FLOMEC®

F SERIES (REMOTE PANEL MOUNT ELECTRONICS)

Top of the line specialty electronics by FLOMEC®. F Series Electronics are designed with several different input and output options. Rugged and dependable, the F Series offers:

- Field-mountable with addition of a back enclosure
- Easy programming with a sensible menu-driven structure
- Large (17mm) 7 digit display
- Accepts several different input signals

FEATURES / BENEFITS

- Batching
- Net Use
- RS485
- 4-20mA Output
- HART Protocol
- High Low Alarms
- Linearization
- Modbus RTU
- Two Stage Valve Control
- Temperature Compensation

APPLICATIONS

- The F-Series is your first and safest choice for field-mount indicators. Especially in harsh weather conditions like rain, snow, salty atmospheres and temperatures between -40°F up to +176°F (-40°C up to 80°C) for safe and hazardous area applications.
- Applications where net flow calculation at base conditions is desired without the influence of thermal product expansion.
- Liquid flow measurement with mechanical flowmeters where a precise calculation over the full measurement range is required. Also continuous flow rate monitoring is required.
- For batching small up to very large quantities. Single or repeating batches.
- Fuel consumption calculation for diesel engines on board of ships or trains. Sum function: where flows are split-up in two pipe-lines and total flow has to be calculated.

PRODUCT CONFIGURATION

STANDARD CONFIGURATION 1

F018 = Flow Rate Monitor / Totalizer - Linearization & Alarms
F116 = Differential / Sum Flow Computer - Net Use
F118 = Flow Rate Monitor / Totalizer - Linearization & Alarms
F126 = Flow Computer - Temperature Compensation
F130 = Batch Controller - Two Stage control

FLOWMETER INPUT SIGNAL 2

P = Pulse input: Coil, NPN, PNP, Namur, Reed-switch

ANALOG OUTPUT SIGNAL 3

AP = Passive 4-20mA output, loop powered unit
AX = No analog output (F130 only)
AH = Galvanically isolated, loop powered 4-20 mA output

COMMUNICATION 4

CH = Communications RS485 - 2 wire - Modbus RTU (F118 & F126 only)
CX = No communications (F116 & F130 only)
CR = HART Communication Protocol (F018 only)

FLOW EQUATIONS 5

EL = Corrected liquid volume (F126 only)
EX = No flow equations
   = None on F018

PANEL MOUNT ENCLOSURES - IP65 / NEMA 4X 6

HC = GRP enclosure - Panel Mount
HD = GRP enclosure - Field Mount (F018 only)

ADDITIONAL INPUTS 7

IX = No additional inputs
   = None on F018

OUTPUTS 8

OR = Two mechanical relay outputs + requires PM
OT = Two passive transistor outputs - Standard configuration (F116 & F018 only)
OX = No output (F126 only)

POWER SUPPLY 9

PM = 115 - 230 VAC + sensor supply
PD = 16 - 30 VDC + sensor supply (F018 only)

TEMPERATURE INPUT SIGNAL 10

TP = PT100 input (F126 only)
TX = No temperature input signal
   = None on F018

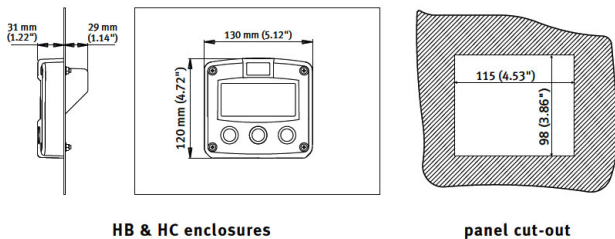### HAZARDOUS AREA 11

XX = Safe area only

OTHER OPTIONS 12

ZB = Backlight (F018, F118 & F126 only)
ZX = No options

1	2	3	4	5	6	7	8	9	10	11	12

>>>> **F116 - P - AP - CX - EX - HC - IX - OT - PM - TX - XX - ZX - FL**

SPECIFICATIONS

Display:

Type	High intensity reflective numeric and alpha-numeric LCD, UV resistant
Dimensions	90 x 40mm (3.5 in. x 1.6 in.)
Digits	Seven 17mm (0.67 in.) and eleven 8mm (0.31 in.) digits. Various symbols and measuring units.
Refresh rate	User definable: Fast, 1sec, 3sec, 15sec, 30sec, Off
Option ZB	Transflective LCD with green LED backlight. Good readings in full sunlight and darkness.

