

Ratio Monitor / Totalizer

with high / low alarms and analog output



Application examples: Salty Off-Shore conditions



Extreme cold weather at polar regions



Red flashing LED backlight in case of a ratio alarm.

The F-Series 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°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 and IECEx 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

- Calculates ratio between flow A & B.
- Displays ratio, flow rate A and B and total A & B (resettable).
- 4 alarm values: low-low, low, high and high-high ratio alarm.
- Large 17mm (0.67") digits.
- LED backlight option.
- Ability to process all types of signals: Sine wave (coil), NAMUR, NPN/PNP pulse, Reed-switch, Active pulse signals.
- Up to three free configurable alarm outputs.
- Analog (loop powered) according to the calculated ratio, flow rate A or flow rate B.
- Full Modbus communication RS232/485/TTL.
- Power requirements: Loop or battery powered, 8 - 30V DC 8 - 24V AC/DC or 115 - 230V AC.
- Sensor supply: 3 / 8.2 / 12 / 24V DC.
- Auto backup of settings and running totals.

Introduction

The flowcomputer Model F114 has been developed to calculate and monitor the actual ratio between two separate flows. Typical applications are found where locally a two component product is mixed, for example in construction works, roof or wall isolation, glueing and coating. The F114 offers the facility to set two low ratio and two high ratio alarm values. Special precautions are taken to allow start-up problems and incorrect ratio readings for a certain period of time. Based on the location of the flowmeters, a selection can be made out of six different formulas. A wide selection of options further enhances the capabilities of this model.

Display

The display has large 17mm (0.67") and 8mm (0.31") digits which show the ratio, alarm values, flow rate A, total A and flow rate B, total B. On-screen engineering units are easily configured from a comprehensive menu. The ratio can be displayed as 1:___ or as a percentage.

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.

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).



Alarm output

Up to three free configurable outputs are available to transmit the ratio alarm condition. The output signals can be a passive NPN, active PNP or an isolated electro-mechanical relay. Two outputs are available in Intrinsically Safe applications.

Hazardous areas

This model is ATEX and IECEx certified as Intrinsically Safe for gas applications with an allowed ambient temperature of -40°C to +70°C (-40°F to +158°F) and dust applications with an allowed ambient temperature of -40°C to +50°C (-40°F to +122°F). A flame proof Ex d enclosure with ATEX/IECEx certification is also available.

Analog output signal

The calculated ratio, flow rate A or B can be re-transmitted with the (0)4 - 20mA or 0 - 10V DC output signal. The output signal is updated eight times per second. The output value is user defined in relation to the ratio or flow rate, e.g. 4mA equals to 1 : 50 and 20mA equals to 1 : 1. The output signal can be passive, active or isolated where the passive output type will loop power the F114.



All info
at a glance



Easy
to install



Easy
to program



Know one
know them all!



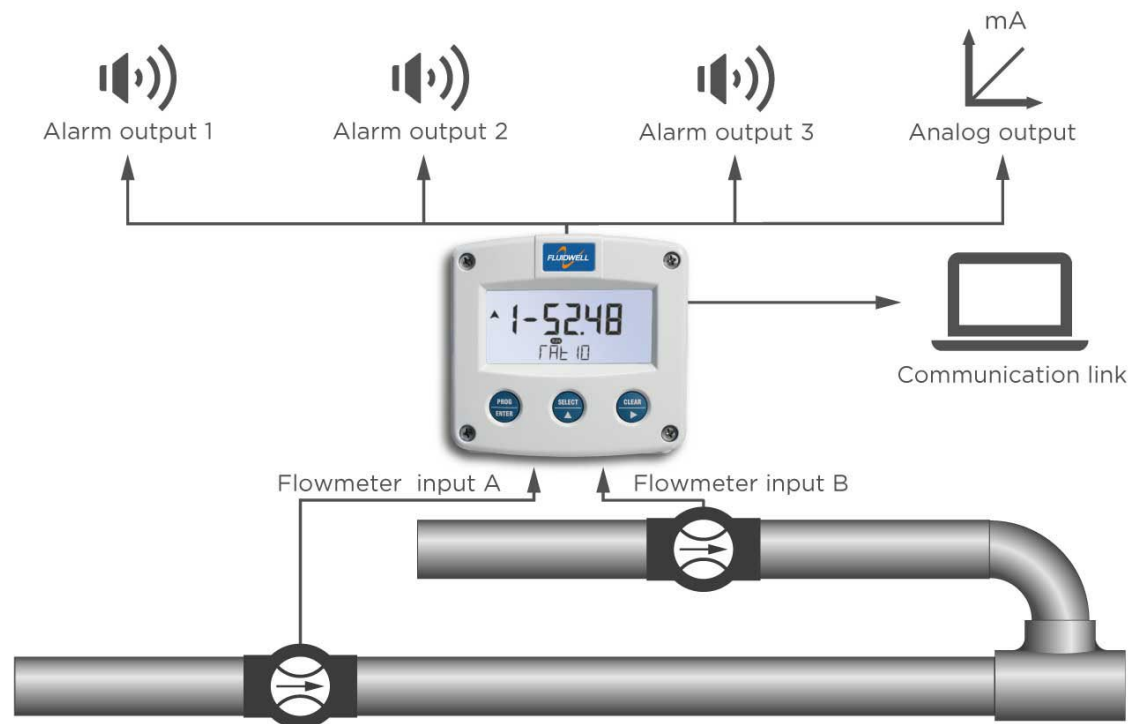
Reliable



User-friendly

Overview application F114

The F-Series 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°C (-40°F up to 176°F). Two component applications like glueing, blending or mixing where continuous ratio monitoring and/or totalizing is important.

