



NAGMAN FLOW-LEVEL SYSTEMS & SOLUTIONS LLP

www.nagmanflow.com

NAGMAN

50
years of

DISTINGUISHED
SERVICE TO
INDUSTRIES
WORLDWIDE

NAGMAN

Manufacturers of
Flow & Level Calibration Systems
Varieties of Flow Meters
Level Transmitters

Introduction

The high-performance Nagman Electromagnetic Flow Meter (NAGMAG Series) accurately measures the volumetric flow of any conductive liquids, such as water, salt water, Waste water, sewage, pulps, slurry, acid, alkali, or any mixture of liquids and solids that have a minimum conductivity of $5\mu\text{S/cm}$.



How It Works?

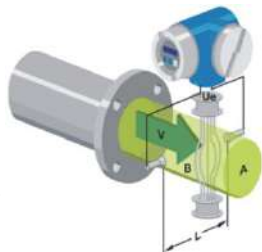
An Electromagnetic Flow Meter is an Induction Type Flow Instrument based on Faraday's Law, often used to Measure the Volumetric Flow Rate of a Conductive Fluid in closed pipelines.

$$E = K \times B \times D \times V$$

B = Flux Density

V = Velocity of the Fluid

D = Distance between electrodes



The Operation of an Electromagnetic Flow Meter or Mag Meter, is based upon Faraday's Law which states that the Voltage induced across any Conductor as it moves at right angles through a Magnetic Field is proportional to the Velocity of that Conductor.

Why Nagman?

- Reliable Performance: The high-speed CPU and advanced Signal Processing Technology ensure a steady and wide measuring range (-39 to 39 ft/s).
- High Accuracy: High accuracy is achieved with only 7D total straight pipe run: 5D upstream and 2D downstream
- Ease of Use: The Two-Line LCD Display makes the Readings and Parameter Settings comprehensive & convenient.
- Experience: Nagman is currently serving its 50th year of service in this industry and is an expert in the field of Instrumentation and Calibration.

Advantages

- Plug & Play! All parameters configured at factory
- No moving parts for wear and tear
- High Accuracy: Standard $\pm 0.5\%$. Up to $\pm 0.2\%$ optional
- Wide size selection from (1/2" - 80")
- Minimal Straight Run required (10D upstream, 5D downstream) thus suitable for any installation location.
- Operable velocity range of 0.1 to 15 m/s
- Bi-directional flow
- Accurate & Reliable measurement over wide flow rates, including minimal flow rates
- Multiple liner and electrode materials available
- No permanent pressure loss
- 4-20 mA, Pulse, RS232, or RS485 / MODBUS outputs available
- Self-Diagnosing capability to minimize downtime
- Integral / Remote display options
- NABL certificated included with all meters. Wet calibrated in our factory

Target Applications

- HVAC
- Chilled water/Hot water/ Wastewater
- Boiler feed water
- Plants, power plants, machining plants, pump stations
- LEED/Green building verification, green credit application
- Facility management in shopping malls, campuses, industrial parks, hospitals, commercial buildings, government buildings, airports
- Flow monitoring and control in desalination plants, steel
- Water supply and drainage

Industries We Serve

- Polymer
- Petroleum & Refineries
- Power / Energy
- Steel / Metal
- Tyre / Rubber
- Irrigation
- Dairy Plants
- Healthcare / Pharmaceutical
- Sugar Plants
- Municipal Water Supply
- Waste Water Treatment

