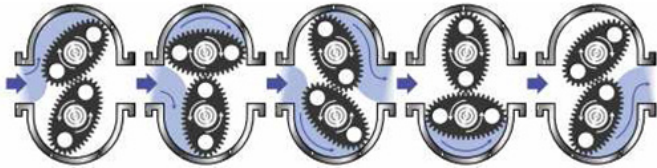


### DESCRIPTION

The Industrial Oval Gear Meter is a modular flow meter design, economical yet highly accurate and rugged. Due to the rugged nature of this particular flow measurement technology, the industrial Oval Gear Meter can be used in a number of applications where conventional meters are not acceptable.

### OPERATION PRINCIPLE

Fluid enters the inlet port and then passes through the metering chamber. Inside the chamber, fluid forces the internal gears to rotate before exiting through the outlet port. Each rotation of the gears displaces a specific volume of fluid. As the gears rotate, a magnet on each end of the gear pass a reed switch in the top-mounted register's circuit board. The reed switches send pulses to the microprocessor in the register to change the LED display segments. The oval gear meter can be used in conjunction with a variety of industrial registers.



### ADVANTAGES

- Highest quality, made in Germany
- Cost effective and commercially competitive product due to the most up to date automated production techniques
- Wide range of sizes, materials, displays and component options
- Most items ex stock for fast delivery, benefit from low shipping cost
- Local support, worldwide



### FEATURES

- High accuracy and repeatability
- Insensitive to viscosity change – Maintains accuracy
- Not affected by pulsating flows
- Can be mounted in tight pipework and any orientation
- Most industrial communications and outputs available
- Custom options available
- ATEX approval

### APPLICATIONS

Whether the liquid being measured is very viscous or highly corrosive, the oval gear meter can handle it. The industrial oval gear is designed for a variety of chemical applications including petroleum based fluids, water solutions, and any other liquid compatible with the materials of construction.

## PROCESS CONNECTIONS

| Port Size | Housing Material | NPT/BSP            | ANSI 150#        | ANSI 300#        | DIN              | Tri-Clamp®       |
|-----------|------------------|--------------------|------------------|------------------|------------------|------------------|
| 1/8 in.   | Stainless        | 1450 psi (100 bar) | n/a              | n/a              | n/a              | n/a              |
| 1/4 in.   | PVDF             | 230 psi (16 bar)   |                  |                  |                  |                  |
|           | Stainless        | 1450 psi (100 bar) |                  |                  |                  |                  |
|           | Aluminum         | 940 psi (65 bar)   |                  |                  |                  |                  |
| 1/2 in.   | Stainless        | 3000 psi (210 bar) | 275 psi (20 bar) | 790 psi (55 bar) | 230 psi (16 bar) | 230 psi (16 bar) |
|           | Aluminum         | 2000 psi (140 bar) | n/a              | n/a              | n/a              | n/a              |
| 3/4 in.   | PVDF             | 230 psi (16 bar)   | n/a              | n/a              | n/a              | n/a              |
|           | Stainless        | 3000 psi (210 bar) | 275 psi (20 bar) | 790 psi (55 bar) | 230 psi (16 bar) | 230 psi (16 bar) |
|           | Aluminum         | 2000 psi (140 bar) | n/a              | n/a              | n/a              | n/a              |
| 1 in.     | Stainless        | 3000 psi (210 bar) | 275 psi (20 bar) | 790 psi (55 bar) | 230 psi (16 bar) | 230 psi (16 bar) |
|           | Aluminum         | 2000 psi (140 bar) | n/a              | n/a              | n/a              | n/a              |
| 1 in. HF  | PVDF             | 230 psi (16 bar)   | n/a              | n/a              | n/a              | n/a              |
|           | Stainless        | 3000 psi (210 bar) | 275 psi (20 bar) | 790 psi (55 bar) | 230 psi (16 bar) | 230 psi (16 bar) |
|           | Aluminum         | 2000 psi (140 bar) | 275 psi (20 bar) | 790 psi (55 bar) | 230 psi (16 bar) | n/a              |
| 1-1/2 in. | Stainless        | 720 psi (50 bar)   | 275 psi (20 bar) | 720 psi (50 bar) | 230 psi (16 bar) | 230 psi (16 bar) |
|           | Aluminum         | 720 psi (50 bar)   | 275 psi (20 bar) | 720 psi (50 bar) | 230 psi (16 bar) | n/a              |
| 2 in.     | Stainless        | 580 psi (40 bar)   | 275 psi (20 bar) | 580 psi (40 bar) | 230 psi (16 bar) | 145 psi (10 bar) |
|           | Aluminum         | 580 psi (40 bar)   | 275 psi (20 bar) | 580 psi (40 bar) | 230 psi (16 bar) | n/a              |
| 3 in.     | Stainless        | 360 psi (25 bar)   | 275 psi (20 bar) | 360 psi (25 bar) | 230 psi (16 bar) | n/a              |
|           | Aluminum         | 360 psi (25 bar)   | 275 psi (20 bar) | 360 psi (25 bar) | 230 psi (16 bar) | n/a              |

High pressure ratings on request

## SPECIFICATIONS

| Housing and connection by size |   |
|--------------------------------|---|
| Sizes                          | 1/8 in., 1/4 in., 1/2 in., 3/4 in., 1 in., 1 in. HF, 1-1/2 in., 2 in. and 3 in. |
| Aluminum                       | NPT, BSP, 150# flange, DIN flange EN 1092-1/05                                  |
| Stainless                      | NPT, BSP, 150# or 300# flange, DIN flange Tri-Clamp®                            |
| PVDF                           | BSP, NPT  |

| Operating temperature             | Housing                               | Oval gears                            |
|-----------------------------------|---------------------------------------|---------------------------------------|
| Stainless steel                   | -22° F ... 240° F (-30° C ... 120° C) | -22° F ... 240° F (-30° C ... 120° C) |
| Plastic (PPS/LCP)                 | -22° F ... 176° F (-30° C ... 80° C)  | -22° F ... 176° F (-30° C ... 80° C)  |
| Aluminum                          | -22° F ... 240° F (-30° C ... 120° C) |                                       |
| PVDF                              | 14° F ... 140° F (-10° C ... 60° C)   |                                       |
| Storage temperature for all units | -67° F / 257° F (-55° C / 125° C)     |                                       |

| Viscosity   |
|---|
| Max 1000 mPas with standard rotors / 500000 mPas with high viscosity rotors |

## FLOW RANGE

| Port Size   | l/min          | gpm             | Fluid viscosity | Accuracy (%) | Accuracy PVDF (%) | Repeatability (%) |
|-------------|----------------|-----------------|-----------------|--------------|-------------------|-------------------|
| 1/8 in.     | 0.017 ... 0.83 | 0.0044 ... 0.22 | >5.0 cP         | ±1.0         | —                 | ±0.03             |
|             | 0.034 ... 0.83 | 0.0088 ... 0.22 | <5.0 cP         | ±1.5         | —                 | ±0.03             |
| 1/4 in. LF* | 0.04 ... 1.6   | 0.01 ... 0.4    | >5.0 cP         | ±1.0         | ±1.5              | ±0.03             |
|             | 0.09 ... 1.6   | 0.02 ... 0.4    | <5.0 cP         | ±1.5         | ±2.5              | ±0.03             |
| 1/4 in.*    | 0.25 ... 8.3   | 0.067 ... 2.2   | >5.0 cP         | ±1.0         | ±1.5              | ±0.03             |
|             | 0.44 ... 8.3   | 0.11 ... 2.2    | <5.0 cP         | ±1.5         | ±2.5              | ±0.03             |
| 1/2 in.     | 1 ... 30       | 0.25 ... 8.0    | >5.0 cP         | ±0.5         | —                 | ±0.03             |
|             | 2 ... 25       | 0.5 ... 6.6     | <5.0 cP         | ±1.5         | —                 | ±0.03             |
| 3/4 in.     | 2 ... 60       | 0.5 ... 16      | >5.0 cP         | ±0.5         | ±1.5              | ±0.03             |
|             | 4.5 ... 53     | 1.2 ... 14      | <5.0 cP         | ±1.5         | ±2.5              | ±0.03             |
| 1 in.       | 2.3 ... 68     | 0.6 ... 18      | >5.0 cP         | ±0.5         | ±1.5              | ±0.03             |
|             | 5.3 ... 60     | 1.4 ... 16      | <5.0 cP         | ±1.5         | ±2.5              | ±0.03             |
| 1 in. HF    | 5.7 ... 170    | 1.5 ... 45      | >5.0 cP         | ±0.5         | —                 | ±0.03             |
|             | 9.5 ... 150    | 2.6 ... 40      | <5.0 cP         | ±1.5         | —                 | ±0.03             |
|             | 5.7 ... 120    | 1.5 ... 31      | >5.0 cP         | —            | ±1.5              | ±0.03             |
|             | 9.5 ... 120    | 2.6 ... 31      | <5.0 cP         | —            | ±2.5              | ±0.03             |
| 1-1/2 in.   | 9.5 ... 245    | 2.5 ... 65      | >5.0 cP         | ±0.5         | —                 | ±0.03             |
|             | 15 ... 227     | 4.0 ... 60      | <5.0 cP         | ±1.5         | —                 | ±0.03             |
| 2 in.       | 15 ... 380     | 4.0 ... 100     | >5.0 cP         | ±0.5         | —                 | ±0.03             |
|             | 23... 380      | 6.0 ... 100     | <5.0 cP         | ±1.0         | —                 | ±0.03             |
| 3 in.       | 20 ... 700     | 5.0 ... 185     | >5.0 cP         | ±0.5         | —                 | ±0.03             |
|             | 38 ... 700     | 10 ... 185      | <5.0 cP         | ±1.0         | —                 | ±0.03             |

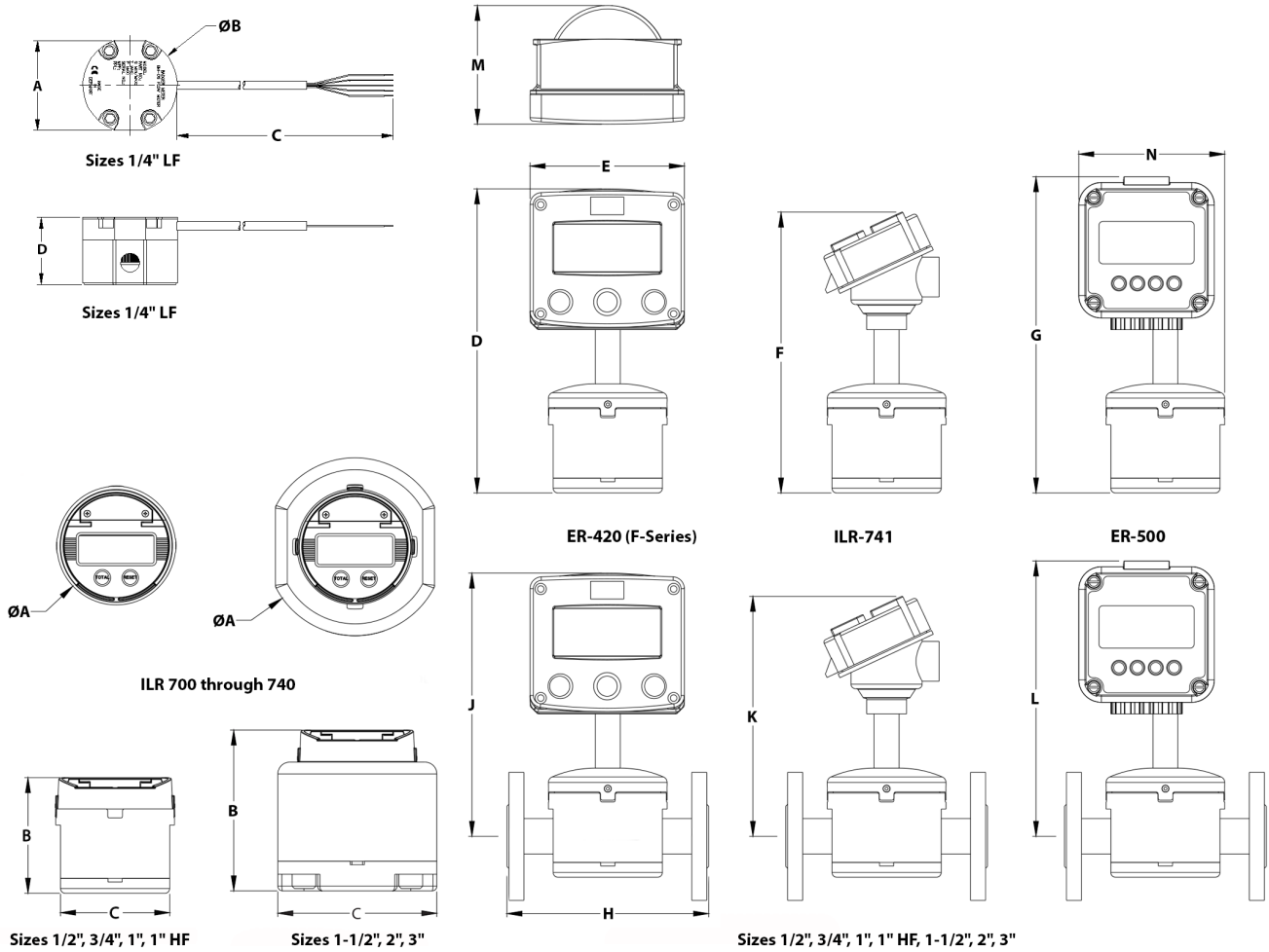
\*Special calibration with the following viscosities is possible for the 1/8 in. and 1/4 in. meters.

