

Your success counts

**Limited  
Availability**

## Ratio Controller

with analog control output and high / low alarms



**Application examples:** Salty Off-Shore conditions



**Application examples:** Extreme cold weather at polar regions



**Application examples:** Hot and sandy deserts

**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

- Controls the desired ratio between main and additive flow.
- Displays flow rate A and B, alarms, setpoint and actual ratio %.
- Safety mode input to enable a safe predefined position.
- Two alarm values can be entered in %: low and ratio alarm.
- Easy operation mode switching : Hand / Local / Ratio.
- Ability to process all types of signals: Sine wave (coil), NAMUR, NPN/PNP pulse, Reed-switch and Active pulse signals.
- Remote control: Safety mode input.
- Analog control output eg. to control a valve.
- Two alarm outputs for low and high ratio alarm.
- 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 F124 has been designed to ensure that two flows are kept at the same ratio even if the flows are changing. The F124 is a key product of the Fluidwell Process Controller family and is the alternative to replace existing pneumatic controllers in local control loops. A wide selection of options further enhances the capabilities of this model, including Intrinsic Safety and full Modbus communication.

## Operational

There are three operation modes:

**Hand:** the control output can be manually changed, there is no loop connection.

**Local:** the setpoint can be set and/or changed, corresponding with the process value of flow B.

**Ratio:** (normal operation) set the desired ratio in %, the process value corresponds with flow  $\frac{B}{A}$ .

## Display

The display has large 17mm segments which show flowrate A and B, desired ratio and actual ratio. On-screen engineering units are easily configured from a comprehensive selection.

## 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 loss.

## 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

Two fixed alarm outputs are available to transmit the ratio alarm condition, 1 low and 1 high alarm output. The output signals can be a passive NPN, active PNP or an isolated electro-mechanical relay. If there is a no-flow the alarm output will be disabled.

## Safety mode

The F124 has a safety mode that keeps on transmitting a pre-defined value as long as the contact is made. After releasing the contact, the former value and function will be reinstalled.

## Analog output signal

The valve of the additive flow is controlled via the (0)4 - 20mA or 0 - 10V DC output signal. The output signal is updated eight times per second. The output signal can be passive, active or isolated where the passive output type will loop power the F124 as well.

## Hazardous areas

This model is ATEX and IECEx 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 certification is also available.



All info  
at a glance



Easy  
to install



Easy  
to program



Know one  
know them all!



