Features
- Displays instantaneous flow rate, total and accumulated total.
- Large 17mm (0.67”) digit selection for flow rate or total.
- Scaled pulse signal output according accumulated total.
- Ability to process all types of flowmeter signals.
- Auto backup of settings and running totals.
- Operational temperature -40°C up to +80°C (-40°F up to 178°F).
- Very compact design for panel mount, wall mount or field mount applications.
- Rugged aluminum field mount enclosure IP67/NEMA4X.
- Intrinsically Safe - ATEX, IECEx and CSA approval for gas and dust applications.
- Explosion/flame proof II 2 GD EEx d IIB T5.
- LED backlight option.
- Loop or battery powered, 8 - 24V AC/DC or 115 - 230V AC power supply.
- Sensor supply 3.2 / 8.2 / 12 / 24V DC.

Signal output
- Scaled pulse output according to accumulated total.

Signal input
Flow
- Reed-switch.
- NAMUR.
- NPN/PNP pulse.
- Sine wave (coil).
- Active pulse signals.
- (0)-20mA.
- 0 - 10V DC.

Applications
- Flow measurement where re-transmission of the totalizer function is required.
- Alternative basic models: F010 - F011 - F012 - F013 or more advanced F016, F110 and higher.
General information

Introduction

The F014 is a local indicator to display the actual flow rate, total and accumulated total. The total can be reset to zero by pressing the CLEAR button twice. The eleven digit accumulated total however can not be reset to zero. Related to the accumulated total, a scaled pulse is generated for re-transmitting the count on the display. A wide selection of options further enhance this models capabilities.

Display

The display has large 17mm segments which can be set to show total or flow rate. On-screen engineering units are easily configured from a comprehensive selection, whilst different units for flow rate and total can be displayed simultaneously. The accumulated total can register up to 11 digits and is backed-up in EEPROM memory where it is regularly updated.

Backlight

For those applications where readability during day and night is an issue, a bi-color backlight is available. The background color green or amber and the intensity can be adjusted from the keyboard. The display is a transfective type, which means that a high contrast reading is guaranteed in full sunlight as well as during the night. This backlight option is also available Intrinsically Safe.

Configuration

All configuration settings are accessed via a simple operator menu which can be pass-code protected. Each setting is clearly indicated with an alphanumerical description, therefore avoiding confusing abbreviations. Once familiar with one F-series product, you will be able to program all models in the series without a manual. All settings are safely stored in EEPROM memory in the event of sudden power failure.

Pulse output

The scaleable pulse output reflects the count on the accumulated display. The pulse length is user defined from 0.001 second up to 10 seconds. The maximum output frequency is 500Hz. The output signal can be a passive NPN, active PNP or an isolated electro-mechanical relay.

Signal input

The F014 will accept most pulse and analog input signals for flow or mass flow measurement. The input signal type can be selected by the user in the configuration menu without having to adjust any sensitive mechanical dip-switches, jumpers or trimmers. The analog input version is even available as 4 - 20mA input loop powered display.

Power supply

Several power supply options are available to power the F014 and sensor. Most popular is our battery powered version with a long life lithium battery which will last up to five years. For analog sensors, a 4 - 20mA loop powered version is available as well. A real sensor supply is offered with the 24V AC/DC or 115 - 230V AC power supply option.

Hazardous area

For hazardous area applications, this model has been ATEX, IECEx and CSA certified Intrinsically Safe for gas and dust applications, with an allowed operational temperature of -40°C to +70°C (-40°F to +158°F). FM certification is expected to be available in 2009. A flame proof enclosure with ATEX certification offers the rating ☄ II 2 GD EEx d IIB T5.

Enclosures

Various types of enclosures can be selected, all ATEX, IECEx and CSA approved. As standard the F014 is supplied in an GRP panel mount enclosure. Most popular is our aluminum field mount enclosure with IP67 / NEMA 4X rating. Both European or U.S. cable gland entry threads are available.