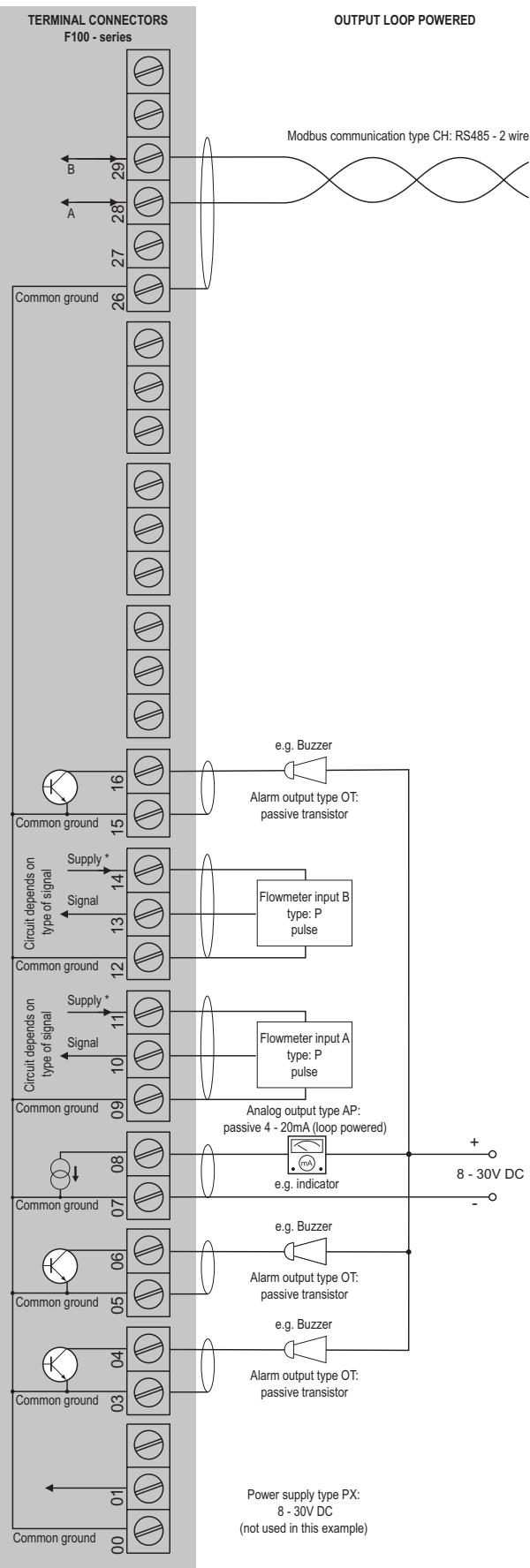


Signal input

The F114 accepts most pulse input signals for volumetric flow or mass flow measurement. The input signal types can be selected by the user in the configuration menu without having to adjust any sensitive mechanical dip-switches or jumpers.

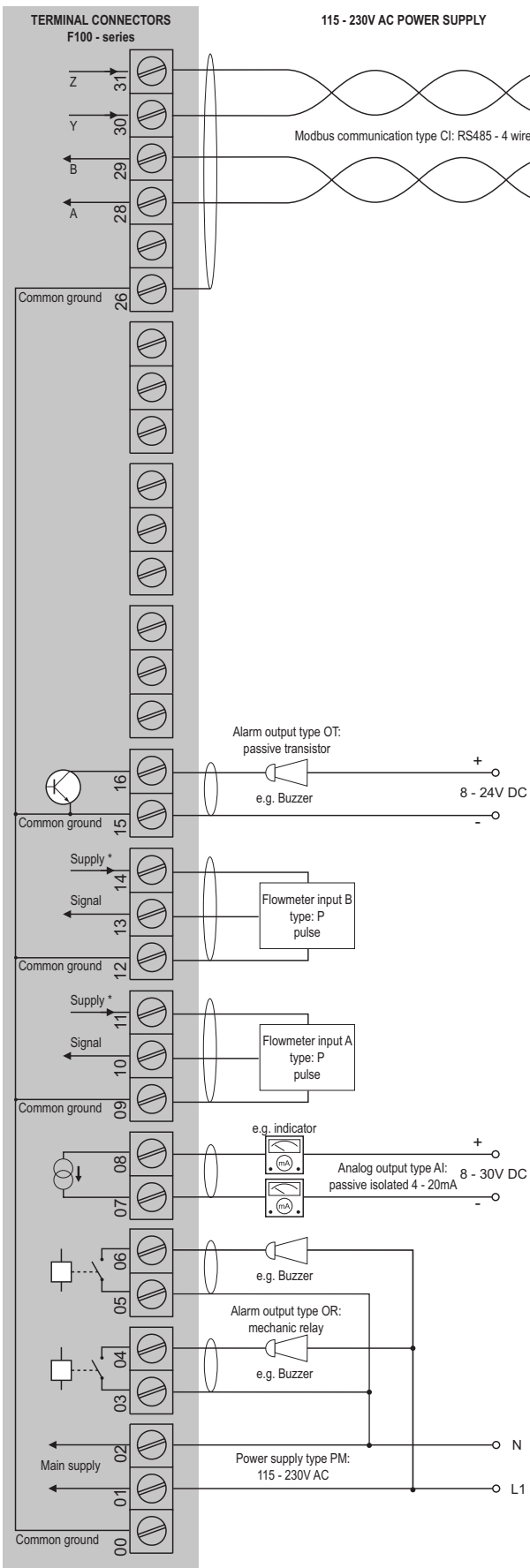
| Type of signal | Resistance | Low Pass filter (LP) | Max. frequency | Max. frequency Low Pass filter (LP) | Min. amplitude p-p | Remark |
|-------------------|-----------------|----------------------|--------------------------|-------------------------------------|--------------------|-----------------------------|
| NPN | 100kΩ pull-up | 100kΩ pull-up | 6kHz Threshold 1.2V | 1.2kHz | | Open collector |
| REED | 1MΩ pull-up | 1MΩ pull-up | 1.2kHz Threshold 1.2V | 120Hz | | |
| PNP | 100KΩ pull-down | 100KΩ pull-down | 6kHz Threshold 1.2V | 1.2kHz | | |
| NAMUR | 820Ω pull-down | - | 4kHz | - | | External power required |
| COIL LO | - | - | | - | 80mV _{pp} | Default sensitivity |
| COIL-HI | - | - | - | - | 20mV _{pp} | Sensitive for interference! |
| COIL-HI (Type ZF) | | | | | 10mV _{pp} | |
| ACTIVE 8.2V DC | 3K9Ω | | 10kHz Threshold 4V | | | External power required |
| ACTIVE 12V DC | 4KΩ | | 10kHz Threshold 6V | | | External power required |
| ACTIVE 24V DC | 3KΩ | | 10kHz Threshold 12V | | | External power required |

