

ROSEMOUNT SPECIFICATIONS

Models 8712C/U/H Magnetic Flowmeter Transmitters

1. EQUIPMENT DESCRIPTION

- A four-wire microprocessor based dc magnetic flowmeter transmitter with HART[®]-based digital communication capabilities.
 - Model 8712C transmitter operates with all Rosemount[®] Magnetic Flowtubes.
 - Model 8712U transmitter operates additionally with any manufacturer's flowtube to provide a cost-effective upgrade to Rosemount Smart technology.
 - Model 8712H transmitter operates solely with the Model 8707 High Signal Flowtube to provide higher output stability for high process noise applications.

2. REFERENCES

- Material supplied under this specification shall be in conformance with:
 - National Electrical Manufacturer's Association (NEMA) standard number ICS6, "Enclosure for industrial controls and systems," 4X.
 - Factory Mutual (FM) and Canadian Standards Association (CSA) standards.
- Manufacturer must be certified as meeting the requirements of ISO 9001.

3. ENVIRONMENTAL CONDITIONS

- The instrument selected shall be suitable for the following conditions:
 - Humidity: 0–100 percent relative humidity to 120 °F (49 °C).
 - Ambient temperature limits:
 - 20 to +140 °F (–29 to +60 °C) with Local Operator Interface.
 - 30 to +150 °F (–34 to +66 °C) without Local Operator Interface.
- Transmitter shall have a dual-compartment housing with a moisture barrier totally isolating the electronic circuitry from field wiring and communication terminals.

4. ELECTRICAL

- Transmitter shall be certified for use in hazardous areas by a recognized authority such as Factory Mutual.
- Electrical connections shall be ¾–14 NPT conduit threads.

5. POWER SUPPLY

- All transmitters will operate on either 115 V ac ±10 percent, 50 or 60 Hz (all models); 230 V ac ±10 percent, 50 or 60 Hz (Models 8712C/U only); or 10–30 V dc with no load (Models 8712C/U only).

6. FLOW RATE RANGES

- Transmitter shall be capable of processing signals from flow applications traveling between 0.04 and 30 feet per second for flowtube sizes ranging from 0.1 to 80 inches (Models 8712C/U only) and 3 to 36 inches (Model 8712H only). Upper and lower range values shall be full scale continually adjustable between –30 and 30 feet per second.

7. OUTPUTS

- Output shall be a 4–20 mA analog signal with a superimposed HART digital signal, jumper-selectable as internally or externally powered. Analog output shall be adjustable remotely with a field communicator or control system.
- A simultaneous, independently scalable pulse/frequency output (0 to 1000 Hz) shall also be available.
- An auxiliary output shall also be available and shall consist of an on or off transistor switch closure up to 5.75 W, externally powered, 5 to 24 V dc, to indicate either a reverse or zero flow condition.

8. DATA STORAGE

- Flowmeter data shall be stored in a nonvolatile EEPROM memory.
- Data integrity shall be protected by an 8-bit checksum.
- Message integrity shall be verified by vertical and longitudinal parity checks.

9. SOFTWARE FUNCTIONALITY

- Transmitter shall be capable of simultaneous communication over the 4–20 mA signal.
- The transmitter shall perform continuous diagnostics, be capable of self-test functions, and be able to give specific diagnostic information.
- The configuration capabilities of the transmitter shall allow the user the ability to input and store information including range values, engineering units, flow tube size, damping, coil pulse mode, totalizer display, flowrate display, pulse mode, transmitter tag number, transmitter serial number, descriptor, message, flowtube tag number, flowtube serial number, liner material, electrode type, electrode material, flange type, and flange material.
- Transmitter shall provide two user selectable coil drive frequencies.
- Transmitter shall provide digital signal processing capabilities for reducing process noise. This routine shall include the ability to adjust transmitter response time.
- Transmitter shall automatically detect and display empty pipe indication and provide a zero output signal.
- Process variable information shall be available digitally.
- (Model 8712U only) Transmitter shall automatically set flowtube coil drive current, and transmitter and flowtube gain settings, based on user defined parameters, to operate other manufacturers' flowtubes.

10. PERFORMANCE

- The transmitter shall meet the following performance criteria as a minimum:
 - Accuracy:
 - Models 8712C/U with Model 8705 flowtube:
System accuracy shall be ± 0.5 percent of rate from 1 to 30 feet per second. Between 0.04 and 1.0 feet per second the system has accuracy of ± 0.005 feet per second. Analog output has the same accuracy as frequency output plus an additional 0.05 percent of span.
 - Models 8712H with Model 8707 flowtube:
System accuracy shall be ± 0.5 percent of rate from 3 to 30 feet per second. Between 0.04 and 1.0 feet per second the system has accuracy of ± 0.015 feet per second. Analog output has the same accuracy as frequency output plus an additional 0.05 percent of span.
 - Models 8712C/U with Model 8711 flowtube:
System accuracy shall be ± 0.5 percent of rate from 3 to 30 feet per second. Between 0.04 and 3 feet per second the system has an accuracy of ± 0.015 feet per second. Analog output has the same accuracy as frequency output plus an additional 0.05 percent of span.
 - Model 8712U with other manufacturers' flowtubes:
Accuracy is dependent on the flow rate through the flowtube at the time of in-process calibration. When a flowtube is sent to the Rosemount factory for calibration, accuracies as good as ± 0.5 percent of rate can be obtained.
 - Stability: ± 0.1 percent of rate over six months.
 - Ambient temperature effect: ± 1 percent per 100 °F (38 °C).

11. OPTIONS

- The following options shall be available:
 - Illuminated indicating LCD meter which includes flowrate and totalized flow display with front panel keypad allowing full communication.
 - Battery backed totalizer (Models 8712C/U only).
 - Integral mounting or remote mounting: Up to 1,000 feet maximum (Models 8712C/U) and up to 100 feet maximum (Model 8712H).

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