Overview application F014
Dimensions enclosures
Aluminum & GRP panel mount enclosure

Aluminum & GRP field / wall mount enclosures

PB/PC - PD - PL - PX

Terminal connections power supply

POWER SUPPLY

PULSE OUTPUT

BACKLIGHT

FLOWMETER INPUT

PB / PC: battery powered
(PX is also available: if an external supply is connected, the battery supply will be switched off / on automatically.)

Terminal connections power supply PF - PM

POWER SUPPLY

PULSE OUTPUT

FLOWMETER INPUT
**Typical wiring diagram F014-P-(OT)-PB-(PX)-(ZB)**

**TERMINAL CONNECTORS**

- **Type PB:** BATTERY POWERED
  - Backlight option: type ZB 20 - 30V DC (not used in this example)
  - Pulse output type OT: passive transistor (not used in this example)
  - Power supply type PX: 8 - 30V DC (not used in this example)

- **Flowmeter input type P:** pulse

* Sensor supply voltage for pulse flowmeter type P: Terminal 3: 1.2 / 3.2V DC.
* Sensor supply voltage for analog flowmeter type A / U: Terminal 3: not available.

---

**Typical wiring diagram F014-A-OT-PX-ZB**

**TERMINAL CONNECTORS**

- **Type PX:** BASIC 8 - 30V DC POWER SUPPLY (STANDARD)
  - Backlight option: type ZB 20 - 30V DC
  - Pulse output type OT: passive transistor

- **Flowmeter input type A:** 4 - 20mA

---

**Typical wiring diagram F014-A-(OT)-PL-ZB**

**TERMINAL CONNECTORS**

- **Type PL:** INPUT LOOP POWERED
  - Backlight option: type ZB 20 - 30V DC
  - Pulse output type OT: passive transistor (not used in this example)

- **Flowmeter input type A - PL:** Input loop powered 4 - 20mA

Sensor supply: sensor is externally powered.

---

**Typical wiring diagram F014-P-OT-PD-ZB**

**TERMINAL CONNECTORS**

- **Type PD:** 16 - 30V DC POWER SUPPLY
  - Backlight option: type ZB 20 - 30V DC
  - Pulse output type OT: passive transistor

- **Flowmeter input type P:** pulse

* Sensor supply voltage for pulse flowmeter type P: Terminal 3: 1.2 / 3.2V DC. Terminal 6 with type PD: 8.2V DC.
* Sensor supply voltage for analog flowmeter type A / U: Terminal 3: not available. Terminal 6 with type PD: voltage as connected to terminal 5 (internally linked).
**Typical wiring diagram F014-P-OA-PF-ZB**

- **Terminal Connectors**
  - F0-series

- **Type PF:**
  - 24V AC / DC POWER SUPPLY

- **Backlight option:** type ZB
  - Internally powered.

- **Flowmeter input type P:**
  - Pulse

- **123456**
  - e.g. counter

- **Pulse output type OA:**
  - Active 24V DC pulse

- **Supply**
  - Signal

- **Main supply**
  - 24V AC

- **Power supply type PF:**
  - 8 - 24V AC / DC

- **Common ground**

* Sensor supply voltage for pulse flowmeter type P:
  - Terminal 7: 1.2 / 3.2 / 8.2 / 12 / 24V DC.

* Sensor supply voltage for analog flowmeter type A / U:
  - Terminal 7: 8.2 / 12 / 24V DC.

**Typical wiring diagram F014-A-OT-PF-ZB**

- **Terminal Connectors**
  - F0-series

- **Type PF:**
  - 24V AC / DC POWER SUPPLY

- **Backlight option:** type ZB
  - Internally powered.

- **Flowmeter input type A:**
  - Pulse

- **123456**
  - e.g. counter

- **Pulse output type OT:**
  - Passive transistor

- **Supply**
  - Signal

- **Main supply**
  - 24V DC

- **Power supply type PF:**
  - 8 - 24V AC / DC

- **Common ground**

* Sensor supply voltage for pulse flowmeter type P:
  - Terminal 7: 1.2 / 3.2 / 8.2 / 12 / 24V DC.