Configuration example F114-P-AP-CH-OT-(PX)-XX-ZX



* For pulse type inputs: V_{ref} : 1.2V/3.0V available.- NO power output, available I_{supply} : <1mA.
Note: using these ref. voltages at max. load, will reduce battery life significantly.

Configuration example F114-P-AI-CI-OR-PM-XX-ZX



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

Hazardous area applications

The F114-XI has been certified according to ATEX and IECEx by DEKRA for use in Intrinsically Safe applications with an ambient temperature of -40°C to +70°C (-40°F to +158°F). For equipment category Dust, zone 20 (1 D / EPL Da), the maximum ambient temperature is limited to 50°C (+122°F) and a maximum dust layer thickness of 200mm.

- The ATEX markings for gas and dust applications are:

Gas: II 1 G Ex ia IIB/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/IIB T4 Ga.

Dust: Ex ia IIIC T₂₀₀ 100 °C Da.

Besides the two I.S. power supplies for the alarm outputs, it is allowed to connect up to four I.S. power supplies in IIB/IIIC applications or one in IIC applications. Consult the certificate for the maximum input and output values of the circuits. Full functionality of the F114 remains available, including 4 - 20mA output, alarm outputs and Modbus communication (type CT). Power supply type PD-XI offers a 8.2V sensor supply e.g. for two Namur sensors. An ATEX/IECEx approved flame proof Ex d enclosure is available as well. Please contact your supplier for further details.

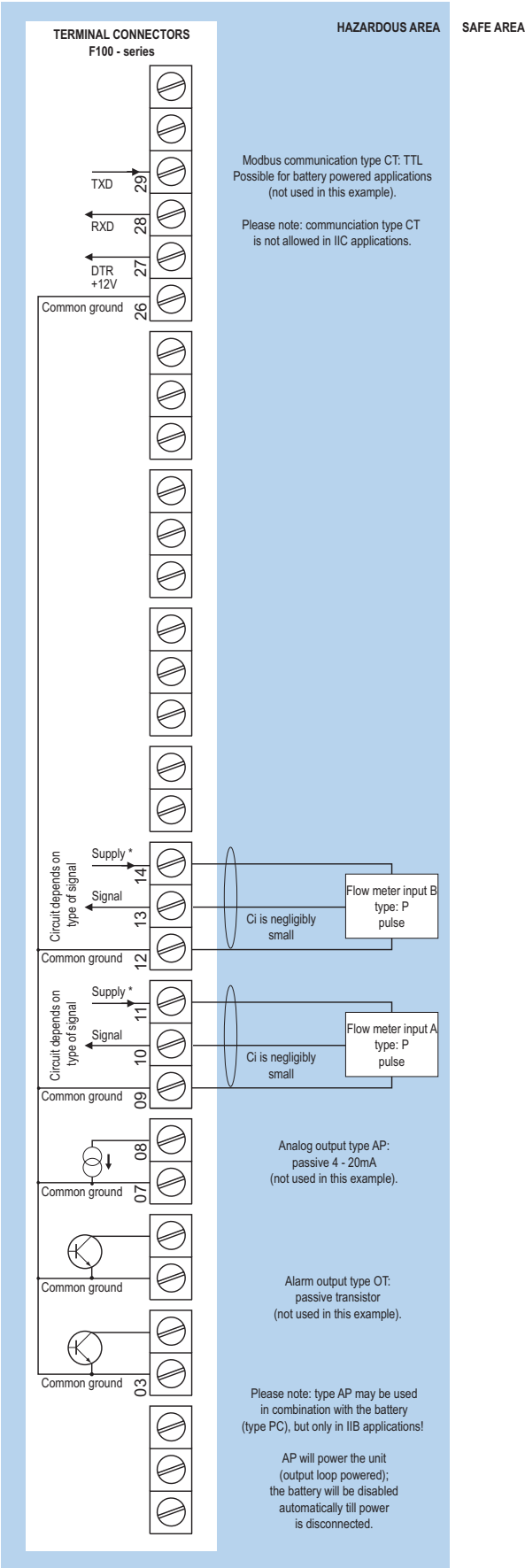
Certificate of conformity KEMA 03ATEX1074 X