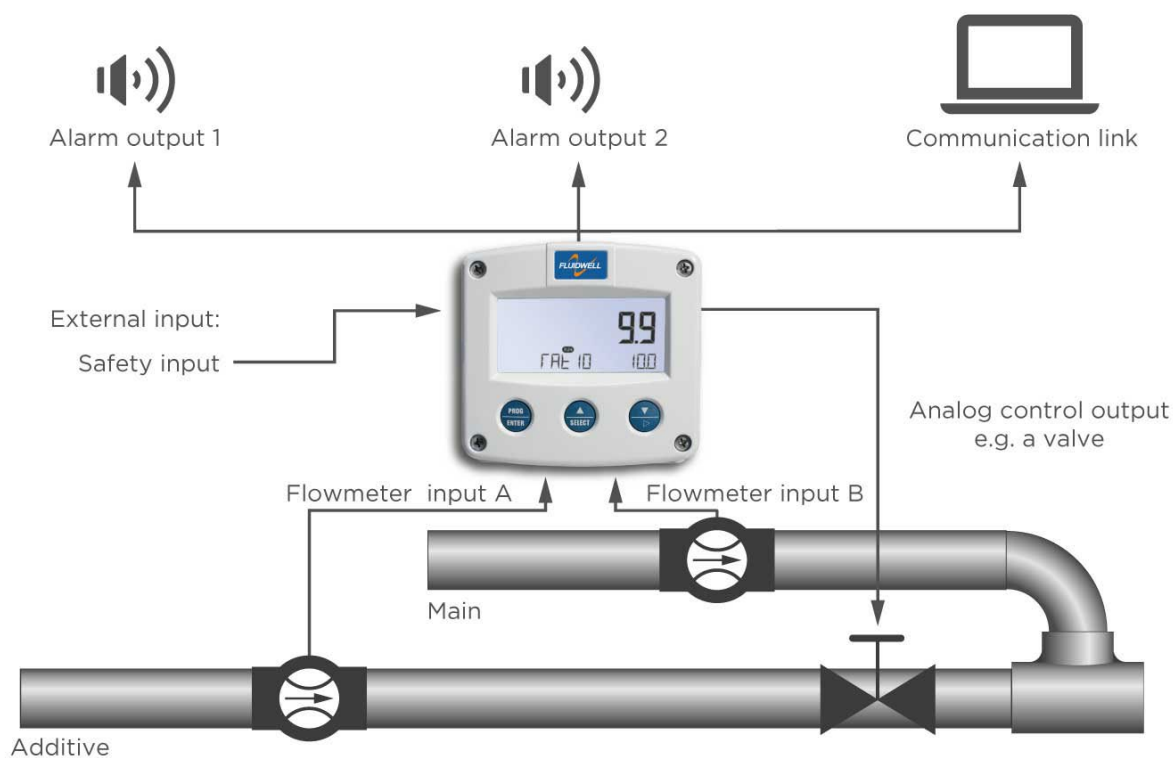
Reliable



User-friendly

## Overview application F124

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). In-line blending can be significantly affected by its control operations. The F124 ratio controller will show a strong influence of maintaining a good and constant quality of products and saves money on the blending components.



## Signal input

The F124 acceptst most pulse and analog input signals for volumetric flow or mass flow. 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.

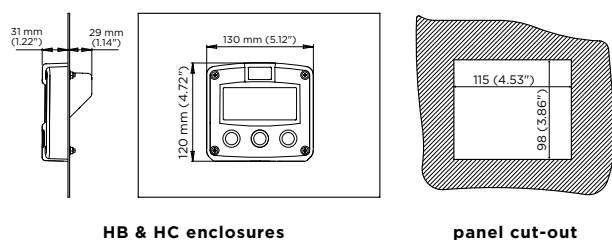
Type of signal	Resistance	Low Pass filter (LP)	Max. frequency	Max. frequency Low Pass filter (LP)	Min. amplitude P-P	Remark
NPN	100kΩ pull-up	100kΩ pull-up	6kHz Threshold 1.2V	1.2kHz		Open collector
REED	1MΩ pull-up	1MΩ pull-up	1.2kHz Threshold 1.2V	120Hz		
PNP	100KΩ pull-down	100KΩ pull-down	6kHz Threshold 1.2V	1.2kHz		
NAMUR	820Ω pull-down	-	4kHz	-		External power required
COIL LO	-	-		-	80mV <sub>pp</sub>	Default sensitivity
COIL-HI	-	-		-	20mV <sub>pp</sub>	Sensitive for interference!
COIL-HI (Type ZF)	-	-		-	10mV <sub>pp</sub>	
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

## Enclosures

Various types of enclosures can be selected, all ATEX and IECEx approved. The F124 is supplied in an GRP panel mount enclosure as standard, which can be converted to an IP67 / NEMA Type4X GRP field mount enclosure by the addition of a back case. Most popular is our robust aluminum field mount enclosure which is also available with an extended backcover with undrilled preparation for direct meter mounting at the back side. It is so rugged, even a truck can stand on it! For the most challenging environments we have a durable high grade Stainless steel 316L enclosure. All enclosures have a IP67 / NEMA Type4X rating and EU or U.S. cable gland entry threads available.