* Sensor supply voltage for analog flowmeter type A / U:
  - Terminal 7: 8.2 / 12 / 24V DC.

**Typical wiring diagram F014-A-OA-PM-ZB**

- **Terminal Connectors**
  - F0-series

- **Type PM:**
  - 115 - 230V AC POWER SUPPLY

- **Backlight option:** type ZB
  - Internally powered.

- **Flowmeter input type P:**
  - Pulse

- **123456**
  - e.g. counter

- **Pulse output type OA:**
  - Active 24V DC pulse

- **Supply**
  - Signal

- **Main supply**
  - L1 / N

- **Power supply type PM:**
  - 115 - 230V AC

- **Common ground**

* Sensor supply voltage for pulse flowmeter type P:
  - Terminal 7: 1.2 / 3.2 / 8.2 / 12 / 24V DC.

* Sensor supply voltage for analog flowmeter type A / U:
  - Terminal 7: 8.2 / 12 / 24V DC.

**Typical wiring diagram F014-P-OR-PM-ZB**

- **Terminal Connectors**
  - F0-series

- **Type PM:**
  - 115 - 230V AC POWER SUPPLY

- **Backlight option:** type ZB
  - Internally powered.

- **Flowmeter input type P:**
  - Pulse

- **123456**
  - e.g. counter

- **Pulse output type OR:**
  - Mechanic relay

- **Supply**
  - Signal

- **Main supply**
  - L1 / N

- **Power supply type PM:**
  - 115 - 230V AC

- **Common ground**

* Sensor supply voltage for pulse flowmeter type P:
  - Terminal 7: 1.2 / 3.2 / 8.2 / 12 / 24V DC.

* Sensor supply voltage for analog flowmeter type A / U:
  - Terminal 7: 8.2 / 12 / 24V DC.
Hazardous area applications
The F014-XI has been certified according ATEX and IECEx by KEMA and according CSA c-us for use in Intrinsically Safe applications with an ambient temperature of -40°C to +70°C (-40°F to +158°F).

- The 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.

- The IECEx markings for gas and dust applications are: Ga Ex ia IIC T4 and Ex iaD 20 IP 65/67 T100 °C.

- The CSA c-us markings are: Class I/II/III, Division 1, Groups A, B, C, D, E, F, G, Temperature class T4 and Class I, Zone 0, AEEx ia IIC T4.

- FM approval is expected to become available in 2009.

It is allowed to connect up to three I.S. power supplies to power the unit, sensor and backlight. The F014-PD-XI offers a 8.2V DC sensor supply to power e.g. a Namur sensor or the input voltage to power an analog sensor. An ATEX approved flame proof enclosure with rating II 2 GD EEx d IIB T5 is available as well. Please contact your supplier for further details.

Certificate of conformity KEMA 05ATEX1168 X
- IECEx KEM 08.0006X • CSA.08.2059461 X

Configuration example IIA - IIB and IIC
F014-(OT)-(PC)-(PX)-XI-(ZB) - Battery powered unit

Certificate of conformity KEMA 05ATEX1168 X
- IECEx KEM 08.0006X • CSA.08.2059461 X

* Sensor supply voltage for pulse flowmeter type P : Terminal 3: 1.2 / 3.2V DC.
Please note: type PX may be used in combination with the battery (type PC).
PX will power the unit; the battery will be disabled automatically till power is disconnected.
Configuration example IIA - IIB and IIC - F014-P-OT-PX-XI-(ZB) - Basic power supply 8 - 30V DC

**TERMINAL CONNECTORS**

<table>
<thead>
<tr>
<th>F0 - series</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 3</td>
</tr>
<tr>
<td>4 5</td>
</tr>
<tr>
<td>7 8</td>
</tr>
<tr>
<td>9 10</td>
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**HAZARDOUS AREA**

- Intrinsically Safe apparatus

**SAFE AREA**

- Power supply or switch interface
- Uo = max. 30V
- Io = max. 200mA
- Po = max. 1.2W
- For example MTL5025