## MATERIAL OF CONSTRUCTION

| Port Size  | Housing      | Cover        | Spindle | Gears      | Bearings | O-Ring | Bolts  |
|------------|--------------|--------------|---------|------------|----------|--------|--------|
| 1/8 in.    | 316 SS       | 316 SS       | 316 SS  | 316 SS     | Graphite | Viton  | 316 SS |
| 1/4 in.    | 316 SS       | 316 SS       |         | 316 SS     | Graphite |        |        |
|            | 6061/6082 Al | 6061/6082 Al |         | PPS        |          |        |        |
| 1/2 in.    | 316 SS       | 316 SS       |         | 316 SS     | Graphite |        |        |
|            | 6061/6082 Al | 6061/6082 Al |         | LCP or PPS |          |        |        |
| 3/4 in.    | 316 SS       | 316 SS       |         | 316 SS     | Graphite |        |        |
|            | 6061/6082 Al | 6061/6082 Al |         | LCP or PPS |          |        |        |
| 1 in.      | 316 SS       | 316 SS       |         | 316 SS     | Graphite |        |        |
|            | 6061/6082 Al | 6061/6082 Al |         | LCP or PPS |          |        |        |
| 1 in. HF   | 316 SS       | 316 SS       |         | 316 SS     | Graphite |        |        |
|            | 6061/6082 Al | 6061/6082 Al |         | PPS        |          |        |        |
| 1- 1/2 in. | 316 SS       | 316 SS       |         | 316 SS     | Graphite |        |        |
|            | 6061/6082 Al | 6061/6082 Al |         | PPS        |          |        |        |
| 2 in.      | 316 SS       | 316 SS       |         | 316 SS     | Graphite |        |        |
|            | 6061/6082 Al | 6061/6082 Al |         | PPS        |          |        |        |
| 3 in.      | 316 SS       | 316 SS       |         | 316 SS     | Graphite |        |        |
|            | 6061/6082 Al | 6061/6082 Al | PPS     |            |          |        |        |
|            |              |              |         |            |          | Kalrez |        |

**NOTE:** All PVDF devices are supplied with Hastelloy-C spindles.

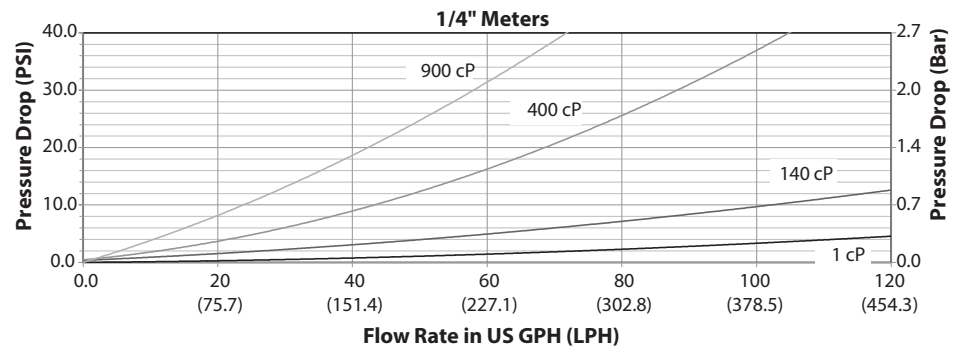
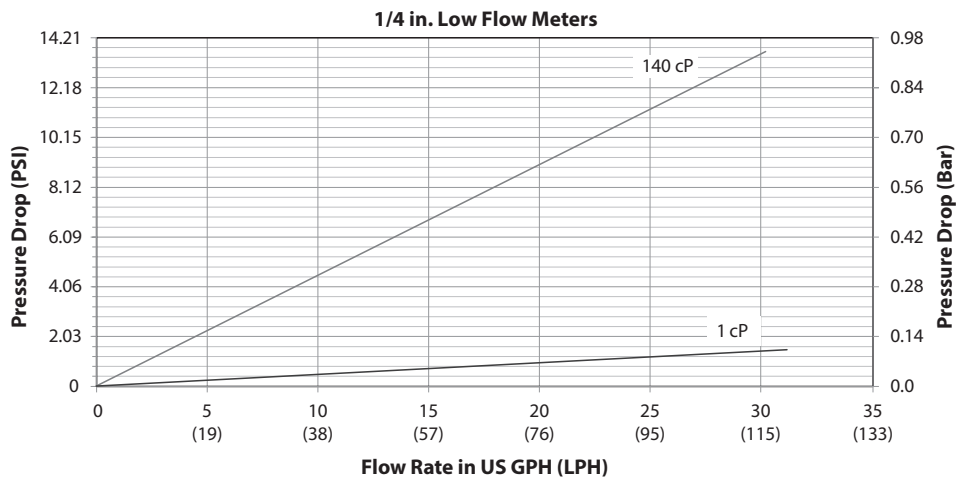
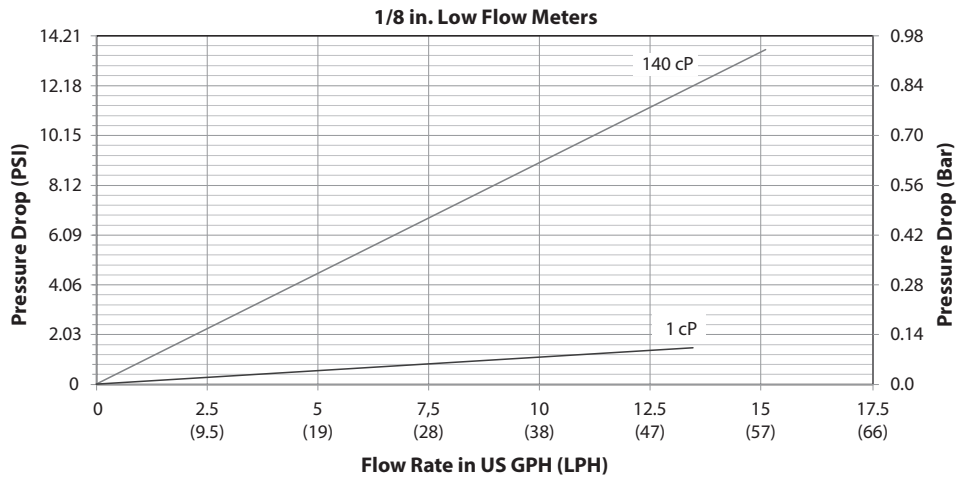
**DIMENSIONS**

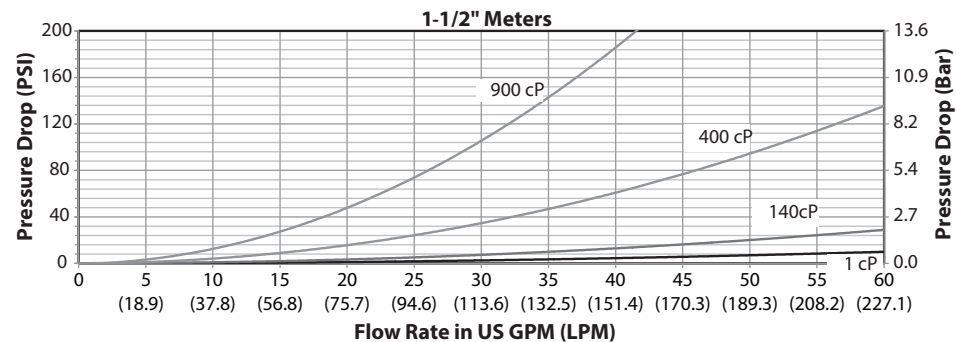
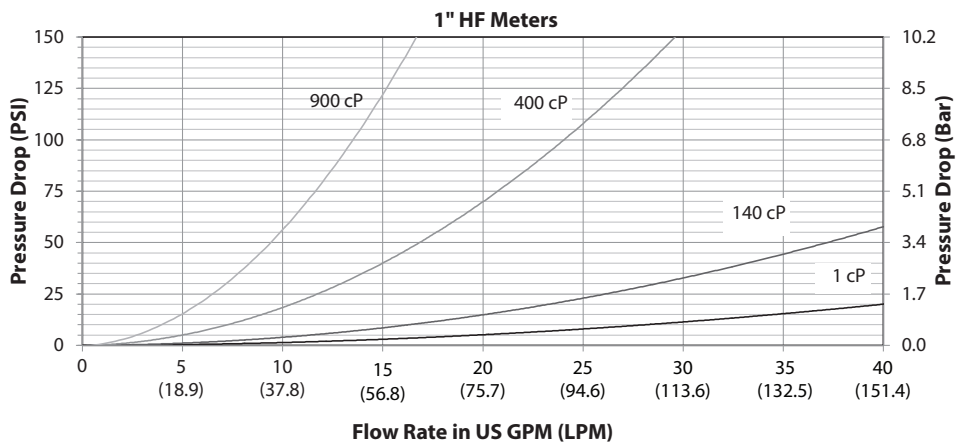
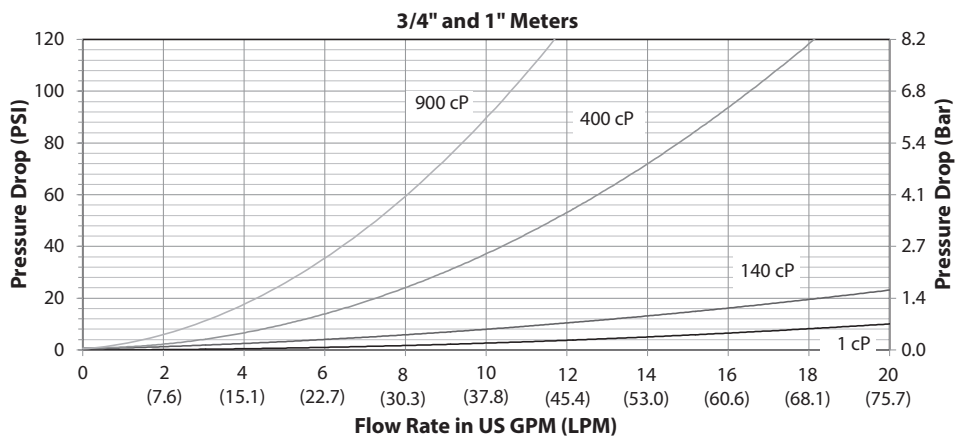
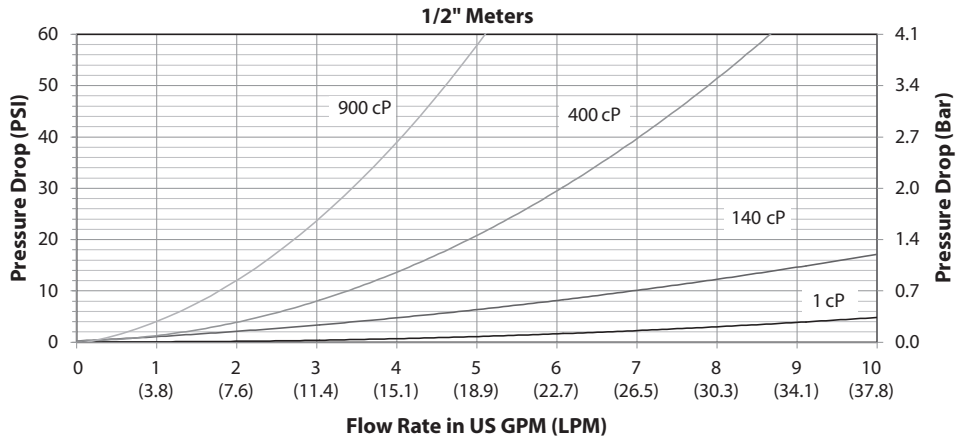


