

Your success counts

Flow rate Indicator / Totalizer

displays flow rate and total simultaneously



The FO12-P is your first and safest choice for field mount indicators in safe and hazardous area applications. Especially in harsh weather conditions like rain, snow, salty atmospheres and temperatures between -40°C up to $+80^{\circ}\text{C}$ (-40°F up to 176°F).

Advantages

- Robust aluminum or stainless steel 316L field enclosure (IP67 / NEMA Type4X). It is so rugged, a truck can even stand on it!
- Intrinsically Safe available - ATEX, IECEx and CSA approval for gas and dust applications.
- Programming can be done by your own crew, with the sensible menu-driven structure, saving cost and irritation. Know one, know them all!
- Very diverse mounting possibilities: walls, pipes, panels or directly onto outdoor sensors!

Features

- Displays instantaneous flow rate, total and accumulated total.
- Large 17mm (0.67") digits for flow rate or total.
- Easy configuration with clear alphanumeric display.
- LED backlight option.
- Selectable on-screen engineering units for volumetric or mass.
- Power requirements: Battery powered or 8 - 30V DC.
- Auto backup of settings and running totals.

Introduction

The F012-P 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. A wide selection of options further enhances the capabilities of this model, including Intrinsic Safety for hazardous area applications.

Display

The display has large 17mm (0.67") and 8mm (0.31") digits which can be set to show flow rate and / or totals. On-screen engineering units are easily configured from a comprehensive selection. The accumulated total can register up to 11 digits and is backed-up in EEPROM memory every minute, just as the running total. As the F012-P has been designed for field mounted applications, a smart display update function has been incorporated. Related to the lower temperatures, the update frequency of the LCD is tuned automatically to achieve a readable display even at -40° C / -40° F.

Configuration

All configuration settings are accessed via a simple operator menu which can be password protected. Each setting is clearly indicated with an alphanumerical description, which avoids confusing abbreviations and baffling codes. 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.

Hazardous area

For hazardous area applications, this model is ATEX, IECEx, and CSA certified as Intrinsically Safe for gas and dust applications, with an allowed ambient temperature of -40° C to +70° C (-40° F to +158° F). A flame proof Ex d enclosure with ATEX/ IECEx certification is also available.

Power requirements

Standard is the 8 - 30V DC power requirement with a battery back up for in case of a power failure.



All info at a glance



Easy to install



Easy to program



Know one know them all!



Reliable



User-friendly

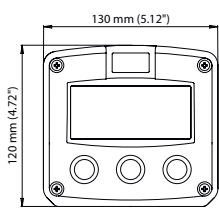
Overview application F012-P

The F012 - P is your first and safest choice for field mount indicators in safe and hazardous area applications. Especially in harsh weather conditions like rain, snow, salty atmospheres and temperatures between -40°C up to $+80^{\circ}\text{C}$ (-40°F up to 176°F). Flow measurement where a local flow rate indication and totalizer function is required without re-transmission functionality.

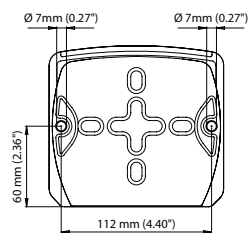
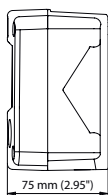
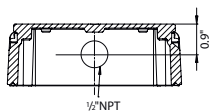


Enclosures

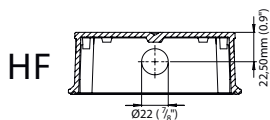
All enclosures are ATEX, IECEx, FM and CSA approved. Available are an IP67 / NEMA Type4X GRP or aluminum field mount enclosure.



Aluminum



GRP



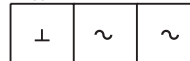
Terminal connections

FLOWMETER INPUT



01 02 03

P: coil

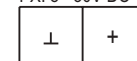


POWER REQUIREMENTS



04 05 06

PX: 8 - 30V DC



PC: battery powered
Internal long life Lithium battery
(Terminals 4 - 5 are available.
If an external supply will be connected
to these terminals, the battery supply
will be switched-off and
switched-on automatically).