- Power supply or switch interface
- Uo = max. 30V
- Io = max. 200mA
- Po = max. 1.2W
- For example MTL5025

*Sensor supply voltage for pulse type P: Terminal 3: 1.2V / 3.2V DC.*

*Please note: type PX may be used in combination with the battery (type PC). PX will power the unit; the battery will be disabled automatically till power is disconnected.*

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**HAZARDOUS AREA**

- Intrinsically Safe apparatus

**SAFE AREA**

- Power supply or switch interface
- Uo = max. 30V
- Io = max. 200mA
- Po = max. 0.75W
- For example MTL5025

- Power supply or switch interface
- Uo = max. 30V
- Io = max. 150mA
- Po = max. 0.92W
- For example MTL5025

*Sensor supply voltage for pulse type P: Terminal 3: 1.2V / 3.2V DC.*

*Please note: type PX may be used in combination with the battery (type PC). PX will power the unit; the battery will be disabled automatically till power is disconnected.*

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- Uo = max. 30V
- Io = max. 200mA
- Po = max. 1.2W
- For example MTL5025

*Sensor supply voltage for pulse type P: Terminal 3: 1.2V / 3.2V DC.*

*Please note: type PX may be used in combination with the battery (type PC). PX will power the unit; the battery will be disabled automatically till power is disconnected.*
**Configuration example IIA - IIB and IIC - Fo14-P-OT-PD-XI-ZB - Power supply 16 - 30V DC**

**HAZARDOUS AREA**

- Backlight option: type ZB
- Intrinsically Safe apparatus
- Pulse output type OT: passive transistor
- Power supply type PD: 16 - 30V DC
- I.S. flowmeter input type: P pulse

**SAFE AREA**

<table>
<thead>
<tr>
<th>+</th>
<th>Uo = max. 30V</th>
<th>Power supply</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Io = max. 200mA</td>
<td>For example MTL5025</td>
</tr>
<tr>
<td>-</td>
<td>Po = max. 0.75W</td>
<td></td>
</tr>
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</tr>
<tr>
<td>-</td>
<td>Po = max. 1.2W</td>
</tr>
</tbody>
</table>

Note: above values are safety values. Consult the technical specification for operational values.

*Sensor supply voltage for pulse type P: Terminal 3: 1.2V / 3.2V DC, Terminal 6: 8.2V DC.*

Please note: type PD may be used in combination with the battery (type PC). PD will power the unit; the battery will be disabled automatically till power is disconnected.

---

**Configuration example IIA - IIB and IIC - Fo14-A-OT-PD-XI-ZB - Power supply 16 - 30V DC**

**HAZARDOUS AREA**

- Backlight option: type ZB
- Intrinsically Safe apparatus
- Pulse output type OT: passive transistor
- Power supply type PD: 16 - 30V DC
- I.S. flowmeter input - type A: (0)4 - 20mA

**SAFE AREA**

<table>
<thead>
<tr>
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</tr>
<tr>
<td>-</td>
<td>Po = max. 1.2W</td>
</tr>
</tbody>
</table>

Note: above values are safety values. Consult the technical specification for operational values.

*Sensor supply voltage for analog flowmeter type A / U: Terminal 6: as input voltage terminal 5 (internally linked).*

Please note: type PD may be used in combination with the battery (type PC). PD will power the unit; the battery will be disabled automatically till power is disconnected.
Configuration example IIA - IIB and IIC - F014-A-OT-PL-XI-ZB - Input loop powered

**HAZARDOUS AREA**

- Supply backlight  
- Common ground

- **SAFE AREA**
  - Power supply or switch interface
  - Power supply
  - Intrinsically Safe apparatus

**TERMINAL CONNECTORS**

- F0 - series
- Common ground
- Supply backlight
- Main supply

**I.S. flowmeter input - type A-PL: 4-20mA input loop powered.**

**Note:**
Sensor supply is not available: unit is input loop powered (type PL).
Please note: type PL may be used in combination with the battery (type PC). PL will power the unit; the battery will be disabled automatically till power is disconnected.