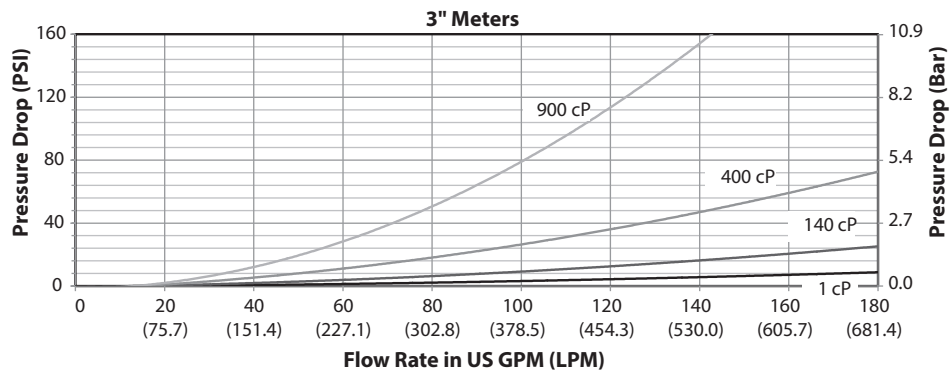
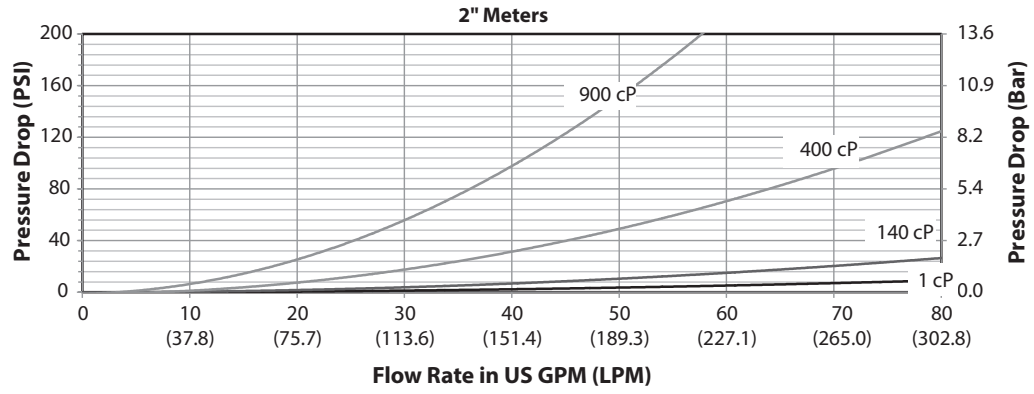
| Port Size  | A                    | B                      | C                    | D                       | E                    | F                       | G                       | H                     | J                      | K                      | L                      | M                      | N                      |
|------------|----------------------|------------------------|----------------------|-------------------------|----------------------|-------------------------|-------------------------|-----------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| 1/8 in.    | 2.05 in.<br>(52 mm)  | 2.17 in.<br>(55 mm)    | 118 in.<br>(3000 mm) | 0.79 in.<br>(20 mm)     | —                    | —                       | —                       | —                     | —                      | —                      | —                      | —                      | —                      |
| 1/4 in. LF | 2.05 in.<br>(52 mm)  | 2.17 in.<br>(55 mm)    | 118 in.<br>(3000 mm) | 1.54 in.<br>(39 mm)     | —                    | —                       | —                       | —                     | —                      | —                      | —                      | —                      | —                      |
| 1/4 in.    | 2.05 in.<br>(52 mm)  | 2.17 in.<br>(55 mm)    | 118 in.<br>(3000 mm) | 1.54 in.<br>(39 mm)     | —                    | —                       | —                       | —                     | —                      | —                      | —                      | —                      | —                      |
| 1/2 in.    | 3.94 in.<br>(100 mm) | 3.44 in.<br>(87.5 mm)  | 3.62 in.<br>(92 mm)  | 9.70 in.<br>(246.4 mm)  | 5.12 in.<br>(130 mm) | 8.93 in.<br>(226.8 mm)  | 10.10 in.<br>(256.5 mm) | 6.69 in.<br>(170 mm)  | 8.45 in.<br>(214.6 mm) | 7.68 in.<br>(195.1 mm) | 8.89 in.<br>(225.8 mm) | 3.94 in.<br>(100.2 mm) | 4.84 in.<br>(122.9 mm) |
| 3/4 in.    | 3.94 in.<br>(100 mm) | 3.84 in.<br>(97.5 mm)  | 3.62 in.<br>(92 mm)  | 10.10 in.<br>(256.5 mm) | 5.12 in.<br>(130 mm) | 9.33 in.<br>(236.9 mm)  | 10.50 in.<br>(266.7 mm) | 6.69 in.<br>(170 mm)  | 8.70 in.<br>(220.9 mm) | 7.93 in.<br>(201.4 mm) | 9.14 in.<br>(232.2 mm) | 3.94 in.<br>(100.2 mm) | 4.84 in.<br>(122.9 mm) |
| 1 in.      | 3.94 in.<br>(100 mm) | 3.84 in.<br>(97.5 mm)  | 3.62 in.<br>(92 mm)  | 10.10 in.<br>(256.5 mm) | 5.12 in.<br>(130 mm) | 9.33 in.<br>(236.9 mm)  | 10.50 in.<br>(266.7 mm) | 6.69 in.<br>(170 mm)  | 8.70 in.<br>(220.9 mm) | 7.93 in.<br>(201.4 mm) | 9.14 in.<br>(232.2 mm) | 3.94 in.<br>(100.2 mm) | 4.84 in.<br>(122.9 mm) |
| 1 in. HF   | 3.94 in.<br>(100 mm) | 3.89 in.<br>(98.9 mm)  | 3.62 in.<br>(92 mm)  | 10.15 in.<br>(257.8 mm) | 5.12 in.<br>(130 mm) | 9.38 in.<br>(238.3 mm)  | 10.55 in.<br>(268.0 mm) | 6.69 in.<br>(170 mm)  | 8.60 in.<br>(218.4 mm) | 7.83 in.<br>(198.8 mm) | 9.04 in.<br>(229.6 mm) | 3.94 in.<br>(100.2 mm) | 4.84 in.<br>(122.9 mm) |
| 1-1/2 in.  | 5.51 in.<br>(140 mm) | 4.93 in.<br>(125.3 mm) | 4.92 in.<br>(125 mm) | 11.15 in.<br>(283.2 mm) | 5.12 in.<br>(130 mm) | 10.38 in.<br>(263.7 mm) | 11.51 in.<br>(292.4 mm) | 8.35 in.<br>(212 mm)  | 8.90 in.<br>(226.1 mm) | 8.13 in.<br>(206.5 mm) | 9.31 in.<br>(236.5 mm) | N/A                    | N/A                    |
| 2 in.      | 5.91 in.<br>(150 mm) | 5.34 in.<br>(135.6 mm) | 5.28 in.<br>(134 mm) | 11.60 in.<br>(294.6 mm) | 5.12 in.<br>(130 mm) | 10.83 in.<br>(275.1 mm) | 11.96 in.<br>(303.8 mm) | 10.39 in.<br>(264 mm) | 9.16 in.<br>(232.7 mm) | 8.39 in.<br>(213.1 mm) | 9.57 in.<br>(243.1 mm) | N/A                    | N/A                    |
| 3 in.      | 8.27 in.<br>(210 mm) | 6.35 in.<br>(162 mm)   | 7.09 in.<br>(180 mm) | 12.57 in.<br>(319.3 mm) | 5.12 in.<br>(130 mm) | 11.80 in.<br>(299.7 mm) | 12.93 in.<br>(328.4 mm) | 13.54 in.<br>(344 mm) | 9.58 in.<br>(243.3 mm) | 8.81 in.<br>(223.8 mm) | 9.99 in.<br>(253.8 mm) | N/A                    | N/A                    |

**NOTE:** ILR register series not compatible with 3 in. meter.

**PRESSURE DROP VS. FLOW RATE**







## INDUSTRIAL LINE REGISTERS

### Type ILR 700, 701, 740, 741, 750

#### Description

The electronic register module contains a microprocessor board powered by a lithium battery. It can be programmed to batch in liters, pints, quarts, or gallons and will totalize in liters or gallons. A calibration factor and unit of measure are programmed during factory test. Unlike mechanical registers, these units can be electronically recalibrated in the field when necessary.

A 6 digit LC display, accurate to three decimal places, shows the exact amount of fluid that has passed through the meter. The entire register module is protected from normal wear and tear by a rugged, shock resistant housing.

If the total dispensed exceeds 999.999 then the display will shift and only 2 digits will be displayed after the decimal point, 9999.99 and will continue to shift to the maximum value of 999999. After reaching 999999 the batch totalizer will rollover to 0.000. The batch totalizer is reset to zero when the reset button is depressed.

The register also has a resettable totalizer that requires that the total and reset button both be depressed to reset (hold the "Total" button, then press the "Reset" button to reset this totalizer while resettable totalize is displayed). This would be used for multiple batch totalization purposes.

The register's life time totalizer is 11 digits and will either be in gallons or liters based on the unit of measure selected. Pushing and holding the total button while the life time totalizer is displayed will display the full 11 digit life time totalizer value.

#### Operation

Industrial Oval Gear Meter has magnets on the gears that cause the reed switches to send pulses to the register as they rotate.

The register is in a sleep mode until it detects these pulses caused by fluid going through the meter. The micro-processor in the register then measures the flow and will display either the batch totalization or the flow rate of the fluid going through the meter on the 6 digit display.

The registers batch totalizer is a 6 digit display with three places of resolution after the decimal point.



