# ALMAG

## Electromagnetic Energy Meter

### Model ALMAGEG Series

## GENERAL

**The ALMAGEG** is an in-line electromagnetic energy flowmeter ideal for conductive liquids. A wide variety of sizes are available to accommodate nominal pipe diameters ranging from ½" through 120". The ALMAGEG may be used in many applications that require accurate thermal energy measurement such as chilled water, hot water and condenser water systems. The ALMAGEG magmeter is available in a stand- alone configuration and may also be used with various SMC transmitter and display packages.

## FEATURES

- Available with a wide range of liner materials
- Fluid Velocity range of 0-32 feet/sec, with good results for low flow applications
- Flange-type process connections are standard; ANSI, DIN, JIS style available
- Ideal for energy management applications
- Non-invasive measuring technique provides low pressure loss and excellent particle tolerance
- FEP liner available for vacuum pressure applications
- High accuracy - ±0.5% of reading standard or ±0.2% of range
- BI-directional measurement
- Available with PT100 and PT1000 temperature sensors

## SPECIFICATIONS

- Size : ½" ~ 120" (15 ~ 3000mm)
- Temperature: w/ integral electronics: 15~140 °F (-10~60 °C)
  w/ remote electronics: 15~300 °F (-10~150 °C)
- Measuring Range : 0.9 - 32 feet/sec (0.9 - 10 m/s)
- Material
  - Measuring Tube : Carbon Steel (standard)
    Stainless Steel 304 (optional)
    Stainless steel 316 (optional)
  - Housing : Aluminum (standard)
  - Flange : Carbon Steel (standard)
    Stainless Steel #304 (optional)
    Stainless Steel #316 (optional)
- Liner : Polyurethane
  Neoprene
  FEP (up to 12")
  PTFE
- Display : Flow rate, flow velocity, percentage, Total flow, total energy flow
- Electrode & Grounding : Stainless Steel 316L
  Hastelloy B
  Hastelloy C
  Titanium
  Tantalum
  Tungsten Carbide
- Cable Entry : 2 X PG11
- Ambient Temperature : -15~140 °F (-25~60 °C)
- Process Connection : Flange, wafer
  - Flanges type : JIS , ANSI , PN
- Grounding Resistance : Must be less then 10 Ω
- Accuracy : ±0.5% of reading
  ±0.2% of FS
- Protection : IP 65
  IP68 (Submersible, with remote style)
- Conductivity : must be ≥ 5 µS/cm
- Power Consumption : ≤ 15 Watts