- **Power supply**
  - For example MTL5025
  - Uo = max. 30 V
  - Io = max. 200 mA
  - Po = max. 1.2 W

- **Power supply or switch interface**
  - For example MTL5025 MTL5011B
  - Uo = max. 30 V
  - Io = max. 200 mA
  - Po = max. 0.92 W

- **Power supply**
  - For example MTL5025
  - Uo = max. 30 V
  - Io = max. 93 mA
  - Po = max. 0.92 W

---

Configuration example IIA - IIB and IIC - F014-A-OT-PX-XI-ZB - Basic power supply 8 - 30V DC

**HAZARDOUS AREA**

- Supply backlight  
- Common ground

- **SAFE AREA**
  - Power supply or switch interface
  - Power supply

**TERMINAL CONNECTORS**

- F0 - series
- Common ground
- Supply backlight
- Main supply

**I.S. flowmeter input - type A: (0)4 - 20mA**

**Note:**
*Sensor supply voltage for analog flowmeter type A / U: not available in this example.*
Please note: type PX may be used in combination with the battery (type PC). PX will power the unit; the battery will be disabled automatically till power is disconnected.

- **Power supply**
  - For example MTL5025
  - Uo = max. 30 V
  - Io = max. 200 mA
  - Po = max. 0.75 W

- **Power supply or switch interface**
  - For example MTL5025 MTL5011B
  - Uo = max. 30 V
  - Io = max. 150 mA
  - Po = max. 0.92 W

**Note:**
Consult the technical specification for operational values.
### Technical specification

#### Display

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>General</strong></td>
<td>High intensity reflective numeric and alphanumeric LCD, UV-resistant.</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>90 x 40mm (3.5&quot; x 1.6&quot;).</td>
</tr>
<tr>
<td><strong>Digits</strong></td>
<td>Seven 17mm (0.67&quot;) and eleven 8mm (0.31&quot;) digits. Various symbols and measuring units.</td>
</tr>
<tr>
<td><strong>Refresh rate</strong></td>
<td>User definable: 8 times/sec. - 30 secs - off.</td>
</tr>
<tr>
<td><strong>Option ZB</strong></td>
<td>Transfective LCD with bi-color LED-backlight; green / amber. Intensitiy and color selected trough the keyboard. Good readings in full sunlight and darkness. Also available Intrinsically Safe.</td>
</tr>
</tbody>
</table>

#### Operating temperature

| Standard unit | -40°C to +80°C (-40°F to +178°F). |
| Intrinsically Safe | -40°C to +70°C (-40°F to +158°F). |

#### Power requirements

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Type PB</strong></td>
<td>Long life Lithium battery - life-time depends upon settings and configuration - up to 5 years.</td>
</tr>
<tr>
<td><strong>Type PC</strong></td>
<td>Intrinsically Safe long life lithium battery - life-time depends upon settings and configuration - up to 5 years.</td>
</tr>
<tr>
<td><strong>Type PD</strong></td>
<td>16 - 30V DC. Power consumption max. 1 Watt.</td>
</tr>
<tr>
<td><strong>Type PF</strong></td>
<td>24V AC / DC ± 10%. Power consumption max. 15 Watt.</td>
</tr>
<tr>
<td><strong>Type PL</strong></td>
<td>Input loop powered from sensor signal 4 - 20mA (type A).</td>
</tr>
<tr>
<td><strong>Type PM</strong></td>
<td>115 - 230V AC ± 10%. Power consumption max. 15 Watt.</td>
</tr>
<tr>
<td><strong>Type PX</strong></td>
<td>8 - 30V DC. Power consumption max. 0.3 Watt.</td>
</tr>
<tr>
<td><strong>Type ZB</strong></td>
<td>20 - 30V DC. Power consumption max. 1 Watt. With type PF / PM: internally powered.</td>
</tr>
<tr>
<td><strong>Note PB/PF/PM</strong></td>
<td>Not available Intrinsically Safe.</td>
</tr>
<tr>
<td><strong>Note PF/PM</strong></td>
<td>The total consumption of the sensor, active output type OA and backlight type ZB may not exceed 400mA @ 24V DC.</td>
</tr>
<tr>
<td><strong>Note</strong></td>
<td>For Intrinsically Safe applications, consult the safety values in the certificate.</td>
</tr>
</tbody>
</table>

