DUAL INPUT FLOW RATE / TOTALIZER

WITH TWO PULSE SIGNAL OUTPUTS

Features
- Displays for each flow the flow rate, total and accumulated total.
- Large 17mm (0.67”) digit selection for flow rate or total.
- Selectable on-screen engineering units; volumetric or mass.
- Ability to process all types of flowmeter signals.
- Auto backup of settings and running totals.
- Operational temperature -30°C up to +80°C (-22°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 II 1 GD EEx ia IIB/IIC T4 T100°C.
- Explosion/flame proof II 2 GD EEx d IIB T5.
- For each flow one pulse signal output.
- Full Modbus communication RS232/485/TTL.
- 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
- Two scaled pulse outputs according to accumulated total of flow A and flow B.

Signal input
Flow
- Reed-switch.
- NAMUR.
- NPN/PNP pulse.
- Sine wave (coil).
- Active pulse signals.
- (0-4 - 20mA.
- 0 - 10V DC.

Applications
- For those applications where instead of two just one indicator is desired. Alternative basic models: two F014’s.
General information

Introduction
The F111 incorporates two fully separated flow rate/totalizers in one enclosure, including a pulse signal output for each flow. There is no relationship between the flows, even different pulse signal input types can be used. A wide selection of options is available to further enhance this model’s capabilities, including Intrinsically Safe and full Modbus communication.

Display
The display has large 17mm (0.67”) and 8mm (0.31”) digits which can be set to show flow rate and/or totals. For each flow, on-screen engineering units are easily configured from a comprehensive selection. Both accumulated totals can register up to 11 digits and are backed-up in EEPROM memory every minute. The F111 can be set to show the selected information manually or with an automatic toggle function.

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 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.

Pulse output
The unit has two scaleable pulse outputs, one for flow A and the other for flow B. The outputs reflect the count on the accumulated display. The pulse length is user defined from 0.008 second up to 2 seconds. The maximum output frequency is 64Hz. The output signal can be a passive NPN, active PNP or an isolated electro-mechanical relay.

Signal input
The F111 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 or jumpers. The analog input versions are even available as 4 - 20mA input loop powered displays. For the pulse type input, different signal types can be used.

Communication
All process data and settings can be read and modified manually or through the Modbus communication link (RS232 / RS485). Full Modbus functionality remains available for the Intrinsically Safe version (TTL).

Hazardous areas
For hazardous area applications, this model has been ATEX certified Intrinsically Safe II 1 GD EEx ia IIB / IIC T4 T100°C with an allowed operational temperature of -30°C to +70°C (-22°F to +158°F). A flame proof enclosure is also available with the rating II 2 GD EEx d IIB T5.

Enclosures
Various types of enclosures can be selected, all ATEX approved. As standard the F111 is supplied in an GRP panel mount enclosure, which can be converted to an IP67 / NEMA 4X GRP field mount enclosure by the addition of a back case. Most popular is our rugged aluminum field mount enclosure with IP67 / NEMA 4X rating. Both European or U.S. cable gland entry threads are available.

Overview application F111
**Dimensions enclosures**

*Aluminum & GRP panel mount enclosure*

**Aluminum & GRP field / wall mount enclosures**

**Terminal connections**

- **CB:** RS232
- **CH:** RS485 - 2 wire
- **CT:** TTL Intrinsically Safe
- **P:** reed switch / NPN
- **P:** coil
- **P:** namur
- **P:** PNP
- **A:** (0)4 - 20mA
- **U:** 0 - 10V
- **PULSE OUTPUT A:**
  - 1
  - 2
- **POWER SUPPLY:**
  - OPTIONAL
  - GND
  - PD: 8 - 24V AC
  - PD: 8 - 24V DC
  - PF: 24V AC
  - PM: 115 - 230V AC
  - PF: 24V DC
  - PD-XI: 16 - 30V DC
  - OT: passive trans.
  - OA: active 24V DC
  - OR: mech. relay
- **FLOWMETER INPUT A:**
  - 9
  - 10
  - 11
- **POWER SUPPLY:**
  - STANDARD
  - OT: passive trans.
  - OA: active 24V DC
  - OR: mech. relay
- **FLOWMETER INPUT B:**
  - 12
- **COMMUNICATION / BACKLIGHT:**
  - 26
  - 22
  - 24
  - 25
  - 23
  - 21
  - 20
  - 30
  - 31
  - DTR
  - CI: RS485 - 4 wire
  - ZB: Backlight option
  - (With PD / PF / PM terminals 26 / 31 are not available, backlight power supply is integrated.)
- **PULSE OUTPUT B:**
  - 13
  - 14
- **TOTAL:** 1397853 m³
- **RATE:** 1853.9 Ch. A