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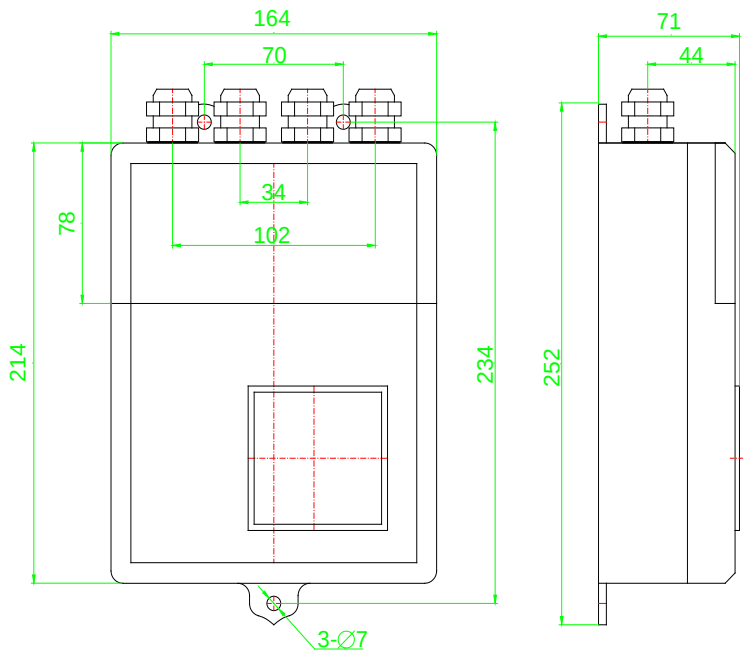
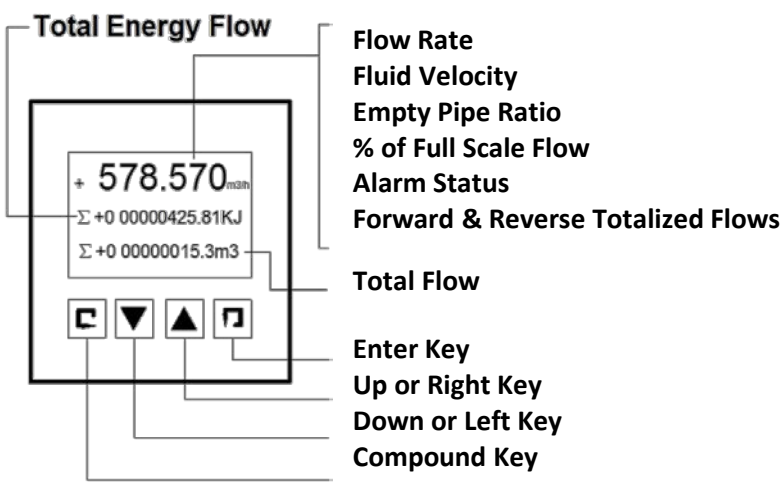
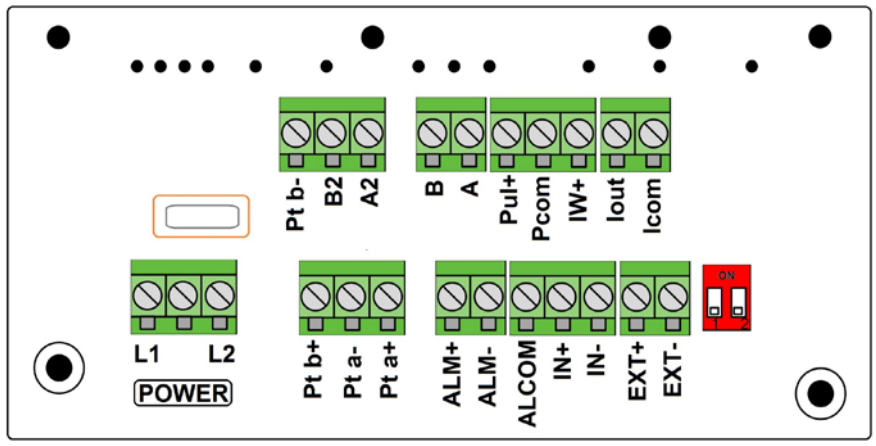
## Mounting drawing