Hazardous area applications

The F012-P has been certified according to ATEX and IECEx by DEKRA and according to CSA c-us for use in Intrinsically Safe applications with an ambient temperature of -40°C to $+70^{\circ}\text{C}$ (-40°F to $+158^{\circ}\text{F}$). For equipment category 1 D (EPL Da), -40°C to $+50^{\circ}\text{C}$ (-40°F to $+122^{\circ}\text{F}$).

- The ATEX markings for gas and dust applications are:

Gas: **II 1 G Ex ia IIC T4 Ga.**

Dust: **II 1 D Ex ia IIIC T₂₀₀ 100 °C Da.**

- The IECEx markings for gas and dust applications are:

Gas: **Ex ia IIC T4 Ga**

Dust: **Ex ia IIIC T₂₀₀ 100 °C Da.**

- The CSA c-us markings are:

IS Class I/II/III, Division 1, Groups A to G T4.

Class 1 Zone 0 AEx ia IIC T4 Ga.

Ex ia IIC T4 Ga.

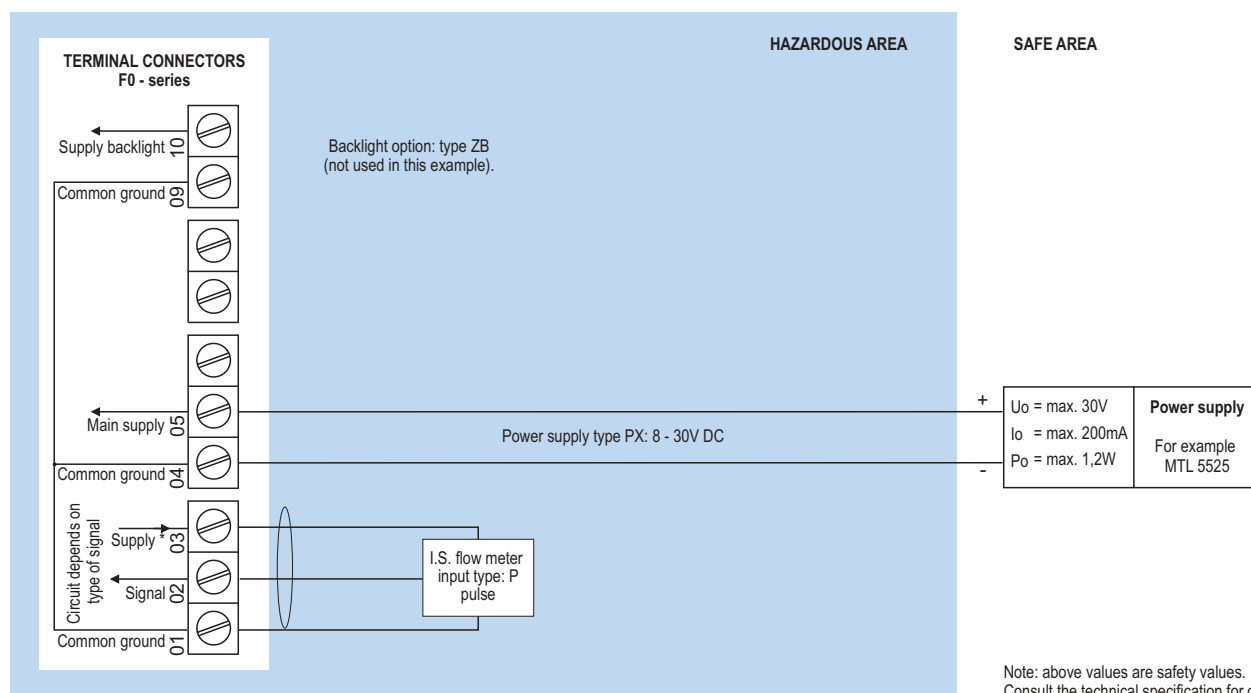
It is allowed to connect up to three I.S. power supplies to power the unit, sensor and backlight. Consult the certificate for the maximum input and output values of the circuits.

Certificate of conformity KEMA 05ATEX1168 X • IECEx KEM 08.0006X

• *CSA.08.2059461*



Configuration example IIA - IIB and IIC - F012-P-PX-XI Basic power requirement 8 - 30V DC



* 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.