*Display example - 90 x 40mm (3.5” x 1.6”)*
Typical wiring diagram F111-P-CH-PB-OT-(PX)

**TERMINAL CONNECTORS**

- **F100 - series**

- **7 8**
  - Common ground

- **28 26**
  - Supply
  - Signal
  - Type of signal

- **5 11**
  - Main supply
  - Common ground

- **12 13 14**
  - Signal
  - Supply
  - Type of signal

- **Flowmeter input A**
  - Type: P
  - Pulse

- **Flowmeter input B**
  - Type: P
  - Pulse

- **Power supply type PX**: 8 - 30V DC
  - (not used in this example)

- **Pulse output flow A - type OT**: passive transistor
  - (not used in this example)

- **Pulse output flow B - type OT**: passive transistor
  - (not used in this example)

*Please note: PX may be used in combination with the battery! PX will power the unit; the battery will be disabled automatically until power is disconnected.*

**Battery Powered**

**Modbus communication type CH**: RS485 - 2 wire

**Typical wiring diagram F111-P-CH-OT-PX**

**TERMINAL CONNECTORS**

- **F100 - series**

- **A B**
  - Common ground

- **26 27 28**
  - Supply
  - Signal
  - Type of signal

- **6 5 1**
  - Main supply
  - Common ground

- **3 4 5 6**
  - Signal
  - Supply
  - Type of signal

- **Flowmeter input A**
  - Type: P
  - Pulse

- **Flowmeter input B**
  - Type: P
  - Pulse

- **Pulse output flow A - type OT**: passive transistor
  - (not used in this example)

**Modbus communication type CH**: RS485 - 2 wire

*Please note: PX may be used in combination with the battery! PX will power the unit; the battery will be disabled automatically until power is disconnected.*

**Supply voltage**: 1.2 / 3.2V DC to sensor
**Typical wiring diagram F111-A-CB-OA-PD**

- **TERMINAL CONNECTORS**
  - F100- series

- **24V AC / DC POWER SUPPLY**
  - Modbus communication type CB: RS232

- **Flowmeter input A - type A:** (0)4 - 20mA
  - **Pulse output flow A - type OA:** active 24V DC pulse
  - **Power supply type PD:** 8 - 24V AC / DC

- **Main supply**
- **Common ground**
- **Signal**
- **Supply**

- **Supply voltage:** 3.2 / 8.2 / 12 / 24V DC to sensor

**Typical wiring diagram F111-A-CI-OR-PM**

- **TERMINAL CONNECTORS**
  - F100- series

- **115 - 230V AC POWER SUPPLY**
  - Modbus communication type CI: RS485 - 4 wire

- **Flowmeter input A - type A:** (0)4 - 20mA
  - **Pulse output flow A - type OR:** mechanic relay
    - **Power supply type CI:** 115 - 230V AC

- **Main supply**
- **Common ground**
- **Signal**
- **Supply**

- **Supply voltage:** 3.2 / 8.2 / 12 / 24V DC to sensor

*Note: Some diagrams are not fully visible or are pixelated.*
**Hazardous area applications**

The F111-XI has been ATEX approved by KEMA for use in Intrinsically Safe applications. It is approved according to II 1 GD EEx ia IIB/IIC T4 T100°C for gas and dust applications with an operational temperature range of -30°C to +70°C (-22°F to +158°F). Besides the two I.S. power supplies for the pulse outputs, it is allowed to connect up to three I.S. power supplies in IIB applications or one in IIC applications. Full functionality of the F111 remains available, including pulse output and Modbus communication (type CT).

Power supply type PD-XI offers a 8.2V sensor supply e.g. for one Namur sensor. A flame proof enclosure with rating II 2 GD EEx d IIB T5 is available as well. Please contact your supplier for further details.

**Configuration example IIB and IIC**

F111-P-(CT)-(OT)-(PC)-(PX)-XI - Battery powered unit

**Certificate of conformity KEMA 03ATEX1074 X**

![Certificate of conformity](image-url)
Configuration example IIB and IIC - F111-P-(CT)-PX-OT-XI - Power supply 8 - 30V DC

TERMINAL CONNECTORS

HAZARDOUS AREA

SAFE AREA

Modbus communication type CT: TTL

Please note: communication type CT is not allowed in IIC applications.