#### Sensor excitation

| Type PB/PC/PX | 3.2V DC for pulse signals and 1.2V DC for coil pick-up. |
| Note | This is not a real sensor supply. Only suitable for sensors with a very low power consumption like coils (sine wave) and reed-switches. |
| **Type PD** | for pulse signals: 1.2 / 3.2 / 8.2 V DC. Power supply voltage is according to the power supply voltage connected. |
| **Type PF / PM** | With pulse input: 1.2 / 3.2 / 8.2 / 12 / 24V DC - max. 400mA @ 24V DC. With analog input: 8.2 / 12 / 24V DC - max. 400mA @ 24V DC. |

#### Terminal connections

| **Type** | Removable plug-in terminal strip. Wire max. 1.5mm² and 2.5mm². |

#### Data protection

| **Type** | EEPROM backup of all settings. Backup of running totals every minute. Data retention at least 10 years. |
| **Pass-code** | Configuration settings can be pass-code protected. |

---

### Casing

#### General

| **Window** | Polycarbonate window. |
| **Sealing** | Silicone. |
| **Control keys** | Three industrial micro-switch keys. UV-resistant silicone keypad. |

#### Aluminum wall / field mount enclosures

| **General** | Die-cast aluminum wall/field mount enclosure IP67 / NEMA 4X with 2-component UV-resistant coating. |
| **Dimensions** | 130 x 120 x 75mm (5.12" x 4.72" x 2.95") - W x H x D. |
| **Weight** | 600 gr. |
| **Type HA** | Cable entry: 2 x PG9 and 1 x M20. |
| **Type HM** | Cable entry: 2 x M16 and 1 x M20. |
| **Type HN** | Cable entry: 1 x M20. |
| **Type HO** | Cable entry: 2 x M20. |
| **Type HP** | Cable entry: 6 x M12. |
| **Type HT** | Cable entry: 1 x 1/2" NPT. |
| **Type HU** | Cable entry: 3 x 1/2" NPT. |
| **Type HZ** | Cable entry: no holes. |

#### GRP wall / field mount enclosures

| **General** | GRP wall/field mount enclosure IP67 / NEMA 4X, UV-resistant and flame retardant. |
| **Dimensions** | 130 x 120 x 75mm (5.12" x 4.72" x 2.95") - W x H x D. |
| **Weight** | 600 gr. |
| **Type HD** | Cable entry: no holes. |
| **Type HE** | Cable entry: 2 x Ø 16mm and 1 x Ø 20mm. |
| **Type HF** | Cable entry: 1 x Ø 22mm (7/8"). |
| **Type HG** | Cable entry: 2 x Ø 20mm. |
| **Type HH** | Cable entry: 6 x Ø 12mm. |
| **Type HJ** | Cable entry: 3 x Ø 22mm (7/8"). |
| **Type HK** | Flat bottom, cable entry: no holes. |

#### Panel mount enclosures

| **Dimensions** | 130 x 120 x 60mm (5.12" x 4.72" x 2.36") - W x H x D. |
| **Panel cut-out** | 115 x 98mm (4.53" x 3.86") L x H. |
| **Type HB** | Die-cast aluminum panel mount enclosure IP65 / NEMA 4. |
| **Weight** | 600 gr. |
| **Type HC** | GRP panel mount enclosure IP65 / NEMA 4, UV-resistant and flame retardant. |
| **Weight** | 450 gr. |

#### ABS wall / field mount enclosures

| **General** | Silicone free ABS wall/field mount enclosure IP65 with EPDM and PE sealings. UV-resistant polyester keypad (old HD enclosure). |
| **Dimensions** | 130 x 114 x 71mm (5.1" x 4.5" x 2.8") - W x H x D. |
| **Weight** | 450 gr. |
| **Type HS** | Cable entry: no holes. |

#### Display example - 90 x 40mm (3.5" x 1.6")
**Intrinsically Safe**

ATEX certification: II 1 G Ex ia IIC T4.

