

LCMag™ Electromagnetic Flow Meters

Materials of Construction



Housing:

- Carbon Steel
- 304 Stainless Steel (Optional)

Liner Materials include:

- Polypropylene
- Ebonite
- Polyurethane
- PTEF

Electrode Materials include:

- Stainless Steel
- Hastelloy C
- Titanium
- Tantalum
- Platinum

Design Features

The LCMag family of electromagnetic flow meters offers the best solution for measuring the flow of electrically conductive liquids ($5\mu\text{S}/\text{cm}$ minimum). The sensor consists of a stainless steel pipe section internally lined with insulating material. PTFE, Polypropylene and Ebonite (hard rubber) liners are available. The two electrodes are positioned opposite each other on the internal surface of the pipe. The coils which generate the magnetic field are placed outside the pipe. The complete sensor has an external NEMA 6-6P (IP67/68) protection rating which guarantees the integrity of the magnetic circuit and protects the instrument against the external environment. The choice of materials in contact with the fluid (lining, electrodes, etc.) depends on the temperature, the chemical aggressiveness of the liquid and the degree of abrasion of the liquid.

- No moving parts
- Wide range of nominal diameters from 1/8" to 80"
- Wide range of flow rates from 0.11 GPM to 400,000 GPM
- Wide range of liner and electrode materials
- Near zero pressure drop
- Easy installation and operation
- Minimal maintenance
- Accuracy is not affected by fluid characteristics such as viscosity, density, temperature, or suspended solids

Specifications

- Sizes: 1/8" through 72"
- Flow Rates: 0.11 through 400,000 GPM
- End Connections: ANSI Flanged, Wafer, Threaded, Tri - Clover (sanitary)
- Pressure Ratings: 150 - 300 ANSI
- Accuracy: Capable of $\pm 0.2\%$ of rate over 10:1 range for flow velocity between 6 to 33 feet per second
- Repeatability: Capable of 0.1% of full scale
- Certifications: HMS 2410 Series models 3-A certified.

Liquid Controls offers a broad selection of electromagnetic (Mag) flow meters for industrial, water, and waste water flow measurement applications, worldwide. The LCMag family consists of seven sensor models for specific applications. The models include micro-flow, wafer, sanitary, flanged, pipe clamp, and insertion meters. The units are offered in a wide variety of sizes, materials, and flow ranges for many industrial and OEM applications.

The LCMag family of electromagnetic flow meters offers the best solution for measuring the flow of electrically conductive liquids ($5\mu\text{S}/\text{cm}$ minimum), for the following reasons:

- Accuracy is not affected by fluid characteristics such as viscosity, density, temperature, or suspended solids.
- No moving parts.
- Virtually no pressure drop.
- Clean-in-place construction (HMS501 and HMS2410 with remote converter only).
- Minimal maintenance.
- Easy to install and operate.
- Wide range of nominal diameters from 1/8" to 72".
- Wide range of flow rates from as low as 0.1 GPM to as high as 400,000 GPM.
- Automatic, dual flow range capability.
- Broad selection of liners, electrode materials, and process connections.
- High, full-scale accuracy, $\pm 0.2\%$ over a 10:1 range (for liquid velocity greater than 4 ft/second) with some sensor/converter combinations.

LCMag meters are available in a full selection of configurations and sizes. Models are available in flow ranges from 0.10 GPM to 400,000 GPM and in process fittings from 1/8" NPT to 72" flanged meters and up to 80" for insertion meters. Connections include flanged, threaded, wafer, pipe clamp, and sanitary. A scaled, digital pulse output is standard. A wide range of additional outputs are available. These include: analog (0–20mA or 4–20mA) serial (RS-232 or RS-485), relays, Profibus DP, additional inputs, and data logger.

The **HML210 Converter** is for use with all HMS series flow sensors (except HMS600 and HMS5000). The converter is a programmable, microprocessor-driven unit providing automatic zeroing, EEPROM data protection on loss of power, empty pipe detection, and self diagnostics. The optional display matrix is 128 x 64, 8-line (16 characters per line) with three external membrane programming keys.

Features

- Available with three external membrane programming keys
- IP67 rating
- Available with an LCD display; 8 lines, 16 characters, backlit
- Two digital outputs
- Four internal totalizers
- Panel mount configuration available

Accuracy

Capable of $\pm 0.2\%$ for liquid velocity > 4 ft/sec (with full bore sensors)

Repeatability

Capable of 0.01% or better



HML210 mounted on an HMS2500 Flange Sensor

TANK TRUCK SERVICE AND SALES, INC.
25150 Dequindre, Warren, Michigan 48091

800-482-2678
www.tanktruckservice.com

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