

SLDF7110 Integrated

MagFlow electromagnetic flowmeter



SLDF7110 Integrated Product Overview

The MagFlow electromagnetic flowmeter operates based on Faraday's law of electromagnetic induction. Two electromagnetic coils at its ends generate a constant or alternating magnetic field, which interacts with the flowing fluid to measure flow rate. When a dielectric fluid flows through an electromagnetic flowmeter, an induced electromotive force can be detected between the two electrodes on the flowmeter tube wall. The magnitude of this induced electromotive force is proportional to the flow velocity of the conductive fluid, the magnetic field intensity, and the conductor width (the inner diameter of the flowmeter tube). The fluid flow rate can then be calculated accordingly.

■ Product Features

- Equipped with a backlight dot-matrix dual-row flow display that simultaneously shows instantaneous flow rate and cumulative flow rate, while also displaying operating status, parameters, and unit of measurement.
- Utilizing modern analog signal conversion technology and high-performance ultra-large-scale integrated chips, the system isolates, filters, amplifies, and digitally processes signals to accurately display measurement results.
- The measuring tube contains no flow obstructing components, resulting in zero pressure loss and reduced risk of clogging.
- The sensor features power-off protection for measured values and an out-of-range alarm function. It allows configuration of the fluid flow direction within the sensor, enabling installation without restrictions based on the fluid flow direction and facilitating bidirectional flow measurement.
- The electromagnetic flowmeter has a wide measurement range (maximum flow rate to minimum flow rate), with a typical application ratio of 20:1, and generally 30:1 or higher.
- Supports multiple languages (including Chinese) for easy operation
- Supports various communication protocols including HART, Modbus, Profibus PA, Foundation Fieldbus, GPRS/CDMA remote communication, and Bluetooth.



Model	Integrated
Nominal diameter	15~2000mm
Nominal pressure	Standard pressure rating: 1.0 MPa, DN15~DN80; optional pressure rating: 1.6 MPa, DN15~DN800
Media conductivity	The theoretical value is $\geq 5 \mu\text{S/cm}$, and the actual value is $\geq 30 \mu\text{S/cm}$.
Supply voltage	110/220VAC(100-240VAC), 50Hz/60Hz; 24VDC $\pm 10\%$
Electrode material	Stainless steel 316L, Hastelloy C, Hastelloy B, titanium, tantalum, platinum
Number of electrodes	Standardly equipped with 3-4 electrodes (2 measurement electrodes + 1 grounding electrode), configured according to the diameter.
Medium temperature	+80°C
Ambient temperature	-10°C ~+55°C
Communication mode	RS-485, supporting standard MODBUS-RTU protocol, HART protocol, and PROFIBUS PA; GPRS
Output signal	4~20 mA; pulse/frequency: 2 kHz (default), 5 kHz (maximum);
Cable port dimensions	M20 $\times$ 1.5 (Standardly equipped with a nylon waterproof joint; explosion-proof metal joint available as an option)
Levels of protection	IP65、IP67、IP68
Connection Method	Flange connection
Explosion-proof sign	Ex ia IIC T6 Ga

Flowmeter Structure

Under favorable on-site conditions, the integrated type is generally preferred, where the sensor and converter are combined into a single unit. Refer to the diagram of the integrated electromagnetic flowmeter in the product overview on page two.

- If installed in hard-to-access locations, maintenance becomes inconvenient.
- Protect the electronic components of the smart converter from being affected by the temperature of the pipeline fluid.
- Direct installation outdoors or in harsh operating environments should be avoided.
- The integrated unit has a default protection rating of IP65.

Lining material

- The lining material should be selected based on the corrosiveness, abrasiveness, and temperature of the medium being tested. The applicable performance characteristics of commonly used lining materials are listed in the Common Lining Material Performance Table.
- Rubber exhibits excellent wear resistance and is widely used for measuring water, industrial water, wastewater, sewage, mineral slurry, mud slurry, fiber pulp, and other media.
- The PTFE (polytetrafluoroethylene) lining has excellent resistance to corrosion from strong acids and alkalis. It also reliably withstands high temperatures without deforming or reducing its insulation resistance. In addition, it possesses non-stick properties, meaning it does not adhere to other substances and has a smooth surface. Therefore, the PTFE lining is suitable for measuring viscous media (such as syrup) or media prone to scaling (such as alumina), highly corrosive media (such as sulfuric acid, nitric acid, hydrochloric acid, and phosphoric acid), high-temperature media, applications where pipelines are periodically cleaned with steam, and situations with hygiene requirements for food products (such as beer, milk, and malt wort).