IECEx certification: Ex iaD 20 IP 65 / 67 T 100 °C.

CSA c-us certification: Intrinsically Safe for Class I/II/III, Div. 1, Groups A, B, C, D, E, F, G, Temp. class T4 and Class I, Zone 0, AEx ia IIC T4.

Ambient: -40°C to +70°C / -40° to +158°F.

**Explosion proof**

ATEX certification: II 2 GD EEx d IIB T5.

Type XF: Dimensions of enclosure: 300 x 250 x 200mm (11.8” x 9.9” x 7.9”) L x H x D.

Weight: Appr. 15kg.

**Environment**


**Signal input**

Flowmeter sensor

Type P: Coil / sine wave (minimum 20mVpp or 80mVpp - sensitivity selectable), NPN/ PNP, open collector, reed-switch, Namur, active pulse signals 8 - 12 and 24V DC.

Frequency: Minimum 0Hz - maximum 7kHz for total and flow rate. Maximum frequency depends on signal type and internal low-pass filter. E.g. reed switch with low-pass filter: max. frequency 120Hz.

K-Factor: 0.000010 - 9,999,999 with variable decimal position.

Low-pass filter: Available for all pulse signals.

Option ZP: coil sensitivity 10mVpp.

Option ZG: coil sensitivity 5mVpp.

Type A: (0)4 - 20mA. Analog input signal can be scaled to any desired range within 0 - 20mA.

Type U: 0 - 10V DC. Analog input signal can be scaled to any desired range within 0 - 10V DC.

Accuracy: Resolution: 16 bit. Error < 0.01mA / ± 0.05% FS. Low level cut-off programmable.

Span: 0.001 / 999,999 with variable decimal position.

Update time: Four times per second.

Voltage drop: Type A: max. 2V DC @ 20mA.

Voltage drop: Type A - PL (loop powered): max. 2.6V DC @ 20mA.

Load impedance: Type U: 3kΩ.

Relationship: Linear and square root calculation.

Note: For signal type A and U: external power to sensor is required; e.g. type PD.

**Signal output**

Function: Pulse output - transmitting accumulated total.

Frequency: Max. 500Hz. Pulse length user definable between 1μsec up to 10 seconds.

Type OA: One active 24V DC transistor output (PNP); load max. 400mA (requires PF or PM).

Type OR: One electro-mechanical relay output - isolated; max. switch power 230V AC (N.O.) - 0.5A (requires PF or PM).

Type OT: One passive transistor output (NPN) - not isolated. Max. 50V DC - 300mA per output.

**Operational**

**Operator functions**

Displayed: • Flow rate and / or total.

Functions: • Total and accumulated total.

• Total can be reset to zero by pressing the CLEAR-key twice.

**Total**

Digits: 7 digits.

Units: L, m³, GAL, USGAL, KG, lb, bbl, no unit.

Decimals: 0 - 1 - 2 or 3.

Note: Total can be reset to zero.

**Accumulated total**

Digits: 11 digits.

Units / decimals: According to selection for total.

Note: Can not be reset to zero.

**Flow rate**

Digits: 7 digits.

Units: mL, L, m³, Gallons, KG, Ton, lb, bl, cf, RND, ft³, scf, Nm³, NI, gal - no units.

Decimals: 0 - 1 - 2 or 3.

Time units: /sec - /min - /hr - /day.

**Accessories**

**Mounting accessories**

ACF02: Stainless steel wall mounting kit.

ACF05: Stainless steel pipe mounting kit (worm gear clamps not included).

ACF06: Two stainless steel worm gear clamps Ø 44 - 56mm.

ACF07: Two stainless steel worm gear clamps Ø 58 - 75mm.

ACF08: Two stainless steel worm gear clamps Ø 77 - 95mm.

ACF09: Two stainless steel worm gear clamps Ø 106 - 138mm.