- IECEx DEK 11.0042X



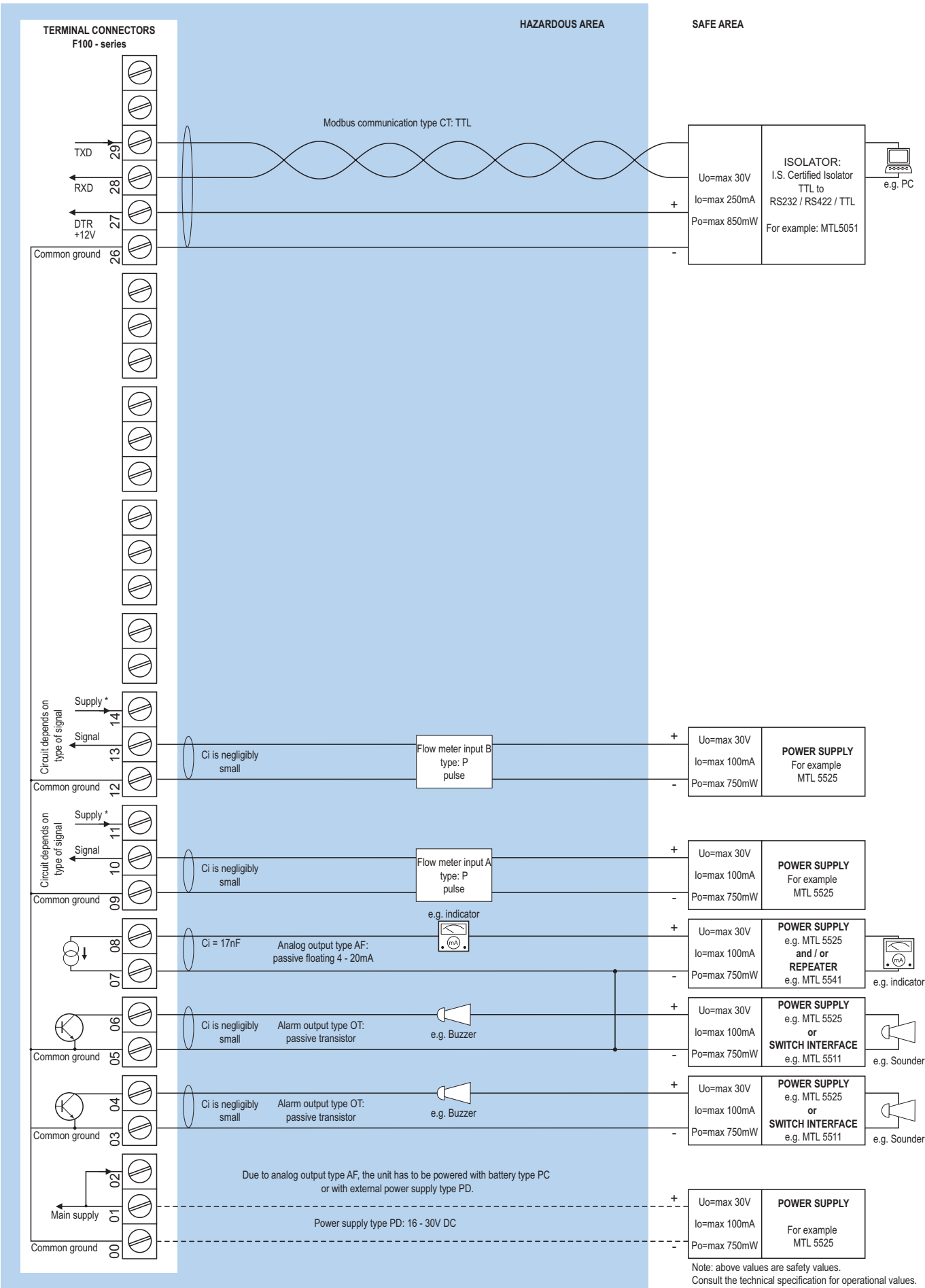
Configuration example IIB / IIIC and IIC

F114-P-(AP)-(CT)-(OT)-PC-XI - Battery powered unit



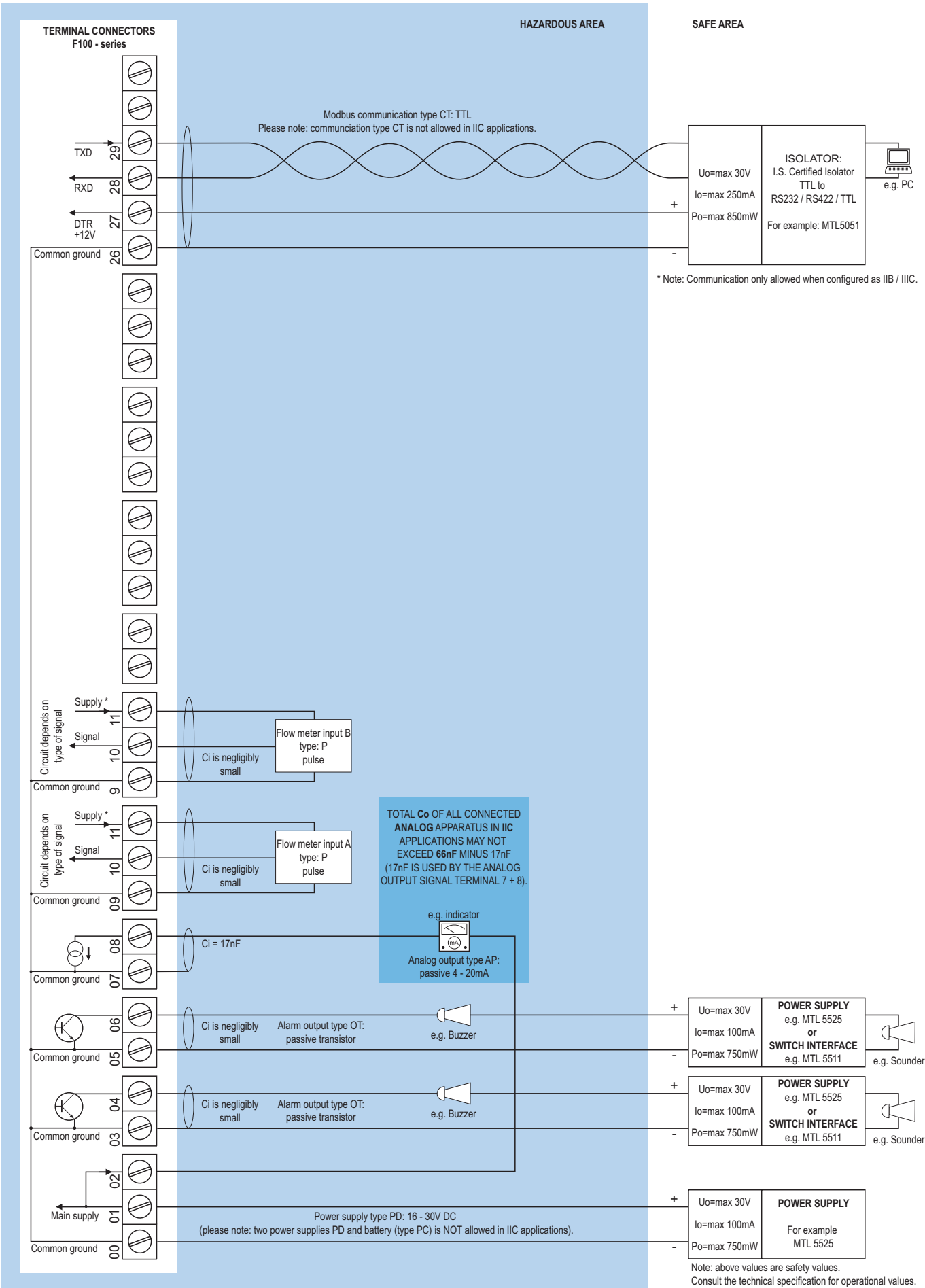
* For pulse type inputs: V_{ref} = 1.2V/3.0V available.- NO power output, available I_{supply} : <1mA. Note: using these ref. voltages at max. load, will reduce battery life significantly.