## Dimensions enclosures

*Aluminum & GRP panel mount enclosure*

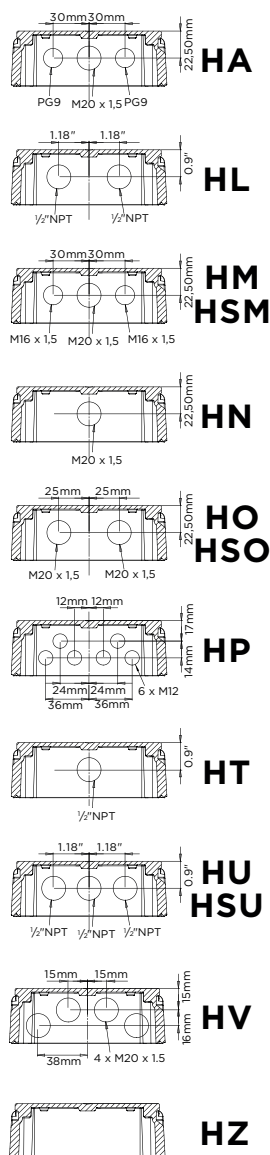


**HB & HC enclosures**

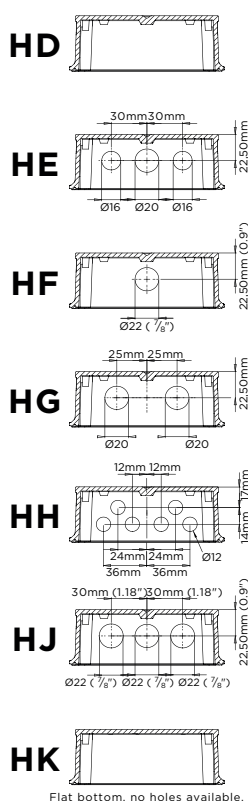
**panel cut-out**

*Cable entries*

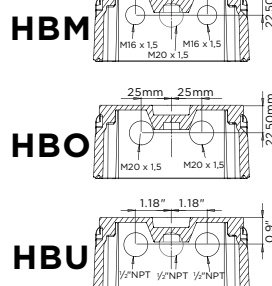
### Aluminum / Stainless Steel



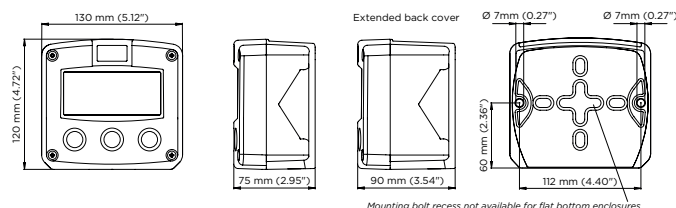
### GRP



### Extended Aluminum



*Aluminum, GRP & Stainless steel 316L field mount enclosures*

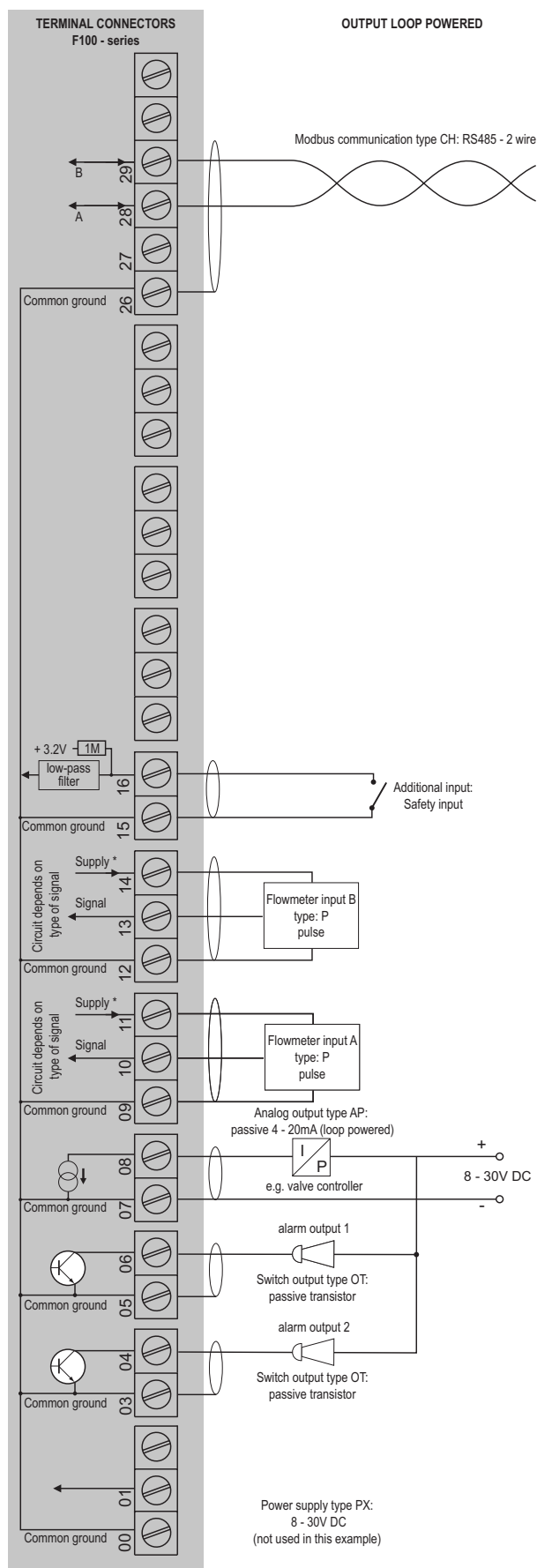


Mounting bolt recess not available for flat bottom enclosures.