TERMINAL CONNECTORS
F118-series

HAZARDOUS AREA

SAFE AREA

Common ground

Supply *

Signal

Common ground

Power supply type PX: 8 - 30V DC

Power supply

e.g. MTL5025

or

SWITCH INTERFACE

e.g. MTL 5011B

Uo=max 30V
Ivos=100mA
Pmax=750mW

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

* Note sensor supply voltage: 1.2V DC for coil sensors or 3.2V DC for other pulse sensors.
**Configuration example IIB - F111-A-CT-OT-PX-XI - Power supply 8 - 30V DC**

### Terminal Connectors

- **F100-series**

### Hazardous Area

- ISOLATOR: L.S. Certified Isolator
  - TTL to RS232 / RS422 / TTL
  - For example: MTL5051
  - \( U_{o_{\max}} = 30 \text{V} \)
  - \( I_{o_{\max}} = 250 \text{mA} \)
  - \( P_{o_{\max}} = 850 \text{mW} \)

### Power Supply

- Circuit depends on type of signal

#### Power Supply

- For example: MTL5025
  - \( U_{o_{\max}} = 30 \text{V} \)
  - \( I_{o_{\max}} = 100 \text{mA} \)
  - \( P_{o_{\max}} = 750 \text{mW} \)

#### Switch Interface

- For example: MTL5011B
  - \( U_{o_{\max}} = 30 \text{V} \)
  - \( I_{o_{\max}} = 100 \text{mA} \)
  - \( P_{o_{\max}} = 750 \text{mW} \)

- \( C_i \) is negligibly small

### Notes

- Sensor supply voltage: 3.2V DC.
- Above values are safety values.
- Consult the technical specification for operational values.

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*Note:* The diagram illustrates the terminal connectors and signal flow for the F111-A-CT-OT-PX-XI configuration. The diagram includes information on terminal assignments, power supply options, and isolator specifications. The layout is designed to ensure safe and secure operation within hazardous areas.
**Configuration example IIB and IIC - F111-A-(CT)-OT-PD-XI - Power supply 16 - 30V DC**

### TERMINAL CONNECTORS

<table>
<thead>
<tr>
<th>F100-series</th>
<th>HAZARDOUS AREA</th>
<th>SAFE AREA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RXD</strong></td>
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<tr>
<td><strong>TXD</strong></td>
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<tr>
<td><strong>123456</strong></td>
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<td>e.g. counter</td>
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</tbody>
</table>

**Flowmeter input A - type A:**
- (0)4 - 20mA

**Flowmeter input B - type A:**
- (0)4 - 20mA

**Pulse output A - type OT:**
- Passive transistor
- Ci is negligibly small

**Pulse output B - type OT:**
- Passive transistor
- Ci is negligibly small

**Main supply**
- 123456

**Power supply type PD:** 16 - 30V DC
- (please note: PD and battery supply (type PC) is NOT allowed in IIC applications).

**Power supply type PC**
- For example: MTL5051

**Note:**
- Consult the technical specification for operational values.

**Modbus communication type CT:** TTL
- Please note: communication type CT is not allowed in IIC applications.

**ISOLATOR:**
- I.S. Certified Isolator
- TTL to RS232 / RS422 / TTL
- For example: MTL5051

**Power supply:**
- e.g. MTL5025

- Uo:max 30V
- Io:max 250mA
- Po:max 850mW

- Switch interface
- e.g. MTL5011B

- Uo:max 30V
- Io:max 100mA
- Po:max 750mW

**Note:**
- Power supply type PD: the supply voltage to pulse sensors is maximum 8.7V (Uo=max 8.7V  Io=max 25mA  Po=max 150mW) and to analog sensors as connected to terminal 1 (internally linked).

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*Fluidwell*
### Technical specification

#### General

**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: 8 times/sec. - 30 secs.
- **Option ZB**: Transflective LCD with green LED backlight. Good readings in full sunlight and darkness.
- **Note ZB**: Only available for safe area applications.

**Operating temperature**
- **Operational**: -30°C to +80°C (-22°F to +178°F).
- **Intrinsically Safe**: -30°C to +70°C (-22°F to +158°F).