#### Features

- Large six digit LCD display
- Display in liters, pints, quarts or gallons, freely programmable
- 11 digits, non-resettable lifetime totalizer and 6 digits, resettable totalizer
- ILR series: -4° F ... 176° F (-20° C ... 80° C)
- Replaceable long life battery
- Calibration factor saved in non-volatile memory
- 9 point linearization (ILR 750, ILR 701). Test medium is water
- Scalable pulse output (ILR 750)
- 4 ... 20 mA output (ILR 750)
- Protection class IP65

| Register Model                             | Register features  | Temperature Ranges            |
|--|--|-------------------------------|
| ILR 700 Standard register                  | Flow rate or totalizer display selectable in the programming menu<br>Selectable unit of measure  | -4 ... 176° F (-20 ... 80° C) |
| ILR 701                                    | 9 point linearization  |                               |
| ILR 750 pulse output<br>4 ... 20 mA output | Scalable pulse output<br>Ability to set pulse output length<br>Analog 4 ... 20 mA output representing the flow rate of the meter<br>Minimum and maximum values can be set for analog output<br>9 point linearization |                               |

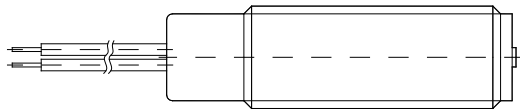
**NOTE:** The ILR 701 and 750 all have the standard features of the ILR 700.

|                                   |   |                                 |
|-----------------------------------|---|---------------------------------|
| ILR 740 Transmitter               | Transmitter (reed switch)   | -40 ... 257° F (-40 ... 125° C) |
| ILR 741 Transmitter               | NEMA 4x enclosure and adapter   |                                 |
| ER 420 (F110) Flow rate/Totalizer | Refer to the ER 420 product data sheet and user manual for additaional, detailed information. | -22 ... 176° F (-30 ... 80° C)  |
| ER 500 Flow rate/Totalizer        | Refer to the ER 500 product data sheet and user manual for additaional, detailed information. | -22 ... 158° F (-30 ... 70° C)  |

**NOTE:** The ILR register series is not compatible with 3 in. meters.



## NPN AND PNP SENSOR FOR HAZARDOUS LOCATION



White (□□)

Red (+)

Black (-)



### Specifications

|                                       |   |
|---------------------------------------|---|
| <b>Switching function</b>             | Open collector                                      |
| <b>Output type</b>                    | NPN or PNP 3-wire (2 versions available)            |
| <b>Supply voltage</b>                 | 5 ... 30 V DC ( $I \leq 15 \text{ mA}$ )            |
| <b>Supply current</b>                 | 100 mA max ( $P_{\text{max}} = 0.66 \text{ watt}$ ) |
| <b>Effective internal inductivity</b> | $C_i \leq 12 \text{ nF}$                            |
| <b>Effective internal inductance</b>  | $L_i \leq 0 \mu\text{H}$                            |
| <b>Cable length</b>                   | 118 inch (3 meters)                                 |
| <b>Material</b>                       | Stainless steel 1.4404 (316L)                       |
| <b>Protection class</b>               | IP66 / IP67   |

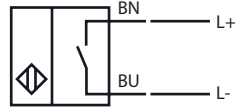
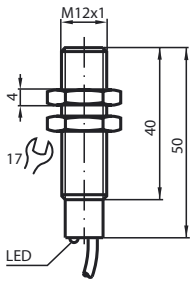
### Marking

|               |   |
|---------------|---|
| <b>USA</b>    | Intrinsically safe<br>Class I, II, III, Division 1<br>GROUP ABCDEFG T6 to T5                            |
| <b>Canada</b> | Intrinsically safe<br>Class I, Division 1<br>GROUP ABCD T6 to T5<br>Class I, Zone 0, Ex ia IIC T6 to T5 |
| <b>ATEX</b>   | Ex II 1G Ex ia IIC T6 to T4 Ga  |
| <b>IIECEX</b> | Ex ia IIC T6 to T4 Ga   |

## NAMUR SENSOR



CE  
0102



### Specifications

|                                       |  |
|---------------------------------------|--|
| <b>Switching function</b>             | Normally open (NO)   |
| <b>Output type</b>                    | NAMUR 2-wire   |
| <b>Nominal voltage</b>                | U <sub>o</sub> 8.2 V (R <sub>i</sub> approx. 1 kΩ)                       |
| <b>Effective internal inductivity</b> | C <sub>i</sub> ≤ 15 nF; a cable length of 32.8 feet (10 m) is considered |
| <b>Effective internal inductance</b>  | L <sub>i</sub> ≤ 35 μH; a cable length of 32.8 feet (10 m) is considered |
| <b>Switch state indicator</b>         | LED (yellow)   |
| <b>Ambient temperature</b>            | -13 ... 158° F (-25 ... 70° C)   |
| <b>Cable length</b>                   | 78 inch (2 meters) (PVC)   |
| <b>Core cross-section</b>             | 0.34 mm <sup>2</sup>   |
| <b>Material</b>                       | Stainless steel 1.4404 (316L)  |
| <b>Protection class</b>               | IP66 / IP67  |

### Marking

|              |                                   |
|--------------|-----------------------------------|
| <b>Namur</b> | CE 0102 / Ex II2G Ex ib IIC T6 Gb |
|--------------|-----------------------------------|

## REED AND HALL BOARD

### Description

Using the reed or hall board, unscaled pulses can be transmitted from the meter to an evaluation instrument like a SPS or a flow computer. The size of the meter can be selected by the slide switch on the circuit board, so all meter sizes

1/2 ... 3 in. are covered with only one circuit board. Further slide switches on the hall board enable various settings, as pulse doubling, pull-up resistance or signal inversion. As well both outputs can be used with only one or two separated power supplies.

### Pulse Factors for ILR 740, Reed and Hall Board

| Size        | Pulse per gallon | Pulse per liter |
|-------------|------------------|-----------------|
| 1/8 in.     | 17032            | Approx. 4500    |
| 1/4 in. LF* | 8213.4           | Approx. 2170    |
| 1/4 in.*    | 1476             | Approx. 390     |
| 1/2 in.     | 378.5            | 100             |
| 3/4 in.     | 249.8            | 66              |
| 1 in.       | 249.8            | 66              |
| 1 in. HF    | 162.8            | 43              |
| 1-1/2 in.   | 64.4             | 17              |
| 2 in.       | 34.1             | 9               |
| 3 in.       | 11.4             | 3               |

\* 2 pulse outputs: 1 reed, 1 hall, standard for all 1/8 in. and 1/4 in. meters.

### Features

- One reed or hall board for all meter sizes (1/2 in. ... 3 in.)
- Meter size can be selected on the circuit board
- Available in stainless steel 316, aluminum and POM (for PVDF version)
- Two pulse outputs each via reed or hall 90° out-of-phase to detect the flow direction
- Hall board with optional pulse doubling and optional pull-up resistor
- Hall signal with option for positive or negative edge
- Power supply for Hall 24V DC



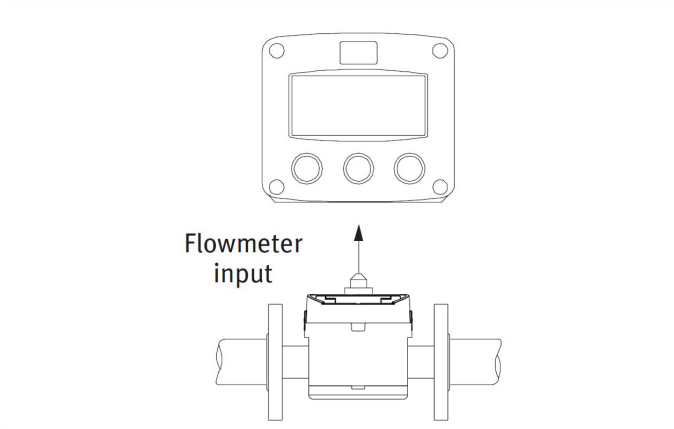
## ER420 [F-SERIES (F012, F018, ER420 (F110), F131)]

### Features

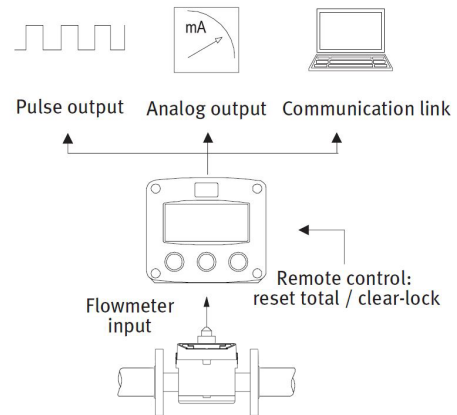
- With the ER420 (F-Series) the following signals types can be processed: Turbine sine wave (coil) pick-ups, reed switches, hall-effect sensors and other active or passive.
- Analog output (0)4 ... 20 mA or 0 ... 10 V DC
- Temperature ranges -22 ... 176° F (-30 ... 80° C)
- Modbus via RS232, RS485 or TTL interface
- Scaled pulse output
- HART 7.0 option
- Meter control
- ER420 (F110) Temperature Range
- ATEX markings for gas and dust applications are:  
II 1 G Ex ia IIC T4  
II 1 D Ex iaD 20 IP 65/67 T 100° C



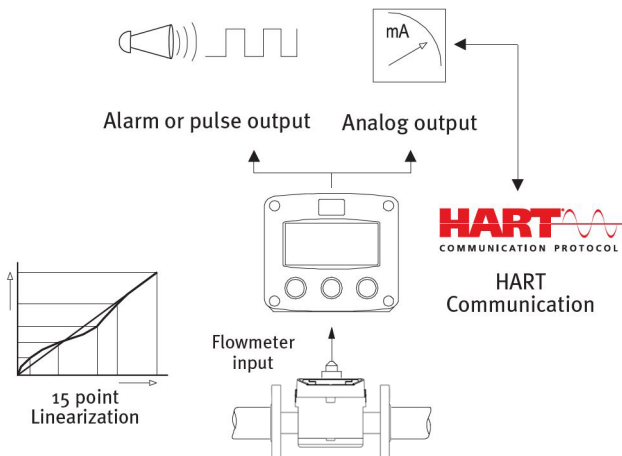
### Overview Application F012



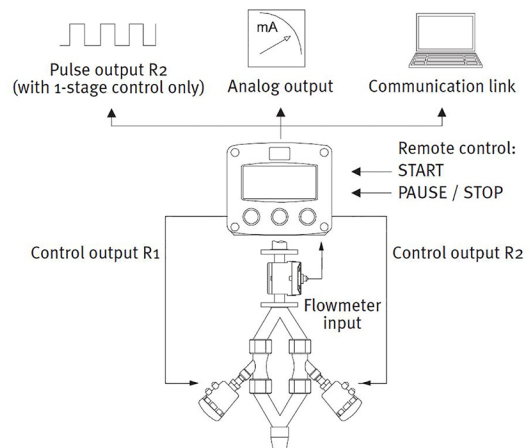
### Overview Application ER420 (F110)



### Overview Application F018



### Overview Application F131



## FLOW MONITOR ER-500

### Input

|                         |               |
|-------------------------|---------------|
| Frequency range         | 1 ... 3500 Hz |
| Frequency accuracy      | ±0.1 %        |
| Over voltage protection | 28 V DC       |

### Outputs

|         |             |
|---------|-------------|
| Analog: | 4 ... 20 mA |
|---------|-------------|

### Totalizing Pulse

Optoisolated (ISO) open collector transistor, non-isolated open drain FET.

### Status Alarms

Open collector transistor, adjustable flow rate with programmable dead band and phase.

### Modbus

Modbus RTU over RS485, 127 addressable units / 2-wire network, 9600 baud, long integer and single precision IEEE754 formats; retrieve: flow rate, job totalizer, grand totalizer, alarm status and battery level; write: reset job totalizer, reset grand totalizer.

### Protection Class

NEMA 4X/IP 66

For more information, see the data sheet "Flow Monitor ER-500".