Configuration example IIB / IIIC and IIC - F114-P-AP-(CT)-OT-(PX)-XI - Output loop powerd



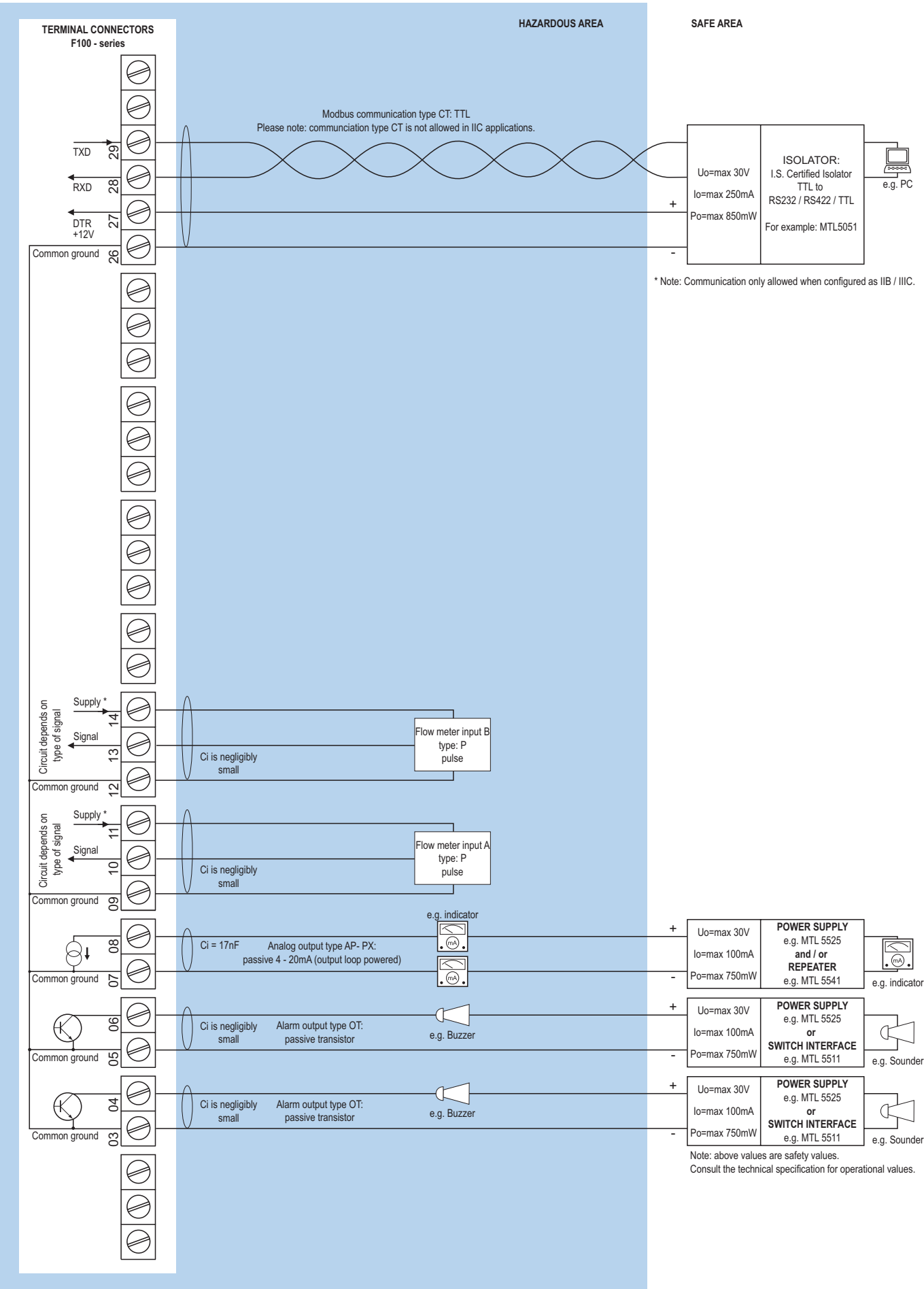
* Note power supply type PD: the supply voltage to pulse sensors is maximum 8.7V (Uo=max 8.7V Io=max 25mA Po=max 150mW) and to analog sensors as connected to terminal 1 (internally linked).