Specifications

| | | |
|---------------------------------|---|---|
| Size | DN 3 to DN 3000 mm | |
| Accuracy Class | ±0.5% of reading ±0.3% & ±0.2% of reading (Optional) | |
| Conductivity | Normal Liquid > 20µS/cm; Slurry Liquid >5µS/cm | |
| Display | LCD display with backlight (128x128mm), 3 Lines, 4 Internal Push Buttons | |
| Totalizers | Three built-in totalizers: forward flow, reverse flow and net | |
| Outputs | Analog | Bi-directional, isolated 0 - 10mA – 4 - 20mA Load resistor: 0 ~ 1.5 KO for 0 ~ 10 mA, 0 ~ 750 O for 4 ~ 20 Ma |
| | Frequency | Forward & reverse flow output with a frequency range of 1~5000Hz. The external voltage must be lower than 35 V and the max output current must be 250 mA when the transistor is turned on. |
| | Alarm | Alarm output: Two isolated open collector transistor (OCT) outputs for alarm signals. |
| Flow Direction | The meter is capable of measuring both forward and reverse flow and Indication recognizing flow direction. | |
| Communication | RS232, RS485/MODBUS, PROFIBUS or HART Communication selectable. | |
| Protection Class | IP 65, IP 68 | |
| Nominal Pressure Limit | 6 bar (DN3 – DN150) 10 bar (DN200 – DN600) 16 bar (DN700 – DN1000) 40 bar (DN1200 – DN3000) | |
| Liner Material | Rubber, PTFE, Polyurethane, PFA & F46 | |
| Electrode Type | SS316/316L, Hastelloy B, Hastelloy C, Titanium, Tantalum, Platiniridium | |
| Sensor Material | Measuring tube : Stainless steel Meter Housing : Carbon Steel as standard offer. SS available upon request Flange : Carbon Steel as standard offer. SS available upon request | |
| Pipe Connection | ASME/ANSI Flange 150# 300#, Threaded & Insertion, Tri-Clamp, Wafer | |
| Fluid Temperature Limits | Integral type | - (-10°C to 80°C) |
| | Remote type | Neoprene & Polyurethane Liner (-10°C ~ 80°C) PTFE Liner (-10°C ~ 160°C) PFA Liner (-10°C ~ 160°C) Ambient Temperature (-10°C ~ 80°C) |
| Ambient Humidity | 5 ~ 95%RH (relative humidity) | |
| Velocity Range | 0.1m/s ~ 15m/s | |
| Power Supply | 20 ~ 36 VDC or 85 ~250 VAC, < 20 W, 3.6V Battery | |
| Meter Types | Integral, remote | |

Flow Meter Ordering Information

| NAGMAN | | DNxxxx | x | x | x | x | x | x | x |
|-------------------------------|---|--------|---|----|----|---|---|---|---|
| Meter Size | DN3 ~ DN3000 | | | | | | | | |
| Nominal Pressure | 6 bar | P1 | | | | | | | |
| | 10 bar | P2 | | | | | | | |
| | 16 bar | P3 | | | | | | | |
| | 40 bar | P4 | | | | | | | |
| | Other | P5 | | | | | | | |
| Connection Type | Flange Connection | | F | | | | | | |
| | Threaded & Insertion Connection | | C | | | | | | |
| | Sanitary (Tri-Clamp) Connection | | S | | | | | | |
| | Wafer | | W | | | | | | |
| Liner Material | PTFE | | | L1 | | | | | |
| | PFA | | | L2 | | | | | |
| | Neoprene/Hard Rubber | | | L3 | | | | | |
| | Polyurethane | | | L4 | | | | | |
| | Ceramic | | | L5 | | | | | |
| Electrode Material | 316L | | | | E1 | | | | |
| | Hastelloy B | | | | E2 | | | | |
| | Hastelloy C | | | | E3 | | | | |
| | Titanium | | | | E4 | | | | |
| | Platinum-iridium | | | | E5 | | | | |
| | Tantalum | | | | E6 | | | | |
| | Stainless steel covered with Tungsten Carbide | | | | E7 | | | | |
| Structure | Integral Type | | | | | | I | | |
| | Remote Type | | | | | | R | | |
| Power | 220VAC 50Hz | | | | | | | E | |
| | 24 VDC - 4 Wire & 2 Wire | | | | | | | F | |
| | 3.6V Battery Operated | | | | | | | G | |
| Output / Communication | Two Wire, 24VDC + 4-20mA | | | | | | | | A |
| | Flow volume 4 - 20 mA DC + Pulse + HART Communication | | | | | | | | B |
| | Flow volume 4 - 20 mA DC +Pulse+ RS485 Communication | | | | | | | | C |

Manufactured by :

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