ACF10: Customized Grevopal tagplates for ACF02 and ACF05, including stainless steel screws.

Dimension: 95mm x 12.5mm (3.75" x 0.50").

**Cable gland accessories**

ACF20: For HA enclosure, includes O-rings.

ACF25: For HE enclosure, includes locknuts and O-rings.

ACF26: For HF enclosure, includes O-rings.

ACF27: For HG enclosure, includes locknuts and O-rings.

ACF28: For HH enclosure, includes locknuts and O-rings.

ACF29: For HJ enclosure, includes locknuts and O-rings.

ACF32: For HM enclosure, includes O-rings.

ACF33: For HN enclosure, includes O-rings.

ACF34: For HO enclosure, includes O-rings.

ACF35: For HP enclosure, includes O-rings.

ACF39: For HT enclosure, includes O-rings.

ACF40: For HU enclosure, includes O-rings.

ACF41: For HE enclosure, includes locknuts and O-rings.

ACF42: For HH enclosure, includes locknuts and O-rings.

ACF43: For HM enclosure, includes O-rings.

ACF44: For HO enclosure, includes O-rings.
## Specifications

Specifications are subject to change without notice.

### Ordering information

Standard configuration: F014-P-HC-OT-PX-XX-ZX.

<table>
<thead>
<tr>
<th>Ordering information:</th>
<th>F014</th>
<th>-</th>
<th>-H</th>
<th>-O</th>
<th>-P</th>
<th>-X</th>
<th>-Z</th>
</tr>
</thead>
</table>

### Flowmeter Sensor input signal

- **A**  0 - 20mA input.
- **P**  Pulse input: coil, npn, pnp, namur, reed-switch.
- **U**  0 - 10V DC input.

### Panel mount enclosures - IP65 / NEMA4

- **HB**  Aluminum enclosure.
- **HC**  GRP enclosure.

### GRP field / wall mount enclosures - IP67 / NEMA4X

- **HD**  Cable entry: no holes.
- **HE**  Cable entry: 2 x Ø 16mm & 1 x Ø 20mm.
- **HF**  Cable entry: 1 x Ø 22mm (7/8”).
- **HG**  Cable entry: 2 x Ø 20mm.
- **HH**  Cable entry: 6 x Ø 12mm.
- **HJ**  Cable entry: 3 x Ø 22mm (7/8”).
- **HK**  Flat bottom, cable entry: no holes.

### Aluminum field / wall mount enclosures - IP67 / NEMA4X

- **HA**  Cable entry: 2 x PG9 + 1 x M20.
- **HM**  Cable entry: 2 x M16 + 1 x M20.
- **HN**  Cable entry: 1 x M20.
- **HO**  Cable entry: 2 x M20.
- **HP**  Cable entry: 6 x M12.
- **HT**  Cable entry: 1 x ½”NPT.
- **HU**  Cable entry: 3 x ½”NPT.
- **HZ**  Cable entry: no holes.

### ABS field / wall mount enclosures

- **HS**  Silicone free ABS field enclosure IP65 – Cable entry: no holes (old HD enclosure).

### Output

- **OA**  One active transistor output - requires PF or PM.
- **OR**  One mechanical relay output - requires PF or PM.
- **OT**  One passive transistor output - standard configuration.

### Power supply

- **PB**  Lithium battery powered.
- **PC**  Lithium battery powered - Intrinsically Safe.
- **PD**  16 - 30V DC + sensor supply.
- **PF**  24V AC / DC + sensor supply.
- **PL**  Input loop powered from sensor signal 4 - 20mA (type A).
- **PM**  115 - 230V AC + sensor supply.
- **PX**  Basic power supply 8 - 30V DC (no real sensor supply).

### Hazardous area

- **XI**  Intrinsically Safe.
- **XF**  EExd enclosure - 3 keys.
- **XX**  Safe area only.

### Other options

- **ZB**  Backlight.
- **ZF**  Coil input 10mVpp.
- **ZG**  Coil input 5mVpp.
- **ZX**  No options.

The bold marked text contains the standard configuration.

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