Configuration example IIB / IIIC and IIC - F114-P-AP-(CT)-OT-PD-XI - Power supply 16 - 30V DC



* 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).

Configuration example IIB / IIIC - F114-P-AF-CT-OT-(PC)-(PD)-XI - Power supply 16 - 30V DC or battery powered



* For pulse type inputs: V_{ref} : 1.2V/3.0V available.- NO power output, available I_{supply}: <1mA.
Note: using these ref. voltages at max. load, will reduce battery life significantly.

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. |
| Option ZB | Transflective LCD with white LED-backlight. Good readings in full sunlight and darkness. |
| Note ZB | Only available for safe area applications. |

Ambient temperature

| | |
|---------------------------|-----------------------------------|
| Safe areas | -40°C to +80°C (-40°F to +176°F). |
| Intrinsically Safe | -40°C to +70°C (-40°F to +158°F). |
| Dust, zone 20 | -40°C to +50°C (-40°F to +122°F). |

Terminal connections

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

Data protection

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|-----------------|---|
| 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. |
| IP & NEMA | EN 60529 & NEMA 250 |

Intrinsically Safe (Type XI)

| | |
|----------------------|---|
| ATEX | Gas: II 1 G Ex ia IIB/IIC T4 Ga. Dust: II 1 D Ex ia IIIC T ₂₀₀ 100 °C Da. |
| IECEx | Gas: Ex ia IIC/IIB T4 Ga. Dust: Ex ia IIIC T ₂₀₀ 100 °C Da. |
| Ambient Ta | -40°C to +70°C (-40°F to +158°F). |
| Dust, zone 20 | -40°C to +50°C (-40°F to +122°F). |

Explosion proof (Type XF)

| | |
|-------------------|---|
| ATEX/IECEx | Gas: II 2 G Ex db IIB+H2 T5 Gb. Dust: II 2 D Ex tb IIIC T80°C. |
| Protection | IP66 |
| 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. |

Enclosure

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

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 Type4X. |
| Weight | 600 gr. |
| Type HC | GRP panel mount enclosure IP65 / NEMA Type4X, UV-resistant and flame retardant. |
| Weight | 450 gr. |
| Type HSB | Die-cast stainless steel 316L IP67 / NEMA Type4X. |
| Weight | 1150gr. |

GRP wall / field mount enclosures

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|-------------------|--|
| 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 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. |
| Type HQ | Cable entry: 2 x Ø 16mm & 3 x Ø 12mm. |

Aluminum wall / field mount enclosures

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|--------------------|---|
| General | Die-cast aluminum wall/field mount enclosure IP67 / NEMA Type4X with 2-component UV-resistant coating. Extended back cover available with undrilled preparation for direct meter mounting. |
| Dimensions | 130 x 120 x 75mm (5.12" x 4.72" x 2.95") - W x H x D. 130 x 120 x 90mm (5.12" x 4.72" x 3.54") - W x H x D. |
| Weight | 1100 gr. / extended enclosure: 1310 gr. |
| Type HA | Cable entry: 2 x PG9 and 1 x M20. |
| Type HL | Cable entry: 2 x 1/2" NPT. |
| Type HM/HBM | Cable entry: 2 x M16 and 1 x M20. |
| Type HN | Cable entry: 1 x M20. |
| Type HO/HBO | Cable entry: 2 x M20. |
| Type HP | Cable entry: 6 x M12. |
| Type HT | Cable entry: 1 x 1/2" NPT. |
| Type HU/HBU | Cable entry: 3 x 1/2" NPT. |
| Type HV | Cable entry: 4 x M20. |
| Type HZ | Cable entry: no holes. |

Stainless steel 316L wall / field mount enclosures

| | |
|-------------------|--|
| General | Die-cast stainless steel 316L wall / field mount enclosure with flat bottom. IP67 / NEMA Type4X. |
| Dimensions | 130 x 120 x 75mm (5.12" x 4.72" x 2.95") - W x H x D. |
| Weight | 2700 gr. |
| Type HSM | Cable entry: 2 x M16 + 1 x M20. |
| Type HSO | Cable entry: 2 x M20. |
| Type HSU | Cable entry: 3 x 1/2" NPT. |

Signal inputs - Flowmeter

| | |
|------------------------|---|
| Type P | Coil / sine wave (HI: 20mVpp or LO: 80mVpp - sensitivity selectable), NPN/PNP, open collector, reed switch, Namur, active pulse signals 8 - 12 and 24V DC. |
| Frequency | Minimum 0Hz - maximum 6kHz 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. |

Signal outputs - Alarm output

| | |
|-----------------|---|
| Function | User defined: low, low-low, high, high-high or all alarms output. |
| Type OA | Three active 24V DC transistor outputs (PNP); max. 50mA per output (requires PD, PF, PM or PX). Requires min. 24V power supply. |
| Type OR | Two electro-mechanical relay outputs - isolated (N.O.) - max. switch power 230V AC - 0.5A (requires PF or PM) and one transistor output OT. |
| Type OT | Three passive transistor outputs (NPN) - not isolated. Max. 50V DC - 300mA per output. |
| Note | Intrinsically Safe applications: only two transistor outputs type OT available. |