**Power requirements**
- **Type PB**: Long life Lithium battery - life-time depends upon settings and configuration - up to 5 years.
- **Type PC**: Intrinsically Safe long life lithium battery - life-time depends upon settings and configuration - up to 5 years.
- **Type PD**: 8 - 24V AC / DC ± 10%. Power consumption max. 10 Watt. Intrinsically Safe: 16 - 30V DC; power consumption max. 0.75 Watt.
- **Type PF**: 24V AC / DC ± 10%. Power consumption max. 15 Watt.
- **Type PL**: Input loop powered from sensor signal 4 - 20mA (type “A”) - requires type OT.
- **Type PM**: 115 - 230V AC ± 10%. Power consumption max. 0.5 Watt.
- **Type PX**: 8 - 30V DC. Power consumption max. 0.5 Watt.
- **Type ZB**: 12 - 24V DC ± 10% or type PD / PF / PM. Power consumption max. 1 Watt.
- **Note PB/PC/PX**: For Intrinsically Safe applications, consult the safety values in the certificate.
- **Note PF/PM**: The total consumption of the sensors and outputs may not exceed 400mA @ 24V.

**Sensor excitation**
- **Type PB/PC/PX**: 3.2V DC for pulse signals and 1.2V DC for coil pick-up. 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**: 1.2 / 3.2 / 8.2 / 12 / 24V DC - max. 50mA @ 24V DC.
- **Type PD-XI**: 1.2 / 3.2 / 8.2V DC - max. 7mA @ 8.2V DC and mains power supply voltage (as connected to terminal 1).
- **Note**: In case PD-XI and signal A or U: the sensor supply voltage is according to the power supply voltage connected to terminal 1. Also terminal 2 offers the same voltage.
- **Type PF / PM**: 1.2 / 3.2 / 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.

### Hazardous area

**Intrinsically Safe**
- ATEX approval ref.: II 1 GD EEx ia IIB/IIC T4 T100°C.
- Type XI: Maximum ambient +70°C (158°F).

**Explosion proof**
- ATEX approval ref.: 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. 15 Kg.

### Environment

**Electromagnetic compatibility**

### 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/fiel d 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**: 1100 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: 2 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.
**Signal inputs**

**Flowmeter**
- 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 ZF: coil sensitivity 10mVpp.
- 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: 14 bit. Error < 0.025mA / ± 0.125% FS. Low level cut-off programmable.
- Span: 0.000010 - 9,999,999 with variable decimal position.
- Update time: Four times per second.
- Voltage drop: Type A: 2.5V @ 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 outputs**
- Pulse output: Pulse output - transmitting accumulated total.
  - Function: Max. 64Hz. Pulse length user definable between 7.8msec up to 2 seconds.
  - Type OA: two active 24V DC transistor outputs (PNP); max. 50mA per output (requires PD, PF or PM).
  - Type OR: two electro-mechanical relay outputs - isolated; max. switch power 230V AC (N.O.) - 0.5A per relay (requires PF or PM).
  - Type OT: two passive transistor outputs (NPN) - not isolated. Max. 50V DC - 300mA per output.

**Communication option**
- Function: Reading display information, reading / writing all configuration settings.
- Protocol: Modbus ASCII / RTU.
- Speed: 1200 - 2400 - 4800 - 9600 baud.
- Addressing: Maximum 255 addresses.
- Type CB: RS232
- Type CH: RS485 2-wire
- Type CI: RS485 4-wire
- Type CT: TTL Intrinsically Safe.

**Operational**
- Operator functions:
  - Displayed functions: Flow rate and / or total flow A.
  - Total and accumulated total flow A.
  - Flow rate and / or total flow B.
  - Total and accumulated total flow B.
  - Total A and total B can individually 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, igal - 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 Grevpal 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 locknuts and 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.
- ACF30: For HM enclosure, includes O-rings.
- ACF31: For HN enclosure, includes O-rings.
- ACF32: For HO enclosure, includes O-rings.
- ACF33: For HP enclosure, includes O-rings.
- ACF34: For HT enclosure, includes O-rings.
- ACF35: For HU enclosure, includes O-rings.