Display

Type	High intensity reflective numeric and alphanumeric LCD, UV-resistant.
Dimensions	90 x 40mm (3.5" x 1.6").
Digits	Seven 17mm (0.67") and eleven 8mm (0.31") digits. Various symbols and measuring units.
Refresh rate	User definable: fast, 1sec, 3sec, 15sec, 30sec, off.

Ambient temperature

Safe areas	-40°C to +80°C (-40°F to +176°F).
EPL Ga / 1G	-40°C to +70°C (-40°F to +158°F).
EPL Da / 1D	-40°C to +50°C (-40°F to +122°F). max. dust layer thickness: 200mm.
EPL Db / 2D	-40°C to +70°C (-40°F to +158°F). max. dust layer thickness: 5mm.

Power requirements

Type PC	Intrinsically Safe long life lithium battery life-time depends upon settings and configuration - up to 5 years. (requires XI and PD, PL or PX)
Type PX	8 - 30V DC. Power consumption max. 0.3W.
Note XI	For Intrinsically Safe applications, consult the safety values in the certificate.

Sensor excitation

Type 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.

Terminal connections

Type	Removable plug-in terminal strip. Wire max. 1.5mm ² and 2.5mm ²
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Data protection

Type	EEPROM backup of all settings. Backup of running totals every minute. Data retention at least 10 years.
Password	Configuration settings can be password protected.

Directives & Standards

EMC	Directive 2014/30/EU, FCC 47 CFR part 15.
Low voltage	Directive 2014/35/EU
RoHS	Directive 2011/65/EU
ATEX / IECEx	Directive 2014/34/EU, IEC 600079-0, IEC 60079-11.
CSA	CSA 22.2 No. 157-92.
IP & NEMA	EN 60529 & NEMA 250.

Intrinsically Safe (Type XI)

ATEX	Gas: II 1 G Ex ia IIC T4 Ga. Dust: II 1 D Ex ia IIIC T ₂₀₀ 100 °C Da.
IECEx	Gas: Ex ia IIC T4 Ga. Dust: Ex ia IIIC T ₂₀₀ 100 °C Da.
CSA c-us	IS Class I/II/III, Division 1, Groups A to G T4. Class 1 Zone 0 AEx ia IIC T4 Ga. Ex ia IIC T4 Ga
Note	Extended aluminum enclosures are not available with CSA-c-us approval.

Enclosure

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

GRP wall / field mount enclosures

General	GRP wall/field mount enclosure IP67 / NEMA Type4X, 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 HF	Cable entry: 1 x Ø 22mm (7/8").

Aluminum wall / field mount enclosures

General	Die-cast aluminum wall/field mount enclosure IP67 / NEMA Type4X 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	1100 gr. / extended enclosure: 1310 gr.
Type HT	Cable entry: 1 x 1/2" NPT.

Signal inputs - Flowmeter

Type P	Coil / sine wave (HI: 20mVpp or LO: 90mVpp - sensitivity selectable.
K-Factor	0.000010 - 9,999,999 with variable decimal position.

Operator functions

Displayed info	<ul style="list-style-type: none"> • Flow rate and / or total. • Total and accumulated total. • Total can be reset to zero by pressing the CLEAR-key twice.
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Total

Digits	7 digits.
Units	L, m ³ , 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, m ³ , Gallons, kg, Ton, lb, bl, cf, RND, ft ³ , scf, Nm ³ , NI, igal - no units.
Decimals	0 - 1 - 2 or 3.
Time units	/sec - /min - /hr - /day.

Description		
Model	F012-P	Flow rate indicator / totalizer displays flow rate and total simultaneously.
Input	P	Pulse input, e.g., coil, npn, pnp, namur, reed-switch.
Enclosures	HF	GRP field mount - Cable entry: 1 x Ø 22mm (7/8").
	HT	Aluminum field mount - Cable entry: 1 x 1/2"NPT.
Power	PX	Basic power supply 8 - 30V DC.
Battery	PC	Additional lithium battery powered (opt.) - Intrins. safe - requires XI and PD, PL or PX.
Hazardous	XI	Intrinsically safe, according ATEX, IECEx and CSA c-us.
Options	ZX	No options.