### Features

- Compact size.
- High accuracy and repeatability (0.05 %).
- Flexibility of installation options.
- Robust alarm parameters provide faster warning when something changes in the process or pipeline.
- Advanced connectivity options allow you to connect meters to your network for remote monitoring and process automation capabilities.
- Flexible power options include battery and 4 ... 20 mA loop power, providing a number of benefits including: The ability to install in remote location and be up and running immediately.
- Maintains readings and settings in the event of a power loss, and pro-long the life of the batteries for up to 6 years.
- An updated display and enhanced totalization options provide more flow information at your fingertips, including display of rate and total at the same time and standard, batch and grand totals.

**PART NUMBER CONSTRUCTION**

**Industrial Oval Gear Meter  
Model IOG**



**METER SIZE (LINE SIZE)**

1/8 in (6 mm) 1,0 - 50 liter per hour 001

**BASE MATERIAL 1/8" (6 mm)**

STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS SS

**ROTORS**

STANDARD ST

**PROCESS CONNECTION**

NPT, STANDARD FEMALE NAA  
BSP, STANDARD FEMALE BAA

**SEALS**

FKM/VITON V  
TFE(P)/AFLAS A  
FFKM/KALREZ K  
EPDM E

**REGISTRATION**

**METER MOUNTED TRANSMITTERS**

REED / HALL Pulsar reed switch free of potential / pulser hall sensor 3-wire external powered 6-24 VDC T8

**REMOTE REGISTRATION**

|           |   |    |
|-----------|---|----|
| ER-420-AC | ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 115-230 VAC)                                       | RD |
| ER-420-DC | ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 24V DC)  | RE |
| ER-420-LP | ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, LOOP POWERED)                                      | RF |
| F012A     | 8-30VDC / Battery / Backlight   | TA |
| F012B     | 8-30VDC / Battery / Backlight / intrinsically safe  | TB |
| F012C     | 115 - 230 VAC / Backlight   | TC |
| F018A     | 8-30VDC / Battery / Backlight / HART 7.0  | TD |
| F018B     | 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe                                     | TE |
| F110A     | 8-30VDC / Battery / Backlight / Analog+pulse output   | TF |
| F110B     | 8-30VDC / Battery / Analog+pulse output / intrinsically safe                                      | TG |
| F110C     | 115-230VAC / Backlight / Analog+pulse output  | TH |
| F110D     | 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output                                  | TI |
| F110E     | 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output   | TJ |
| F131A     | 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs                                      | TK |
| F131B     | 115-230VAC / Backlight / Batch / 2 Relay outputs  | TL |
| F131C     | 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe                             | TN |
| F131D     | 24VDC / Backlight / Batch / 2 Relay outputs   | TM |
| F001      | Wall mount remote display with pulse output and analog output, units - l/min, l/hr,... 3 decimals | FW |
| ER-500S   | 24VDC / Battery / Analog+Pulse output   | PR |
| ER-500A   | 24VDC / Battery / Analog+Pulse output/ Modbus RS485   | PA |
| NONE      |   | XX |

**UNIT OF MEASURE/PROGRAMMING**

LITERS LTR  
NONE XXX

**REMOTE CABLE LENGTH**

3M STANDARD CABLE M3  
NONE WW

**CERTIFICATION**

NONE W  
ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY F  
SILICON FREE L  
ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE E

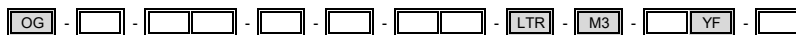
**SERIALIZATION METER**

YR MFG 8D, NONE YF  
NONE XX

**Additional Options**

5 POINT CALIBRATION REPORT BA  
LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only) BB  
3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only) BC  
NONE XX

**Industrial Oval Gear Meter  
Model IOG**



**METER SIZE (LINE SIZE)**

1/4 in (8 mm) LOW FLOW 2.4 - 100 liter per hour

L02

**BASE MATERIAL 1/4", 1/4" LOW FLOW (8 mm, 8 mm LOW FLOW)**

|   |    |
|---|----|
| ALUMINUM (6061/6081) BODY / STAINLESS STEEL (316L) ROTORS   | AS |
| ALUMINUM (6061/6081) BODY / RYTON (PPS) ROTORS              | AR |
| STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS | SS |
| STAINLESS STEEL (316L) BODY / RYTON (PPS) ROTORS            | SR |
| KYNAR (PVDF) BODY / STAINLESS STEEL (316L) ROTORS           | KS |
| KYNAR (PVDF) BODY / RYTON (PPS) ROTORS                      | KR |

**ROTORS**

STANDARD ST

**PROCESS CONNECTION**

NPT, STANDARD FEMALE NAA  
 BSP, STANDARD FEMALE BAA

**SEALS**

FKM/VITON V  
 TFE(P)/AFLAS A  
 FFKM/KALREZ K  
 EPDM E

**REGISTRATION**

**METER MOUNTED TRANSMITTERS**

REED / HALL Pulsar reed switch free of potential / pulser hall sensor 3-wire external powered 6-24 VDC T8

**REMOTE REGISTRATION**

|           |   |    |
|-----------|---|----|
| ER-420-AC | ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 115-230 VAC)                                       | RD |
| ER-420-DC | ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 24V DC)  | RE |
| ER-420-LP | ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, LOOP POWERED)                                      | RF |
| F012A     | 8-30VDC / Battery / Backlight   | TA |
| F012B     | 8-30VDC / Battery / Backlight / intrinsically safe  | TB |
| F012C     | 115 - 230 VAC / Backlight   | TC |
| F018A     | 8-30VDC / Battery / Backlight / HART 7.0  | TD |
| F018B     | 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe                                     | TE |
| F110A     | 8-30VDC / Battery / Backlight / Analog+pulse output   | TF |
| F110B     | 8-30VDC / Battery / Analog+pulse output / intrinsically safe                                      | TG |
| F110C     | 115-230VAC / Backlight / Analog+pulse output  | TH |
| F110D     | 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output                                  | TI |
| F110E     | 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output   | TJ |
| F131A     | 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs                                      | TK |
| F131B     | 115-230VAC / Backlight / Batch / 2 Relay outputs  | TL |
| F131C     | 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe                             | TN |
| F131D     | 24VDC / Backlight / Batch / 2 Relay outputs   | TM |
| F001      | Wall mount remote display with pulse output and analog output, units - l/min, l/hr,... 3 decimals | FW |
| ER-500S   | 24VDC / Battery / Analog+Pulse output   | PR |
| ER-500A   | 24VDC / Battery / Analog+Pulse output/ Modbus RS485   | PA |
| NONE      |   | XX |

**UNIT OF MEASURE/PROGRAMMING**

LITERS LTR  
 NONE XXX

**REMOTE CABLE LENGTH**

3M STANDARD CABLE M3  
 NONE WW

**CERTIFICATION**

NONE W  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY F  
 SILICON FREE L  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE E

**SERIALIZATION METER**

YR MFG 8D, NONE YF  
 NONE XX

**Additional Options**

5 POINT CALIBRATION REPORT BA  
 LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only) BB  
 3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only) BC  
 NONE XX

**Industrial Oval Gear Meter**  
**Model IOG**

OG - - - - - LTR - M3 - YF -

**METER SIZE (LINE SIZE)**

1/4 in (8 mm) 15 - 500 liter per hour 002

**BASE MATERIAL 1/4", 1/4" LOW FLOW (8 mm, 8 mm LOW FLOW)**

|   |    |
|---|----|
| ALUMINUM (6061/6081) BODY / STAINLESS STEEL (316L) ROTORS   | AS |
| ALUMINUM (6061/6081) BODY / RYTON (PPS) ROTORS              | AR |
| STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS | SS |
| STAINLESS STEEL (316L) BODY / RYTON (PPS) ROTORS            | SR |
| KYNAR (PVDF) BODY / STAINLESS STEEL (316L) ROTORS           | KS |
| KYNAR (PVDF) BODY / RYTON (PPS) ROTORS                      | KR |

**ROTORS**

|   |    |
|---|----|
| STANDARD                                | ST |
| HIGH VISCOSITY ROTORS (MODIFIED ROTORS) | HV |

**PROCESS CONNECTION**

|                      |     |
|----------------------|-----|
| NPT, STANDARD FEMALE | NAA |
| BSP, STANDARD FEMALE | BAA |

**SEALS**

|              |   |
|--------------|---|
| FKM/VITON    | V |
| TFE(P)/AFLAS | A |
| FFKM/KALREZ  | K |
| EPDM         | E |

**REGISTRATION**

**METER MOUNTED TRANSMITTERS**

|             |  |    |
|-------------|--|----|
| REED / HALL | Pulsar reed switch free of potential / pulser hall sensor 3-wire external powered 6-24 VDC | T8 |
|-------------|--|----|

**REMOTE REGISTRATION**

|           |  |    |
|-----------|--|----|
| ER-420-AC | ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 115-230 VAC)  | RD |
| ER-420-DC | ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 24V DC)   | RE |
| ER-420-LP | ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, LOOP POWERED)                                       | RF |
| F012A     | 8-30VDC / Battery / Backlight  | TA |
| F012B     | 8-30VDC / Battery / Backlight / intrinsically safe   | TB |
| F012C     | 115 - 230 VAC / Backlight  | TC |
| F018A     | 8-30VDC / Battery / Backlight / HART 7.0   | TD |
| F018B     | 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe                                      | TE |
| F110A     | 8-30VDC / Battery / Backlight / Analog+pulse output  | TF |
| F110B     | 8-30VDC / Battery / Analog+pulse output / intrinsically safe                                       | TG |
| F110C     | 115-230VAC / Backlight / Analog+pulse output   | TH |
| F110D     | 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output                                   | TI |
| F110E     | 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output  | TJ |
| F131A     | 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs                                       | TK |
| F131B     | 115-230VAC / Backlight / Batch / 2 Relay outputs   | TL |
| F131C     | 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe                              | TN |
| F131D     | 24VDC / Backlight / Batch / 2 Relay outputs  | TM |
| F001      | Wall mount remote display with pulse output and analog output, units - l/min, l/hr, ... 3 decimals | FW |
| ER-500S   | 24VDC / Battery / Analog+Pulse output  | PR |
| ER-500A   | 24VDC / Battery / Analog+Pulse output/ Modbus RS485  | PA |
| NONE      |  | XX |

**UNIT OF MEASURE/PROGRAMMING**

|        |     |
|--------|-----|
| LITERS | LTR |
| NONE   | XXX |

**REMOTE CABLE LENGTH**

|                   |    |
|-------------------|----|
| 3M STANDARD CABLE | M3 |
| NONE              | WW |

**CERTIFICATION**

|   |   |
|---|---|
| NONE  | W |
| ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY                   | F |
| SILICON FREE  | L |
| ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE | E |

**SERIALIZATION METER**

|                 |    |
|-----------------|----|
| YR MFG 8D, NONE | YF |
| NONE            | XX |

**Additional Options**

|  |    |
|--|----|
| 5 POINT CALIBRATION REPORT   | BA |
| LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only)                           | BB |
| 3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only) | BC |
| NONE   | XX |



**Industrial Oval Gear Meter**  
**Model IOG**

OG - - - - - LTR - - - - - YF - - - - -

**METER SIZE (LINE SIZE)**

1/2 in (15 mm) 1 ~ 30 l/min (0.25 ~ 8 USG/min) 005

**BASE MATERIAL 1/2" - 3/4" - 1" (15 mm, 20 mm, 25 mm)**

ALUMINUM (6061/6081) BODY / VECTRA (LCP) ROTORS AV  
 STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS SS  
 STAINLESS STEEL (316L) BODY / RYTON (PPS) ROTORS SR  
 STAINLESS STEEL (316L) BODY / VECTRA (LCP) ROTORS SV