Signal outputs - Analog output

| | |
|--------------------|--|
| Function | Transmitting ratio, flow rate A or flow rate B. |
| Accuracy | 10 bit. Error < 0.05%. Analog output signal can be scaled to any desired range. |
| Update time | Eight times per second. |
| Type AA | Active 4 - 20mA output (requires PD, PF, PM or PX). |
| Type AB | Active 0 - 20mA output (requires PD, PF, PM or PX). |
| Type AF | Passive floating 4 - 20mA output for Intrinsically Safe applications (requires XI + PD). |
| Type AI | Passive galvanically isolated 4 - 20mA output - also available for battery powered models. |
| Type AP | Passive 4 - 20mA output - not isolated. Unit will be loop powered. |
| Type AU | Active 0 - 10V DC output (requires PD, PF, PM or PX). Requires min. 12V power supply. |

Signal outputs - 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. |

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. |
| ACF11 | Swivel with 25° movement from center axis for direct flowmeter mounting: 1" NPT to 1/2" NPT. |

Cable glands

| | |
|--------------|--|
| 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. |
| 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. |

Blind plugs

| | |
|--------------|--|
| 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. |
| ACF62 | For HM enclosure, includes O-rings. |
| ACF63 | For HN enclosure, includes O-rings. |
| ACF64 | For HO enclosure, includes O-rings. |
| ACF65 | For HP enclosure, includes O-rings. |
| ACF69 | For HT enclosure, includes O-rings. |
| ACF70 | For HU enclosure, includes O-rings. |

Intrinsically Safe isolators

| | |
|--------------|--|
| ACG01 | MTL5511 - One channel pulse or switch output transfer from hazardous area to safe area. |
| ACG02 | MTL5525 - One channel power supply from safe area to hazardous area (e.g. to power the unit with PD or to power a switching or analog device in hazardous area). |
| ACG03 | MTL5541 - One channel 4 - 20mA repeater from hazardous area to safe area. |
| ACG04 | MTL 5051 - Bi-direction serial-data-isolator (for Modbus communication). |
| ACG05 | MTL5516C - Two channel pulse or switch output transfer from hazardous area to safe area. |
| ACG06 | MTL5513 - One channel pulse or switch output transfer from hazardous area to safe area. |
| ACG07 | MTL5546Y - One channel isolated driver bringing 4 - 20mA from safe area to hazardous area, HART transparent, OCD. |

Power requirements

| | |
|----------------------|--|
| Type AP | Analog output loop powered, 8 - 30V DC. Power consumption max 0.5 Watt. |
| Type PB | Long life Lithium battery - life-time depends upon settings and configuration - up to 5 years. (requires PD or PX) |
| Type PC | Intrinsically Safe long life lithium battery life-time depends upon settings and configuration - up to 5 years. (requires XI and PD or PX) |
| Type PD | 8 - 24V AC / DC $\pm 10\%$. Power consumption max. 5W. Intrinsically Safe: 16 - 30V DC; power consumption max. 1 W. |
| Type PF | 24V AC / DC $\pm 10\%$. Power consumption max. 15W. |
| Type PM | 115 - 230V AC $\pm 10\%$. Power consumption max. 15W. |
| Type PX | 8 - 30V DC. Power consumption max. 0.75W. |
| Type ZB | 12 - 30V DC $\pm 10\%$. Power consumption max. 1.5W. |
| Note PB/PF/PM | Not available Intrinsically Safe. |
| Note PF/PM | The total consumption of the sensors and outputs may not exceed 400mA @ 24V. |
| Note XI | For Intrinsically Safe applications, consult the safety values in the certificate. |

Sensor excitation

| | |
|----------------------|---|
| Type PB/PC/PX | 3V DC for pulse signals and 1.2V DC for coil pick-up. |
| Note PB/PC/PX | 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 / 8.2 / 12 / 24V DC - max. 50mA @ 24V DC. U_{max} sensor is 2V below U_{supply} |
| Type PD-XI | 1.2 / 3 / 8.2V DC - max. 7mA @ 8.2V DC and mains power supply voltage (as connected to terminal 1). |
| Type PF / PM | 1.2 / 3 / 8.2 / 12 / 24V DC - max. 400mA @ 24V DC. |

Operator functions

| | |
|-----------------------|--|
| Displayed info | <ul style="list-style-type: none"> Ratio. Low-low, Low, High and High-high ratio alarm value. Flow rate and total A + B (can be hidden). Alarm values can be set (or only displayed). Total can be reset to zero by pressing the CLEAR-key twice. |
|-----------------------|--|

Ratio

| | |
|-----------------|---------------|
| Digits | 5 digits. |
| Units | 1 - xxx or %. |
| Decimals | 3. |

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. |

Flow rate

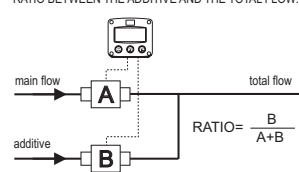
| | |
|-------------------|--|
| Digits | 7 digits. |
| Units | mL, L, m ³ , Gallons, kg, Ton, lb, bl, cf, RND, ft ³ , scf, Nm ³ , NI, ical - no units. |
| Decimals | 0 - 1 - 2 or 3. |
| Time units | /sec - /min - /hr - /day. |

Alarm values

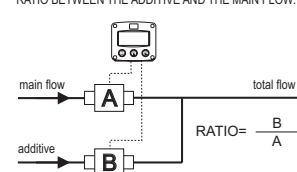
| | |
|----------------------|--|
| Digits | 7 digits. |
| Units | According to selection for ratio. |
| Decimals | According to selection for ratio. |
| Type of alarm | Low, high, low-low or high-high ratio alarm. Includes alarm delay time and configurable alarm outputs. |

Ratio

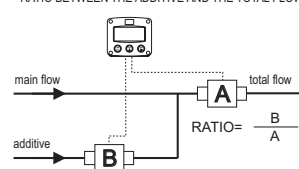
RATIO BETWEEN THE ADDITIVE AND THE TOTAL FLOW:



