

Model 58

Effective: November, 2021

DATA SHEET 2019-ES3-1

ES3 Sanitary Level Transmitter

- **Robust protection in washdown environments**
- **Continuous liquid level measurement**
- **Two Wire Loop Powered (4 mA to 20mA)**
- **Hart® protocol output available**

KING-GAGE ES3 transmitters provide liquid level measurement for inventory monitoring. Add to their rugged reliability the major benefits of simplified service and maintenance. Performance characteristics of these transmitters include excellent stability and repeatability. The ES3 transmitters are very easily adjustable without test pressure by three pushbuttons & display.

ES3 transmitters are applicable to most tanks or process vessels whose contents remain at normal atmospheric pressure. They measure hydrostatic head pressure created by liquid depth in the tank and are unaffected by foaming or internal obstructions such as agitators. Unlike load cells, pressure based measurement has lower installation cost and is far simpler to maintain thus ensuring more reliable readings.

Transmitters used in sanitary processing must often endure cycles of rapid temperature fluctuation. Washdown environments produce significant condensation on metallic surfaces that coupled with aggressive cleansing agents demand robust protection for these instruments. The ES3 transmitter's enhanced design uses encapsulation for full isolation of the internal electronics. This extends to the IP68 grade M12 signal connector that ensure integrity and long term reliability. You can be assured of a transmitter truly built for the demands and expectations of today's processing environment.

Sanitary Configurations

These sensors are especially suited to a wide range of sanitary applications on storage or continuous processing vessels. The Hastelloy diaphragm is appropriate for flush mount, clean-in-place installation employing an FDA-approved silicone rubber O-ring seal to achieve the crevice-free, positive compression seal between diaphragm and tank liner. Sanitary tank mountings include flush weld mountings with product contact surfaces of 316L stainless. (Quick disconnect sanitary adapters are also available for sensor mounting.)



ES3 Signal Connection

The external connector of the ES3 transmitter affords an impermeable barrier against moisture infiltration of the transmitter housing. This connector receptacle has a metric M12 screw collar and is intended for plug type molded cable assemblies designed for 4-pole signal termination. Our ES3 transmitter package also includes a molded M12 cable (32 ft/10 m) to simplify installation and ensure a sealed connection at the unit – this molded cable meets IP68 standards for ingress protection.



M12 Connector

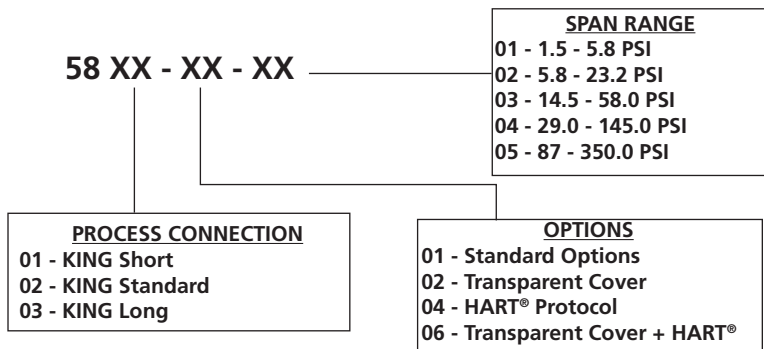


Molded M12 Cable

CONNECTION 2-WIRE - 4 mA to 20 mA

- 1-Brown Positive (+)
- 2-White Negative (-)
- 3-Blue Not Used
- 4-Black Not Used

Model No. Designations



Specifications

Span Adjustment Range

Transmitter turndown ratio is 4:1 for all ranges.

Nominal Minimum Range of Adjustment

0–5.8 psig	0–1.45 psig	0–40 in. thru 0 – 160 in. water / 0–1 m thru 0–4 m water
0–23 psig	5.8 psig	0–160 in. thru 0 – 630 in. water / 0–4 m thru 0– 16 m water
0–58 psig	0–14.5 psig	0–394 in. thru 0–1575 in. water / 0–10 m thru 0–40 m water
0–145 psig	0–29 psig	
0–350 psig	0–87 psig	

IMPORTANT! Accuracy, linearity, and non-repeatability values are based on adjusted span range.

Operating Limit (Maximum Pressure)

Pressure above 300% nominal range (overrange) will result in damage to the transmitter (200% may cause a shift in calibration).

Accuracy

Less than ±0.20% Adjusted Span
Includes linearity, hysteresis, non-repeatability errors.

Pressure Media

Gas or Liquids compatible with Hastelloy (diaphragm); silicone rubber (O-ring). All other wetted parts 316L.

Electrical

Input (excitation): 14–36 Vdc
Output (mA_{dc}): 4–20 milliamperes
HART Protocol (Optional)

Linearity (Worst Case)

Less than ±0.13% FS
Hysteresis (Worst Case)
Less than 0.05% FS

Non-Repeatability (Worst Case)

Less than 0.02% FS

Operating Temperature Range

-4°F to 212°F / -20°C to 100°C

Applications

- Food & beverage
- Chemical processing
- Power generation
- Pharmaceutical
- Water & wastewater
- Pulp & paper
- Marine