**ROTORS**

STANDARD ST  
 HIGH VISCOSITY ROTORS (MODIFIED ROTORS) HV

**PROCESS CONNECTION**

NPT, STANDARD FEMALE NAA  
 BSP, STANDARD FEMALE BAA  
 ASME, CLASS 150 FLG, RF (Only for SST housing) FAA  
 ASME, CLASS 300 FLG, RF (Only for SST housing) FAB  
 DIN, PN 16 FLG (Only for SST housing) FEC  
 TRI-CLAMP (DIN 32676) (Only for SST housing) TAA

**SEALS**

FKM/VITON V  
 TFE(P)/AFAS A  
 FFKM/KALREZ K  
 EPDM E

**REGISTRATION**

**METER MOUNTED TRANSMITTERS**

ILR-740 Unscaled Pulse Output (w/ 3 meter cable) T1  
 ILR-741 Unscaled Pulse Output (no cable) T2  
 NAMUR Namur sensor / unscaled (w/ 2 meter cable) T3  
 PNP Open collector Sensor PNP / unscaled (w/ 3 meter cable) T4  
 NPN Open collector Sensor NPN / unscaled (w/ 3 meter cable) T5  
 REED Reed switch board with cable gland (no cable) T6  
 HALL Hall board with cable gland (no cable) T7

**METER MOUNTED REGISTRATION / BATCH CONTROLLERS**

ILR-700 Standard display rate / total / total resettable D1  
 ILR-701 Display rate / total / total resettable / Linearization D2  
 ILR-750 Display rate / total / total resettable / pulse out / 4-20mA / Linearization / 6-24VDC (w/3 meter cable) D3  
 ER-420-AC Scalable Rate/Flow Counter w/ 4-20 mA, 115-230V AC AA  
 ER-420-DC Scalable Rate/Flow Counter w/ 4-20 mA, 24V DC A4  
 ER-420-LP Scalable Rate/Flow Counter w/ 4-20 mA, LOOP POWERED AL  
 F012A 8-30VDC / Battery / Backlight FA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe FB  
 F012C 115 - 230 VAC / Backlight FC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 FD  
 F018B 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe FE  
 F110A 8-30VDC / Battery / Backlight / Analog+pulse output FF  
 F110B 8-30VDC / Battery / Analog+pulse output / intrinsically safe FG  
 F110C 115-230VAC / Backlight / Analog+pulse output FH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output FI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output FJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs FK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs FL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe FN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs FM  
 ER-500S 24VDC / Battery / Analog+Pulse output ER  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 EA  
 NONE XX

**REMOTE REGISTRATION**

ER-420-AC ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 115-230 VAC) RD  
 ER-420-DC ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 24V DC) RE  
 ER-420-LP ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, LOOP POWERED) RF  
 F012A 8-30VDC / Battery / Backlight TA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe TB  
 F012C 115 - 230 VAC / Backlight TC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 TD  
 F018B 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe TE  
 F110A 8-30VDC / Battery / Backlight / Analog+pulse output TF  
 F110B g+pulse output / intrinsically safe TG  
 F110C 115-230VAC / Backlight / Analog+pulse output TH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output TI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output TJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs TK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs TL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe TN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs TM  
 ER-500S 24VDC / Battery / Analog+Pulse output PR  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 PA  
 NONE XX

**UNIT OF MEASURE/PROGRAMMING**

LITERS LTR  
 NONE XXX

**REMOTE CABLE LENGTH**

3M STANDARD CABLE M3  
 NONE WW

**CERTIFICATION**

NONE W  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY (Only for SST BODY with SST ROTORS available) F  
 SILICON FREE L  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE (Only for SST BODY with SST ROTORS available) E

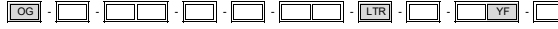
**SERIALIZATION METER**

YR MFG 8D, NONE YF  
 NONE XX

**Additional Options**

5 POINT CALIBRATION REPORT BA  
 LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only) BB  
 3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only) BC  
 NONE XX

**Industrial Oval Gear Meter**  
**Model IOG**



**METER SIZE (LINE SIZE)**

3/4 in (20 mm) 2 - 60 l/min (0.5 - 16 USG/min) 007

**BASE MATERIAL 1/2" - 3/4" - 1" (15 mm, 20 mm, 25 mm)**

ALUMINUM (6061/6081) BODY / VECTRA (LCP) ROTORS AV  
 STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS SS  
 STAINLESS STEEL (316L) BODY / RYTON (PPS) ROTORS SR  
 STAINLESS STEEL (316L) BODY / VECTRA (LCP) ROTORS SV  
 KYNAR (PVDF) BODY / RYTON (PPS) ROTORS KR  
 KYNAR (PVDF) BODY / VECTRA (LCP) ROTORS KV

**ROTORS**

STANDARD ST  
 HIGH VISCOSITY ROTORS (MODIFIED ROTORS) HV

**PROCESS CONNECTION**

NPT, STANDARD FEMALE NAA  
 BSP, STANDARD FEMALE BAA  
 ASME, CLASS 150 FLG, RF (Only for SST housing) FAA  
 ASME, CLASS 300 FLG, RF (Only for SST housing) FAB  
 DIN, PN 16 FLG (Only for SST housing) FEC  
 TRI-CLAMP (DIN 32676) (Only for SST housing) TAA

**SEALS**

FKM/VITON V  
 TFE(P)/AFLAS A  
 FFKM/KALREZ K  
 EPDM E

**REGISTRATION**

**METER MOUNTED TRANSMITTERS**

ILR-740 Unscaled Pulse Output (w/ 3 meter cable) T1  
 ILR-741 Unscaled Pulse Output (no cable) T2  
 NAMUR Namur sensor / unscaled (w/ 2 meter cable) T3  
 PNP Open collector Sensor PNP / unscaled (w/ 3 meter cable) T4  
 NPN Open collector Sensor NPN / unscaled (w/ 3 meter cable) T5  
 REED Reed switch board with cable gland (no cable) T6  
 HALL Hall board with cable gland (no cable) T7

**METER MOUNTED REGISTRATION / BATCH CONTROLLERS**

ILR-700 Standard display rate / total / total resettable D1  
 ILR-701 Display rate / total / total resettable / Linearization D2  
 ILR-750 Display rate / total / total resettable / pulse out / 4-20mA / Linearization / 6-24VDC (w/3 meter cable) D3  
 ER-420-AC Scalable Rate/Flow Counter w/ 4-20 mA, 115-230V AC AA  
 ER-420-DC Scalable Rate/Flow Counter w/ 4-20 mA, 24V DC A4  
 ER-420-LP Scalable Rate/Flow Counter w/ 4-20 mA, LOOP POWERED AL  
 F012A 8-30VDC / Battery / Backlight FA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe FB  
 F012C 115 - 230 VAC / Backlight FC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 FD  
 F018B 8-30VDC / Battery / Backlight / HART 7.0 / Intrinsically safe FE  
 F110A 8-30VDC / Battery / Backlight / Analog+pulse output FF  
 F110B 8-30VDC / Battery / Analog+pulse output / Intrinsically safe FG  
 F110C 115-230VAC / Backlight / Analog+pulse output FH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output FI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output FJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs FK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs FL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe FN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs FM  
 ER-500S 24VDC / Battery / Analog+Pulse output ER  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 EA  
 NONE XX

**REMOTE REGISTRATION**

ER-420-AC ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 115-230 VAC) RD  
 ER-420-DC ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 24V DC) RE  
 ER-420-LP ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, LOOP POWERED) RF  
 F012A 8-30VDC / Battery / Backlight TA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe TB  
 F012C 115 - 230 VAC / Backlight TC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 TD  
 F018B ght / HART 7.0 / intrinsically safe TE  
 F110A 8-30VDC / Battery / Backlight / Analog+pulse output TF  
 F110B 8-30VDC / Battery / Analog+pulse output / intrinsically safe TG  
 F110C 115-230VAC / Backlight / Analog+pulse output TH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output TI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output TJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs TK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs TL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe TN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs TM  
 ER-500S 24VDC / Battery / Analog+Pulse output PR  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 PA  
 NONE XX

**UNIT OF MEASURE/PROGRAMMING**

LITERS LTR  
 NONE XXX  
 REMOTE CABLE LENGTH M3  
 3M STANDARD CABLE WW

**CERTIFICATION**

NONE W  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY (Only for SST BODY with SST ROTORS available) F  
 SILICON FREE L  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE (Only for SST BODY with SST ROTORS available) E

**SERIALIZATION METER**

YR MFG 8D, NONE YF  
 NONE XX

**Additional Options**

5 POINT CALIBRATION REPORT BA  
 LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only) BB  
 3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only) BC  
 NONE XX