- **Display**



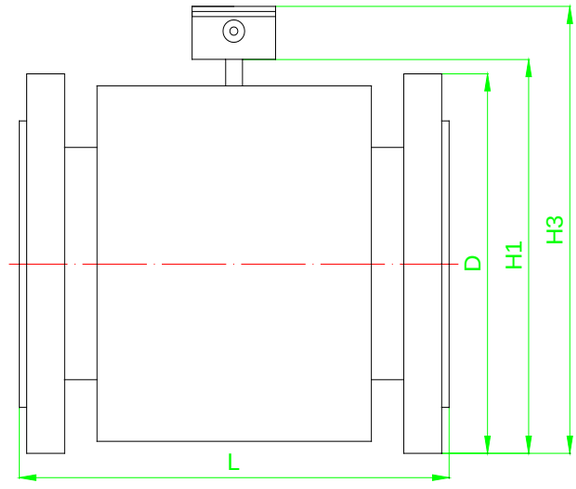




- **Wiring**




| | | | |
|---|---|---|---|
| L1 | 110/220$V_{AC}$(24$V_{DC}$ +) input | | |
| L2 | 110/220$V_{AC}$(24$V_{DC}$ -) input | | |
| A 2 | RS485 output (+) | | |
| B2 | RS485 output - | | |
| pt a- | Upstream Temperature Sensor Input (-) | pt b- | Downstream Temperature Sensor Input (-) |
| pt a+ | Upstream Temperature Sensor Input (+) | pt b+ | Downstream Temperature Sensor Input (+ |
| B | Exit Temperature Sensor Input | ALM + | High alarm output (+) |
| A | Inlet Temperature Sensor Input | ALM- | Low alarm output (+) |
| Pul + | Frequency/pulse output (+) | ALCOM | Alarm output |
| Pcom | Frequency/pulse output - | IN + | Input contact (+) |
| IW + | Passive Excitation Current Output (+) | IN - | Input contact (-) |
| Iout | Active Excitation Current output (+) | EXT+ | Coil excitation (+) |
| Icom | Active Excitation Current output (-) | EXT- | Coil excitation(-) |

## DIMENSIONS - DIN flange




| DN | Normal pressure (MPa) | Dimension (mm) | | | | Weight (kg) |
|---|---|---|---|---|---|---|
| | | L | D | H1 | H3 | |
| 15 | 4.0 | 200 | 95 | 155 | 215 | 3.5 |
| 20 | | 200 | 105 | 160 | 220 | 4.5 |
| 25 | | 200 | 115 | 165 | 225 | 5 |
| 32 | | 200 | 140 | 180 | 240 | 6.5 |
| 40 | | 200 | 150 | 190 | 250 | 7 |
| 50 | | 200 | 165 | 200 | 260 | 9 |
| 65 | | 250 | 185 | 220 | 280 | 11 |
| 80 | | 250 | 200 | 240 | 300 | 13 |
| 100 | 1.6 | 250 | 220 | 250 | 310 | 15 |
| 125 | | 250 | 250 | 280 | 340 | 19 |
| 150 | | 300 | 285 | 320 | 380 | 24 |
| 200 | 1.0 | 350 | 340 | 380 | 440 | 32 |
| 250 | | 450 | 395 | 430 | 490 | 47 |
| 300 | | 500 | 445 | 490 | 550 | 57 |
| 350 | | 500 | 505 | 550 | 610 | 68 |
| 400 | | 500 | 565 | 600 | 660 | 85 |
| 450 | | 550 | 615 | 640 | 700 | 100 |
| 500 | | 550 | 670 | 700 | 760 | 120 |
| 600 | | 600 | 780 | 800 | 860 | 160 |
| 700 | 0.6 | 700 | 860 | 860 | 920 | 305 |
| 800 | | 800 | 975 | 975 | 1035 | 415 |
| 900 | | 900 | 1075 | 1075 | 1135 | 525 |
| 1000 | | 1000 | 1175 | 1175 | 1235 | 680 |
| 1200 | | 1200 | 1405 | 1405 | 1465 | 745 |
| 1400 | | 1400 | 1630 | 1630 | 1690 | 1105 |
| 1600 | | 1600 | 1830 | 1830 | 1890 | 1425 |
| 1800 | | 1800 | 2045 | 2045 | 2105 | 1955 |
| 2000 | | 2000 | 2265 | 2265 | 2325 | 2480 |
| 2200 | | 2200 | 2475 | 2475 | 2535 | 3080 |
| 2400 | | 2400 | 2685 | 2685 | 2745 | 3780 |
| 2600 | | 2600 | 2905 | 2905 | 2965 | 4150 |
| 2800 | | 2800 | 3115 | 3115 | 3175 | 4870 |
| 3000 | | 3000 | 3315 | 3315 | 3375 | 5470 |

**** Please contact your local SMC application engineer**

**You also need to provide the following information:**

| | |
|---|---|
| **Type of Fluid** | Please provide the name of your fluid |
| **Full Scale Flow** | Maximum and minimum flow rates, units must be in GPM, LPM or $m^3$/hr, etc.. |
| **Line Size** | Please provide pipe size as well connection type (flanged, threaded, etc..) |
| **Pressure & Temperature** | We will calibrate your flowmeter as close to your operating conditions as possible |