**Blind plug accessories**
- ACF50: For HA enclosure, includes O-rings.
- ACF55: For HE enclosure, includes locknuts and O-rings.
- ACF56: For HF enclosure, includes locknuts and O-rings.
- ACF57: For HG enclosure, includes locknuts and O-rings.
- ACF58: For HH enclosure, includes locknuts and O-rings.
- ACF59: For HJ enclosure, includes locknuts and O-rings.
- ACF60: For HM enclosure, includes O-rings.
- ACF61: For HN enclosure, includes O-rings.
- ACF62: For HO enclosure, includes O-rings.
- ACF63: For HP enclosure, includes O-rings.
- ACF64: For HT enclosure, includes O-rings.
- ACF65: For HU enclosure, includes O-rings.
### Ordering information

**Standard configuration:** F111-P-AX-CX-EX-IX-OT-PX-XX-ZX.

<table>
<thead>
<tr>
<th>Ordering information</th>
<th>F111</th>
<th>-AX-</th>
<th>-C-</th>
<th>-EX</th>
<th>-H-</th>
<th>-IX</th>
<th>-O-</th>
<th>-P-</th>
<th>-TX</th>
<th>-X-</th>
<th>-Z-</th>
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<tbody>
<tr>
<td><strong>Flowmeter input signal</strong></td>
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<tr>
<td>A</td>
<td>(o)4</td>
<td>-20mA input.</td>
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<tr>
<td>P</td>
<td>Pulse input: coil, npn, pnp, namur, reed-switch.</td>
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<tr>
<td>U</td>
<td>0-10V DC input.</td>
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<tr>
<td><strong>Analog output signal</strong></td>
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<tr>
<td>AX</td>
<td>No analog output.</td>
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<tr>
<td><strong>Communication</strong></td>
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<td>Intrinsically Safe TTL - Modbus ASCII / RTU.</td>
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<td>Aluminum enclosure.</td>
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<td>HD</td>
<td>Cable entry: no holes.</td>
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<td>Cable entry: 2 x Ø 16mm &amp; 1 x Ø 20mm.</td>
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<td>Cable entry: 1 x Ø 22mm (%/°).</td>
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<td>HG</td>
<td>Cable entry: 2 x Ø 20mm.</td>
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<td>Cable entry: 6 x Ø 12mm.</td>
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<tr>
<td>HJ</td>
<td>Cable entry: 3 x Ø 22mm (%/°).</td>
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<td>HK</td>
<td>Flat bottom, cable entry: no holes.</td>
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<td><strong>Aluminum field / wall mount enclosures - IP67 / NEMA4X</strong></td>
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<td>HA</td>
<td>Cable entry: 2 x PG9 + 1 x M20.</td>
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<td>HM</td>
<td>Cable entry: 2 x M16 + 1 x M20.</td>
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<td>HN</td>
<td>Cable entry: 1 x M20.</td>
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<td>HO</td>
<td>Cable entry: 2 x M20.</td>
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<td>HP</td>
<td>Cable entry: 6 x M12.</td>
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<td>HT</td>
<td>Cable entry: 1 x 1/4&quot;NPT.</td>
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<td>HU</td>
<td>Cable entry: 3 x 1/4&quot;NPT.</td>
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<td>HZ</td>
<td>Cable entry: no holes.</td>
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<td><strong>ABS field / wall mount enclosures</strong></td>
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<td>HS</td>
<td>Silicone free ABS field enclosure IP65 – Cable entry: no holes (old HD enclosure).</td>
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<td><strong>Additional inputs</strong></td>
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<td>IX</td>
<td>No additional input.</td>
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<td>OA</td>
<td>Two active transistor outputs - requires PD, PF or PM.</td>
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<td>OR</td>
<td>Two mechanical relay outputs - requires PF or PM.</td>
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<td>OT</td>
<td>Two passive transistor outputs - standard configuration.</td>
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<td>PB</td>
<td>Lithium battery powered.</td>
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<td>PC</td>
<td>Lithium battery powered - Intrinsically Safe.</td>
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<td>PD</td>
<td>8 - 24V AC/DC + sensor supply - with XI: 16 - 30V DC.</td>
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<td>PF</td>
<td>24V AC/DC + sensor supply.</td>
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<td>PL</td>
<td>Input loop powered from sensor signal type “A” - requires OT.</td>
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<td>PM</td>
<td>115 - 230V AC + sensor supply.</td>
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<td>PX</td>
<td>Basic power supply 8 - 30V DC (no real sensor supply).</td>
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<td><strong>Temperature input signal</strong></td>
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<td><strong>Hazardous area</strong></td>
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<td>XI</td>
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<td>XF</td>
<td>EExd enclosure - 3 keys.</td>
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<td>ZF</td>
<td>Coil input 10mVpp.</td>
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</table>

The bold marked text contains the standard configuration.

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