**Industrial Oval Gear Meter**  
**Model IOG**

IOG - - - - - LTR - - - - - YF -

|   |  |     |     |
|---|--|-----|-----|
| <u>METER SIZE (LINE SIZE)</u>   |  | 010 |     |
| 1 in (25 mm) 2,3 - 68 l/min (0.6 - 18 USG/min)  |  |     |     |
| <u>BASE MATERIAL 1/2" - 3/4" - 1" (15 mm, 20 mm, 25 mm)</u>   |  |     |     |
| ALUMINUM (6061/6081) BODY / VECTRA (LCP) ROTORS   |  | AV  |     |
| STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS   |  | SS  |     |
| STAINLESS STEEL (316L) BODY / RYTON (PPS) ROTORS  |  | SR  |     |
| STAINLESS STEEL (316L) BODY / VECTRA (LCP) ROTORS   |  | SV  |     |
| <u>ROTORS</u>   |  |     |     |
| STANDARD  |  | ST  |     |
| HIGH VISCOSITY ROTORS (MODIFIED ROTORS)   |  | HV  |     |
| <u>PROCESS CONNECTION</u>   |  |     |     |
| NPT, STANDARD FEMALE  |  | NAA |     |
| BSP, STANDARD FEMALE  |  | BAA |     |
| ASME, CLASS 150 FLG, RF (Only for SST housing)  |  | FAA |     |
| ASME, CLASS 300 FLG, RF (Only for SST housing)  |  | FAB |     |
| DIN, PN 16 FLG (Only for SST housing)   |  | FEC |     |
| TRI-CLAMP (DIN 32676) (Only for SST housing)  |  | TAA |     |
| <u>SEALS</u>  |  |     |     |
| FKM/VITON   |  | V   |     |
| TFE(P)/AFLAS  |  | A   |     |
| FFKM/KALREZ   |  | K   |     |
| EPDM  |  | E   |     |
| <u>REGISTRATION</u>   |  |     |     |
| <u>METER MOUNTED TRANSMITTERS</u>   |  |     |     |
| ILR-740   | Unscaled Pulse Output (w/ 3 meter cable)   |     | T1  |
| ILR-741   | Unscaled Pulse Output (no cable)   |     | T2  |
| NAMUR   | Namur sensor / unscaled (w/ 2 meter cable)   |     | T3  |
| PNP   | Open collector Sensor PNP / unscaled (w/ 3 meter cable)  |     | T4  |
| NPN   | Open collector Sensor NPN / unscaled (w/ 3 meter cable)  |     | T5  |
| REED  | Reed switch board with cable gland (no cable)  |     | T6  |
| HALL  | Hall board with cable gland (no cable)   |     | T7  |
| <u>METER MOUNTED REGISTRATION / BATCH CONTROLLERS</u>   |  |     |     |
| ILR-700   | Standard display rate / total / total resettable   |     | D1  |
| ILR-701   | Display rate / total / total resettable / Linearization  |     | D2  |
| ILR-750   | Display rate / total / total resettable / pulse out / 4-20mA / Linearization / 6-24VDC (w/3 meter cable) |     | D3  |
| ER-420-AC   | Scalable Rate/Flow Counter w/ 4-20 mA, 115-230V AC   |     | AA  |
| ER-420-DC   | Scalable Rate/Flow Counter w/ 4-20 mA, 24V DC  |     | A4  |
| ER-420-LP   | Scalable Rate/Flow Counter w/ 4-20 mA, LOOP POWERED  |     | AL  |
| F012A   | 8-30VDC / Battery / Backlight  |     | FA  |
| F012B   | 8-30VDC / Battery / Backlight / Intrinsically safe   |     | FB  |
| F012C   | 115 - 230 VAC / Backlight  |     | FC  |
| F018A   | 8-30VDC / Battery / Backlight / HART 7.0   |     | FD  |
| F018B   | 8-30VDC / Battery / Backlight / HART 7.0 / Intrinsically safe  |     | FE  |
| F110A   | 8-30VDC / Battery / Backlight / Analog+pulse output  |     | FF  |
| F110B   | 8-30VDC / Battery / Analog+pulse output / Intrinsically safe   |     | FG  |
| F110C   | 115-230VAC / Backlight / Analog+pulse output   |     | FH  |
| F110D   | 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output   |     | FI  |
| F110E   | 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output  |     | FJ  |
| F131A   | 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs   |     | FK  |
| F131B   | 115-230VAC / Backlight / Batch / 2 Relay outputs   |     | FL  |
| F131C   | 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe                                    |     | FN  |
| F131D   | 24VDC / Backlight / Batch / 2 Relay outputs  |     | FM  |
| ER-500S   | 24VDC / Battery / Analog+Pulse output  |     | ER  |
| ER-500A   | 24VDC / Battery / Analog+Pulse output/ Modbus RS485  |     | EA  |
| NONE  |  |     | XX  |
| <u>REMOTE REGISTRATION</u>  |  |     |     |
| ER-420-AC   | ER-420 (Scalable Rate/Flow Counter w/ 4-20mA, 115-230 VAC)   |     | RD  |
| ER-420-DC   | ER-420 (Scalable Rate/Flow Counter w/ 4-20mA, 24V DC)  |     | RE  |
| ER-420-LP   | ER-420 (Scalable Rate/Flow Counter w/ 4-20mA, LOOP POWERED)  |     | RF  |
| F012A   | 8-30VDC / Battery / Backlight  |     | TA  |
| F012B   | 8-30VDC / Battery / Backlight / Intrinsically safe   |     | TB  |
| F012C   | 115 - 230 VAC / Backlight  |     | TC  |
| F018A   | 8-30VDC / Battery / Backlight / HART 7.0   |     | TD  |
| F018B   | 8-30VDC / Battery / Backlight / HART 7.0 / Intrinsically safe  |     | TE  |
| F110A   | 8-30VDC / Battery / Backlight / Analog+pulse output  |     | TF  |
| F110B   | g+pulse output / Intrinsically safe  |     | TG  |
| F110C   | 115-230VAC / Backlight / Analog+pulse output   |     | TH  |
| F110D   | 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output   |     | TI  |
| F110E   | 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output  |     | TJ  |
| F131A   | 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs   |     | TK  |
| F131B   | 115-230VAC / Backlight / Batch / 2 Relay outputs   |     | TL  |
| F131C   | 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe                                    |     | TN  |
| F131D   | 24VDC / Backlight / Batch / 2 Relay outputs  |     | TM  |
| ER-500S   | 24VDC / Battery / Analog+Pulse output  |     | PR  |
| ER-500A   | 24VDC / Battery / Analog+Pulse output/ Modbus RS485  |     | PA  |
| NONE  |  |     | XX  |
| <u>UNIT OF MEASURE/PROGRAMMING</u>  |  |     |     |
| LITERS  |  |     | LTR |
| NONE  |  |     | XXX |
| <u>REMOTE CABLE LENGTH</u>  |  |     |     |
| 3M STANDARD CABLE   |  |     | M3  |
| NONE  |  |     | WW  |
| <u>CERTIFICATION</u>  |  |     |     |
| NONE  |  |     | W   |
| ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY (Only for SST BODY with SST ROTORS available)                   |  |     | F   |
| SILICON FREE  |  |     | L   |
| ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE (Only for SST BODY with SST ROTORS available) |  |     | E   |
| <u>SERIALIZATION METER</u>  |  |     |     |
| YR MFG 8D, NONE   |  |     | YF  |
| NONE  |  |     | XX  |
| <u>Additional Options</u>   |  |     |     |
| 5 POINT CALIBRATION REPORT  |  |     | BA  |
| LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only)                                    |  |     | BB  |
| 3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only)          |  |     | BC  |
| NONE  |  |     | XX  |

**Industrial Oval Gear Meter**  
**Model IOG**

OG - - - - - LTR - - - - - YF - - - - -

**METER SIZE (LINE SIZE)**

1 in (25 mm) HIGH FLOW 5.7 – 170 l/min (1.5 – 45 USG/min) H10

**BASE MATERIAL 1" HF, 1-1/2", 2", 3" (15 mm HF, 40 mm, 50 mm, 80 mm)**

ALUMINUM (6061/6081) BODY / STAINLESS STEEL (316L) ROTORS AS  
 ALUMINUM (6061/6081) BODY / RYTON (PPS) ROTORS AR  
 STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS SS  
 STAINLESS STEEL (316L) BODY / RYTON (PPS) ROTORS SR  
 KYNAR (PVDF) BODY / RYTON (PPS) ROTORS KR

**ROTORS**

STANDARD ST  
 HIGH VISCOSITY ROTORS (MODIFIED ROTORS) HV

**PROCESS CONNECTION**

NPT, STANDARD FEMALE NAA  
 BSP, STANDARD FEMALE BAA  
 ASME, CLASS 150 FLG, RF FAA  
 ASME, CLASS 300 FLG, RF FAB  
 DIN, PN 16 FLG FEC  
 TRI-CLAMP (DIN 32676) (Only for SST housing) TAA

**SEALS**

FKM/VITON V  
 TFE/PJ/AFLAS A  
 FFKM/KALREZ K  
 EPDM E

**REGISTRATION**

**METER MOUNTED TRANSMITTERS**

ILR-740 Unscaled Pulse Output (w/ 3 meter cable) T1  
 ILR-741 Unscaled Pulse Output (no cable) T2  
 NAMUR Namur sensor / unscaled (w/ 2 meter cable) T3  
 PNP Open collector Sensor PNP / unscaled (w/ 3 meter cable) T4  
 NPN Open collector Sensor NPN / unscaled (w/ 3 meter cable) T5  
 REED Reed switch board with cable gland (no cable) T6  
 HALL Hall board with cable gland (no cable) T7

**METER MOUNTED REGISTRATION / BATCH CONTROLLERS**

ILR-700 Standard display rate / total / total resettable D1  
 ILR-701 Display rate / total / total resettable / Linearization D2  
 ILR-750 Display rate / total / total resettable / pulse out / 4-20mA / Linearization / 6-24VDC (w/3 meter cable) D3  
 ER-420-AC Scalable Rate/Flow Counter w/ 4-20 mA, 115-230V AC AA  
 ER-420-DC Scalable Rate/Flow Counter w/ 4-20 mA, 24V DC A4  
 ER-420-LP Scalable Rate/Flow Counter w/ 4-20 mA, LOOP POWERED AL  
 F012A 8-30VDC / Battery / Backlight FA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe FB  
 F012C 115 - 230 VAC / Backlight FC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 FD  
 F018B 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe FE  
 F110A 8-30VDC / Battery / Backlight / Analog+pulse output FF  
 F110B 8-30VDC / Battery / Analog+pulse output / intrinsically safe FG  
 F110C 115-230VAC / Backlight / Analog+pulse output FH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output FI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output FJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs FK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs FL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe FN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs FM  
 ER-500S 24VDC / Battery / Analog+Pulse output ER  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 EA  
 NONE XX

**REMOTE REGISTRATION**

ER-420-AC ER-420 (Scalable Rate/Flow Counter w/ 4-20mA, 115-230 VAC) RD  
 ER-420-DC ER-420 (Scalable Rate/Flow Counter w/ 4-20mA, 24V DC) RE  
 ER-420-LP ER-420 (Scalable Rate/Flow Counter w/ 4-20mA, LOOP POWERED) RF  
 F012A 8-30VDC / Battery / Backlight TA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe TB  
 F012C 115 - 230 VAC / Backlight TC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 TD  
 F018B 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe TE  
 F110A Backlight / Analog+pulse output TF  
 F110B 8-30VDC / Battery / Analog+pulse output / intrinsically safe TG  
 F110C 115-230VAC / Backlight / Analog+pulse output TH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output TI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output TJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs TK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs TL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe TN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs TM  
 ER-500S 24VDC / Battery / Analog+Pulse output PR  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 PA  
 NONE XX

**UNIT OF MEASURE/PROGRAMMING**

LITERS LTR  
 NONE XXX

**REMOTE CABLE LENGTH**

3M STANDARD CABLE M3  
 NONE WW

**CERTIFICATION**

NONE W  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY (Only for SST BODY with SST ROTORS available) F  
 SILICON FREE L  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE (Only for SST BODY with SST ROTORS available) E

**SERIALIZATION METER**

YR MFG 8D, NONE YF  
 NONE XX

**Additional Options**

5 POINT CALIBRATION REPORT BA  
 LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only) BB  
 3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only) BC  
 NONE XX

**Industrial Oval Gear Meter**  
**Model IOG**

OG - - - - - LTR - - - - - YF - - - - -

**METER SIZE (LINE SIZE)**

1-1/2 in (40 mm) 9.5 - 246 l/min (2.5 - 65 USG/min) 015

**BASE MATERIAL 1" HF, 1-1/2", 2", 3" (15 mm HF, 40 mm, 50 mm, 80 mm)**

ALUMINUM (6061/6081) BODY / STAINLESS STEEL (316L) ROTORS AS  
 ALUMINUM (6061/6081) BODY / RYTON (PPS) ROTORS AR  
 STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS SS  
 STAINLESS STEEL (316L) BODY / RYTON (PPS) ROTORS SR

**ROTORS**

STANDARD ST  
 HIGH VISCOSITY ROTORS (MODIFIED ROTORS) HV

**PROCESS CONNECTION**

NPT, STANDARD FEMALE NAA  
 BSP, STANDARD FEMALE BAA  
 ASME, CLASS 150 FLG, RF FAA  
 ASME, CLASS 300 FLG, RF FAB  
 DIN, PN 16 FLG FEC  
 TRI-CLAMP (DIN 32676) (Only for SST housing) TAA

**SEALS**

FKM/VITON V  
 TFE(P)/AFLAS A  
 FFKM/KALREZ K  
 EPDM E

**REGISTRATION**

**METER MOUNTED TRANSMITTERS**

ILR-740 Unscaled Pulse Output (w/ 3 meter cable) T1  
 ILR-741 Unscaled Pulse Output (no cable) T2  
 NAMUR Namur sensor / unscaled (w/ 2 meter cable) T3  
 PNP Open collector Sensor PNP / unscaled (w/ 3 meter cable) T4  
 NPN Open collector Sensor NPN / unscaled (w/ 3 meter cable) T5  
 REED Reed switch board with cable gland (no cable) T6  
 HALL Hall board with cable gland (no cable) T7