## Model Selection Guide

| ALMAGWP Series | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Example: ALMAGEG-F100-03-ST-4.0-65-0-DC-0-NX-NN-NN | | | | | | | | | | | | | | | |
| ALMAGEG- | *- | **- | * | *- | * | *- | * | *- | * | *- | * | *- | ** | | Description |
| Flanged | F | | | | | | | | | | | | | | Type |
| Clamped | C | | | | | | | | | | | | | | |
| Sanitary - FEP liner only | S | | | | | | | | | | | | | | |
| ½"~120" (DN15~DN3000) | | ** | | | | | | | | | | | | | Size |
| 316 stainless steel | | | 0 | | | | | | | | | | | | Electrode |
| Hast B | | | 1 | | | | | | | | | | | | |
| Hast C | | | 2 | | | | | | | | | | | | |
| Ta | | | 3 | | | | | | | | | | | | |
| Ti | | | 4 | | | | | | | | | | | | |
| Pt | | | 5 | | | | | | | | | | | | |
| Chloroprene Rubber(Neoprene) | | | | 3 | | | | | | | | | | | Liner Material |
| Polyurethane | | | | 4 | | | | | | | | | | | |
| PTFE | | | | 5 | | | | | | | | | | | |
| PFA | | | | 6 | | | | | | | | | | | |
| F46 | | | | 7 | | | | | | | | | | | |
| FEP | | | | 8 | | | | | | | | | | | |
| Remote energy meter - 5m cable | | | | | ST | | | | | | | | | | Transmitter |
| Integral flow meter and remote flow computer | | | | | IN | | | | | | | | | | |
| Remote flow meter and flow computer - 5m cable | | | | | RE | | | | | | | | | | |
| Max Pressure 2.5Mpa with flanges up to DN80 | | | | | | 2.5 | | | | | | | | | Nominal Pressure (Mpa) |
| Max Pressure 1.6Mpa with flanges up to DN150 | | | | | | 1.6 | | | | | | | | | |
| Max Pressure 1.0Mpa with flanges up to DN900 | | | | | | 1.0 | | | | | | | | | |
| Max Pressure 0.6Mpa with flanges up to DN2000 | | | | | | 0.6 | | | | | | | | | |
| IP65 | | | | | | | 65 | | | | | | | | Protection |
| IP68 flow body and IP65 transmitter - only for remote | | | | | | | 68 | | | | | | | | |
| Not Needed | | | | | | | | 0 | | | | | | | Grounding Electrode |
| Needed | | | | | | | | 1 | | | | | | | |
| 11~40$V_{DC}$ | | | | | | | | | DC | | | | | | Power supply |
| 85~265$V_{AC}$, 50/60 Hz | | | | | | | | | AC | | | | | | |
| No communication | | | | | | | | | | 0 | | | | | Communication |
| HART | | | | | | | | | | 1 | | | | | |
| RS485 - Modbus | | | | | | | | | | 2 | | | | | |
| RS485 - Profibus DP | | | | | | | | | | 3 | | | | | |
| Becnet | | | | | | | | | | 4 | | | | | |
| None | | | | | | | | | | | NX | | | | Explosion proof |
| Aluminum Enclosure, SS# 304 flow tube, carbon steel coil housing and flange, with PT100 | | | | | | | | | | | | NN | | | Materials |
| Aluminum Enclosure, SS# 304 flow tube & flanges, carbon steel coil housing, with PT100 | | | | | | | | | | | | C304 | | | |
| Aluminum Enclosure, SS# 304 flow tube, flanges, & coil housing, with PT100 | | | | | | | | | | | | 304 | | | |
| None | | | | | | | | | | | | | NN | | Options |
| With mating carbon steel installation flange | | | | | | | | | | | | | IF | | |