TEB on intermediate ranges (IR) is: <math>TEB_{IR} = (BR/IR) \times TEB_{BR}</math></p>	

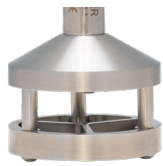
Electrical			
	Supply <sub>5</sub>	Current	Load resistance
4-20mA IS-approved	11...30 VDC	3.2-22 mA	<(Supply-11V)/0.022A
4-20 mA + RS485 with lightning protection	11...32 VDC	3.2-22 mA	<(Supply-11V)/0.022A
4-20 mA + RS485 w/o lightning protection	8...32 VDC	3.2-22 mA	<(Supply-8V)/0.022A
0-5VDC + RS485	8...32 VDC	< 8 mA	>5k ohm
0-10VDC + RS485	13...32 VDC	< 8 mA	>5k ohm
Start-up time	600 ms		
Communications	KELLER-bus, MODBUS RTU <sub>6</sub>		
<p>5. 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 (~76Ω / 1000ft) adds to the supply requirement. In order to insure proper system operation, calculate the minimum required supply voltage (at the source) as follows:</p> <p>For internal only protector (standard with 4-20mA output):            MINIMUM SUPPLY VOLTAGE = 11 + 0.022 (CABLE LENGTH x 0.076) VDC</p> <p>For two-part (internal+external) system (recommended):            MINIMUM SUPPLY VOLTAGE = 11.6 + 0.022 (CABLE LENGTH x 0.076) VDC</p> <p>6. Available on products equipped with optional RS485 communications.</p>			

# LevelRat - SPECIFICATIONS

Certifications		
All versions	CE	EN 61000-6-1 to 6-4 / EN 61326-1 / EN 61326-2-3
4-20 mA IS-Approved	UL / cUL	Class I, Division 1, Groups A, B, C, and D Class II, Division 1, Groups E, F, and G Class III

Environmental	
Protection Rating	IP68
Operating Temp.	-10...60° C
Compensated Temp.	-10...80° C
Wetted Materials	316 L Stainless Steel, Optional titanium
	Kynar
Cable & Sealing	PE & EPDM for water / wastewater
	Hytrel & Viton for hydrocarbons
	Tefzel & Viton or EPDM as required for chemical interaction

## Optional Accessories



Protective Spacer  
(316L SS Only)



Stabilizing Weight



1/2" NPT Conduit Fitting



Drying Tube Assembly



Bellows Assembly



Pressure Test Adapter



Cable Hanger



Termination Enclosure



Sour Gas Trap



Interface Converter



Process Meter



Signal Line Surge Protector