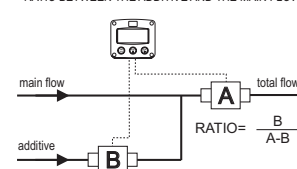
RATIO BETWEEN THE ADDITIVE AND THE MAIN FLOW:



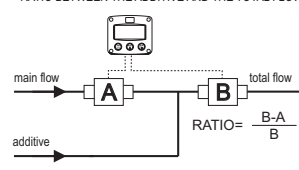
RATIO BETWEEN THE ADDITIVE AND THE TOTAL FLOW:



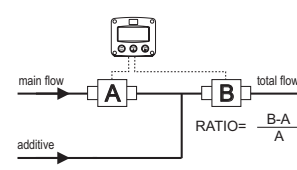
RATIO BETWEEN THE ADDITIVE AND THE MAIN FLOW:



RATIO BETWEEN THE ADDITIVE AND THE TOTAL FLOW:



RATIO BETWEEN THE ADDITIVE AND THE MAIN FLOW:



| | Description | |
|----------------|-------------|--|
| Model | F114 | Ratio monitor / totalizer with high / low alarms and analog output. |
| Input | P | Pulse input, e.g., coil, npn, pnp, namur, reed-switch. |
| Analog output | AA | Active 4 - 20mA output - requires XX and PD, PF, PM or PX. |
| | AB | Active 0 - 20mA output - requires XX and PD, PF, PM or PX. |
| | AF | I.S. floating 4 - 20mA output - requires XI + PD. |
| | AI | Isolated 4 - 20 mA output - requires XX. |
| | AP | Passive 4 - 20mA output, loop powered unit. |
| | AU | Active 0 - 10V DC output - requires XX and PD, PF, PM or PX. |
| Communication | CB | Communication RS 232 - Modbus ASCII / RTU - requires XX. |
| | CH | Communication RS 485 - 2wire - Modbus ASCII / RTU - requires XX. |
| | CI | Communication RS 485 - 4wire - Modbus ASCII / RTU - requires XX. |
| | CT | Intrinsically Safe TTL - Modbus ASCII / RTU - requires XI. |
| | CX | No communication. |
| Enclosures | HB | Aluminum panel mount enclosure. |
| | HC | GRP panel mount enclosure. |
| | HSB | Stainless steel 316L panel mount enclosure. |
| | HD | GRP field mount - Cable entry: no holes. |
| | HE | GRP field mount - Cable entry: 2 x Ø 16mm & 1 x Ø 20mm. |
| | HF | GRP field mount - Cable entry: 1 x Ø 22mm ($\frac{7}{8}$ "). |
| | HG | GRP field mount - Cable entry: 2 x Ø 20mm. |
| | HH | GRP field mount -Cable entry: 6 x Ø 12mm. |
| | HJ | GRP field mount - Cable entry: 3 x Ø 22mm ($\frac{7}{8}$ "). |
| | HK | GRP field mount - Flat bottom, cable entry: no holes. |
| | HQ | GRP field mount - Cable entry: 2 x Ø 16mm & 3 x Ø 12mm. |
| | HA | Aluminum field mount - Cable entry: 2 x PG9 + 1 x M20. |
| | HL | Aluminum field mount - Cable entry: 2 x $\frac{1}{2}$ "NPT. |
| | HM | Aluminum field mount - Cable entry: 2 x M16 + 1 x M20. |
| | HN | Aluminum field mount - Cable entry: 1 x M20. |
| | HO | Aluminum field mount - Cable entry: 2 x M20. |
| | HP | Aluminum field mount - Cable entry: 6 x M12. |
| | HT | Aluminum field mount - Cable entry: 1 x $\frac{1}{2}$ "NPT. |
| | HU | Aluminum field mount - Cable entry: 3 x $\frac{1}{2}$ "NPT. |
| | HV | Aluminum field mount - Cable entry: 4 x M20. |
| | HZ | Aluminum field mount - Cable entry: no holes |
| | HBM | Extended Alu. field/meter mount - Cable entry: 2 x M16 + 1 x M20. |
| | HBO | Extended Alu. field/meter mount - Cable entry: 2 x M20. |
| | HBU | Extended Alu. field/meter mount - Cable entry: 3 x $\frac{1}{2}$ "NPT. |
| | HSM | Stainless steel 316L field mount - Cable entry: 2 x M16 + 1 x M20. |
| | HSO | Stainless steel 316L field mount - Cable entry: 2 x M20. |
| | HSU | Stainless steel 316L field mount - Cable entry: 3 x $\frac{1}{2}$ "NPT. |
| Digital output | OA | Three active transistor outputs - requires XX and PD, PF, PM or PX. |
| | OR | Two mechanical relay outputs + one OT or OA - requires XX and PF or PM. |
| | OT | Three passive transistor outputs. |
| Power | PD | 8 - 24V AC/DC + sensor supply - with XI: 16 - 30V DC. |
| | PF | 24V AC/DC + sensor supply - requires XX. |
| | PM | 115 - 230V AC + sensor supply - requires XX. |
| | PX | Basic power supply 8 - 30V DC. |
| Battery | PB | Additional lithium battery powered (optional) - requires XX and PD or PX. |
| | PC | Additional lithium battery powered (optional) - Intrinsically safe - requires XI, and PD or PX . |
| Hazar- dous | XI | Intrinsically safe, according ATEX and IECEx. |
| | XF | Ex d enclosure - 3 keys according ATEX and IECEx.. |
| | XX | Safe area only, according CE / UKCA. |
| Options | ZB | Backlight - requires XX. |
| | ZF | Coil input 10mVpp. |
| | ZX | No options. |

The **bold** marked text contains the standard configuration: F114-P-AP-CX-HC-OT-PX-XX-ZX..