**METER MOUNTED REGISTRATION / BATCH CONTROLLERS**

ILR-700 Standard display rate / total / total resettable D1  
 ILR-701 Display rate / total / total resettable / Linearization D2  
 ILR-750 Display rate / total / total resettable / pulse out / 4-20mA / Linearization / 6-24VDC (w/3 meter cable) D3  
 ER-420-AC Scalable Rate/Flow Counter w/ 4-20 mA, 115-230V AC AA  
 ER-420-DC Scalable Rate/Flow Counter w/ 4-20 mA, 24V DC A4  
 ER-420-LP Scalable Rate/Flow Counter w/ 4-20 mA, LOOP POWERED AL  
 F012A 8-30VDC / Battery / Backlight FA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe FB  
 F012C 115 - 230 VAC / Backlight FC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 FD  
 F018B 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe FE  
 F110A 8-30VDC / Battery / Backlight / Analog+pulse output FF  
 F110B 8-30VDC / Battery / Analog+pulse output / intrinsically safe FG  
 F110C 115-230VAC / Backlight / Analog+pulse output FH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output FI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output FJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs FK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs FL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe FN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs FM  
 ER-500S 24VDC / Battery / Analog+Pulse output ER  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 EA  
 NONE XX

**REMOTE REGISTRATION**

ER-420-AC ER-420 (Scalable Rate/Flow Counter w/ 4-20mA, 115-230 VAC) RD  
 ER-420-DC ER-420 (Scalable Rate/Flow Counter w/ 4-20mA, 24V DC) RE  
 ER-420-LP ER-420 (Scalable Rate/Flow Counter w/ 4-20mA, LOOP POWERED) RF  
 F012A 8-30VDC / Battery / Backlight TA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe TB  
 F012C 115 - 230 VAC / Backlight TC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 TD  
 F018B 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe TE  
 F110A 8-30VDC / Battery / Backlight / Analog+pulse output TF  
 F110B g+pulse output / intrinsically safe TG  
 F110C 115-230VAC / Backlight / Analog+pulse output TH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output TI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output TJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs TK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs TL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe TN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs TM  
 ER-500S 24VDC / Battery / Analog+Pulse output PR  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 PA  
 NONE XX

**UNIT OF MEASURE/PROGRAMMING**

LITERS LTR  
 NONE XXX

**REMOTE CABLE LENGTH**

3M STANDARD CABLE M3  
 NONE WW

**CERTIFICATION**

NONE W  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY (Only for SST BODY with SST ROTORS available) F  
 SILICON FREE L  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE (Only for SST BODY with SST ROTORS available) E

**SERIALIZATION METER**

YR MFG 8D, NONE YF  
 NONE XX

**Additional Options**

5 POINT CALIBRATION REPORT BA  
 LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only) BB  
 3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only) BC  
 NONE XX

**Industrial Oval Gear Meter**  
**Model IOG**

OG - - - - - LTR - - - - - YF - - - - -

**METER SIZE (LINE SIZE)**

2 in (50 mm) 15 - 379 l/min (4 - 100 USG/min) 020

**BASE MATERIAL 1" HF, 1-1/2", 2", 3" (15 mm HF, 40 mm, 50 mm, 80 mm)**

ALUMINUM (6061/6081) BODY / STAINLESS STEEL (316L) ROTORS AS  
 ALUMINUM (6061/6081) BODY / RYTON (PPS) ROTORS AR  
 STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS SS  
 STAINLESS STEEL (316L) BODY / RYTON (PPS) ROTORS SR

**ROTORS**

STANDARD ST  
 HIGH VISCOSITY ROTORS (MODIFIED ROTORS) HV

**PROCESS CONNECTION**

NPT, STANDARD FEMALE NAA  
 BSP, STANDARD FEMALE BAA  
 ASME, CLASS 150 FLG; RF FAA  
 ASME, CLASS 300 FLG; RF FAB  
 DIN; PN 16 FLG FEC  
 TRI-CLAMP (DIN 32676) (Only for SST housing) TAA

**SEALS**

FKM/VITON V  
 TFE(P)/AFLAS A  
 FFKM/KALREZ K  
 EPDM E

**REGISTRATION**

**METER MOUNTED TRANSMITTERS**

ILR-740 Unscaled Pulse Output (w/ 3 meter cable) T1  
 ILR-741 Unscaled Pulse Output (no cable) T2  
 NAMUR Namur sensor / unscaled (w/ 2 meter cable) T3  
 PNP Open collector Sensor PNP / unscaled (w/ 3 meter cable) T4  
 NPN Open collector Sensor NPN / unscaled (w/ 3 meter cable) T5  
 REED Reed switch board with cable gland (no cable) T6  
 HALL Hall board with cable gland (no cable) T7

**METER MOUNTED REGISTRATION / BATCH CONTROLLERS**

ILR-700 Standard display rate / total / total resettable D1  
 ILR-701 Display rate / total / total resettable / Linearization D2  
 ILR-750 Display rate / total / total resettable / pulse out / 4-20mA / Linearization / 6-24VDC (w/3 meter cable) D3  
 ER-420-AC Scalable Rate/Flow Counter w/ 4-20 mA, 115-230V AC AA  
 ER-420-DC Scalable Rate/Flow Counter w/ 4-20 mA, 24V DC A4  
 ER-420-LP Scalable Rate/Flow Counter w/ 4-20 mA, LOOP POWERED AL  
 F012A 8-30VDC / Battery / Backlight FA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe FB  
 F012C 115 - 230 VAC / Backlight FC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 FD  
 F018B 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe FE  
 F110A 8-30VDC / Battery / Backlight / Analog+pulse output FF  
 F110B 8-30VDC / Battery / Analog+pulse output / intrinsically safe FG  
 F110C 115-230VAC / Backlight / Analog+pulse output FH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output FI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output FJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs FK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs FL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe FN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs FM  
 ER-500S 24VDC / Battery / Analog+Pulse output ER  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 EA  
 NONE XX

**REMOTE REGISTRATION**

ER-420-AC ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 115-230 VAC) RD  
 ER-420-DC ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 24V DC) RE  
 ER-420-LP ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, LOOP POWERED) RF  
 F012A 8-30VDC / Battery / Backlight TA  
 F012B 8-30VDC / Battery / Backlight / intrinsically safe TB  
 F012C 115 - 230 VAC / Backlight TC  
 F018A 8-30VDC / Battery / Backlight / HART 7.0 TD  
 F018B 8-30VDC / Battery / Backlight / HART 7.0 / intrinsically safe TE  
 F110A 8-30VDC / Battery / Backlight / Analog+pulse output TF  
 F110B g+pulse output / intrinsically safe TG  
 F110C 115-230VAC / Backlight / Analog+pulse output TH  
 F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output TI  
 F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output TJ  
 F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs TK  
 F131B 115-230VAC / Backlight / Batch / 2 Relay outputs TL  
 F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe TN  
 F131D 24VDC / Backlight / Batch / 2 Relay outputs TM  
 ER-500S 24VDC / Battery / Analog+Pulse output PR  
 ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 PA  
 NONE XX

**UNIT OF MEASURE/PROGRAMMING**

LITERS LTR  
 NONE XXX

**REMOTE CABLE LENGTH**

3M STANDARD CABLE M3  
 NONE WW

**CERTIFICATION**

NONE W  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY (Only for SST BODY with SST ROTORS available) F  
 SILICON FREE L  
 ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE (Only for SST BODY with SST ROTORS available) E

**SERIALIZATION METER**

YR MFG 8D, NONE YF  
 NONE XX

**Additional Options**

5 POINT CALIBRATION REPORT BA  
 LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only) BB  
 3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only) BC  
 NONE XX

**Industrial Oval Gear Meter  
Model IOG**



**METER SIZE (LINE SIZE)**

3 in (80 mm) 19 ~ 700 l/min (5 ~ 185 USG/min) 030

**BASE MATERIAL 1" HF, 1-1/2", 2", 3" (15 mm HF, 40 mm, 50 mm, 80 mm)**

ALUMINUM (6061/6081) BODY / STAINLESS STEEL (316L) ROTORS AS  
STAINLESS STEEL (316L) BODY / STAINLESS STEEL (316L) ROTORS SS

**ROTORS**

STANDARD ST  
HIGH VISCOSITY ROTORS (MODIFIED ROTORS) HV

**PROCESS CONNECTION**

NPT, STANDARD FEMALE NAA  
BSP, STANDARD FEMALE BAA  
ASME, CLASS 150 FLG, RF FAA  
ASME, CLASS 300 FLG, RF FAB  
DIN, PN 16 FLG FEC

**SEALS**

FKM/VITON V  
TFE(P)/AFLAS A  
FFKM/KALREZ K  
EPDM E

**REGISTRATION**

**METER MOUNTED TRANSMITTERS**

ILR-741 Unscaled Pulse Output (no cable) T2  
NAMUR Namur sensor / unscaled (w/ 2 meter cable) T3  
PNP Open collector Sensor PNP / unscaled (w/ 3 meter cable) T4  
NPN Open collector Sensor NPN / unscaled (w/ 3 meter cable) T5  
REED Reed switch board with cable gland (no cable) T6  
HALL Hall board with cable gland (no cable) T7

**METER MOUNTED REGISTRATION / BATCH CONTROLLERS**

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ER-420-LP Scalable Rate/Flow Counter w/ 4-20 mA, LOOP POWERED AL  
F012A 8-30VDC / Battery / Backlight FA  
F012B 8-30VDC / Battery / Backlight / Intrinsically safe FB  
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F110A 8-30VDC / Battery / Backlight / Analog+pulse output FF  
F110B 8-30VDC / Battery / Analog+pulse output / Intrinsically safe FG  
F110C 115-230VAC / Backlight / Analog+pulse output FH  
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F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs FK  
F131B 115-230VAC / Backlight / Batch / 2 Relay outputs FL  
F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe FN  
F131D 24VDC / Backlight / Batch / 2 Relay outputs FM  
ER-500S 24VDC / Battery / Analog+Pulse output ER  
ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 EA  
NONE XX

**REMOTE REGISTRATION**

ER-420-AC ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 115-230 VAC) RD  
ER-420-DC ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, 24V DC) RE  
ER-420-LP ER-420 (Scaleable Rate/Flow Counter w/ 4-20mA, LOOP POWERED) RF  
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F012B 8-30VDC / Battery / Backlight / Intrinsically safe TB  
F012C 115 - 230 VAC / Backlight TC  
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F110C 115-230VAC / Backlight / Analog+pulse output TH  
F110D 8-30VDC / Battery / Backlight/RS485-2 wire / Analog+pulse output TI  
F110E 115-230VAC / Backlight/RS485-2 wire / Analog+pulse output TJ  
F131A 8-30VDC / Battery / Backlight / Batch / 2 transistor outputs TK  
F131B 115-230VAC / Backlight / Batch / 2 Relay outputs TL  
F131C 8-30VDC / Battery / Batch / 2 transistor outputs / Intrinsically safe TN  
F131D / Batch / 2 Relay outputs TM  
ER-500S 24VDC / Battery / Analog+Pulse output PR  
ER-500A 24VDC / Battery / Analog+Pulse output/ Modbus RS485 PA  
NONE XX

**UNIT OF MEASURE/PROGRAMMING**

LITERS LTR  
NONE XXX

**REMOTE CABLE LENGTH**

3M STANDARD CABLE M3  
NONE WW

**CERTIFICATION**

NONE W  
ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY (Only for SST BODY with SST ROTORS available) F  
SILICON FREE L  
ADDITIONAL DOCUMENTATIONS FOR FOOD INDUSTRY and SILICONE FREE (Only for SST BODY with SST ROTORS available) E

**SERIALIZATION METER**

YR MFG 8D, NONE YF  
NONE XX

**Additional Options**

5 POINT CALIBRATION REPORT BA  
LINEARIZATION with 5-POINT CALIBRATION REPORT (ILR-750 and ILR-701 only) BB  
3.1 MATERIAL CERTIFICATE (certificates for pressurized parts, Aluminum or Stainless housings only) BC  
NONE XX

**Control. Manage. Optimize.**

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