Operating Temperature:

-40°F to +176°F (-40°C to +80°C)

Power Requirements:

115 - 230VAC± 10%. Power consumption maximum 15 Watt.

16 - 30VDC. Power consumption maximum 1 Watt.

Sensor Excitation:

1.2 / 3.2 / 8.2 / 12 / 24V DC - maximum 400mA @ 24V DC

Terminal Connections:

Removable plug-in terminal strip. Wire maximum 1.5mm^2 and 2.5mm^2

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.

Enclosure (Panel Mount):

Dimensions:	130 x 120 x 60mm (5.12 in. x 4.72 in. x 2.36 in.) W x H x D
Panel cut-out:	115 x 98mm (4.53 in. x 3.86 in.) L x H
Type HB	Die-cast aluminum panel mount enclosure IP65 / NEMA 4X
Weight	600g (1.32 lbs)
Type HC	GRP panel mount enclosure IP65 / NEMA 4X. UV-resistant and flame retardant.
Weight	450g (0.99 lbs)

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 gram (1.3 lb.)

Environment:

Electromagnetic compatibility:	Compliant ref: EN 61326 (1997), EN 61010-1 (1993)

Signal Input (Flowmeter):

	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 oHz - maximum 7kHz for total and flow rate internal low-pass filter. E.g. reed switch with low-pass filter: maximum frequency 120Hz
K-Factor	0.000010 - 9,999,999 with variable decimal position
Low-pass filter	Available for all pulse signals

Signal Output (Analog):

Function:	Transmitting differential / sum flow rate
Accuracy:	10 bit. Error < 0.05%. Analog output signal can be scaled to any desired range.
Update time:	Ten times per second
Type AP:	Passive 4-20mA output - not isolated. Unit will be loop powered.

Signal Output (Pulse):

Function:	Pulse output according to differential or sum accumulated total and indication negative pulse output.
Frequency:	Maximum 64Hz. Pulse length user definable between 7.8 msec up to 2 seconds
Type OR	Two electro-mechanical relay outputs (N. O.) - isolated: maximum switch power 230 V AC - 0.5A per relay (requires PF or PM)
Type OT:	Two passive transistor outputs (NPN) - not isolated. Maximum 50V DC - 300mA per output

Communication option:

Function:	Reading display information, reading / writing all configuration settings
Protocol:	Modbus RTU or HART
Speed:	1200 - 2400 - 4800 - 9600 baud
Addressing:	Maximum 255 addresses

Total - 7 digits, 0 - 1 - 2 or 3 decimals:

Units:	L, m^3, GAL, USGAL, kg, lb, bbl, no unit
Note:	Total can be reset to zero

Accumulated Total - 11 digits:

Units / Decimals:	According to selection for total
Note:	Can not be reset to zero

Flow rate - 7 digits, 0 - 1 - 2 or 3 decimals:

Units:	mL, m^3, Gallons, kg, Ton, lb, bl, cf, RND, ft^3, scf, Nm^3, Nl, igal - no units
Time units:	/sec - /min - /hr - /day

Alarm values - 7 digits:

Units / Decimals:	According to selection for total
Time units:	According to selection for total
Type of alarm:	Low and high flow rate alarm. Includes alarm delay time and configurable alarm outputs.

Line temperature - 6 digits, 1 decimal:

Units:	°C, °F or K

DIMENSIONS

31 mm (1.22")   29 mm (1.14")   130 mm (5.12")   120 mm (4.72")   115 (4.53")   98 (3.86")

HB & HC enclosures   **panel cut-out**

ACCESSORIES

Part No.	Description
FW-EHD	GRP Field/Wall Mount Enclosure - Used to change Panel Mount unit into Field Mount unit

APPROVALS

CE

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