## Terminal connections

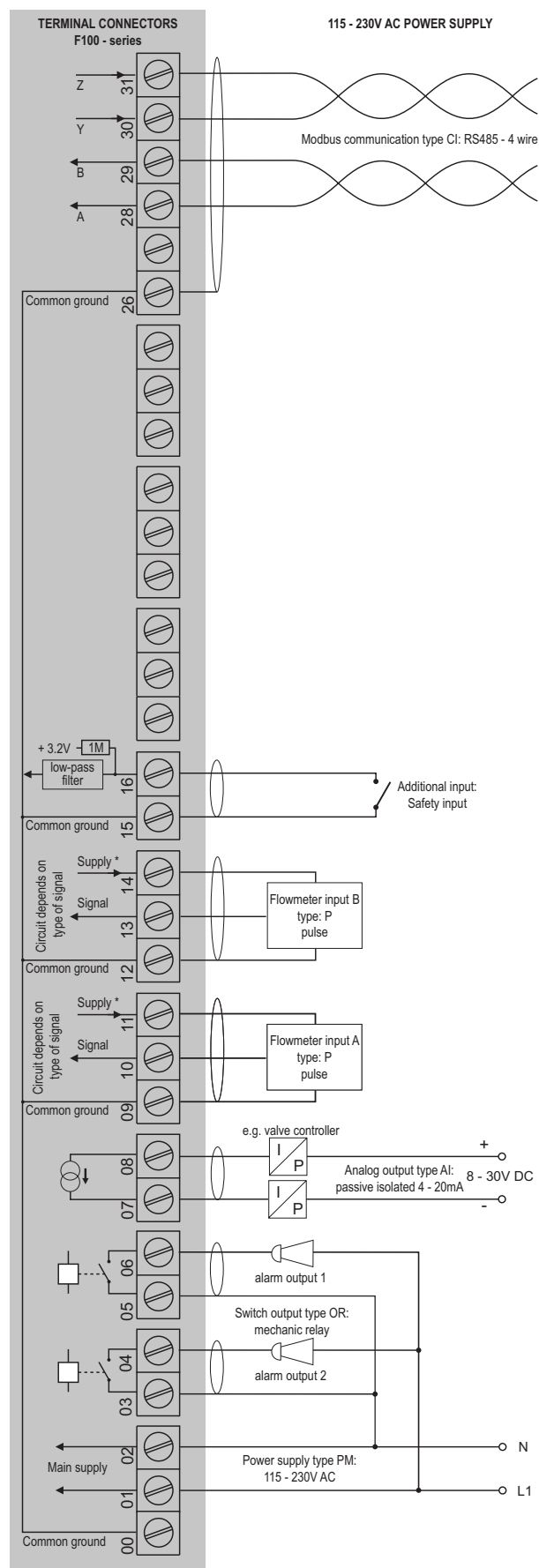
Terminal	Signal	Description	Terminal	Signal	Description
31		COMMUNICATION	26		TXD
30			27		RXD
29			28		TXD
28			27		RXD
27			26		TXD
26			25		RXD
25			24		TXD
24			23		RXD
23			22		TXD
22			21		RXD
21			20		TXD
20			19		RXD
19			18		TXD
18			17		RXD
17			16		TXD
16			15		RXD
15			14		TXD
14			13		RXD
13			12		TXD
12			11		RXD
11			10		TXD
10			09		RXD
09			08		TXD
08			07		RXD
07			06		TXD
06			05		RXD
05			04		TXD
04			03		RXD
03			02		TXD
02			01		RXD
01			00		TXD
00					RXD

Configuration example F124-P-AP-CH-IB-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 F124-P-AI-CI-IB-OR-PM-XX-ZX



\*Supply voltage: 1.2 / 3.2 / 8.2 / 12 / 24V DC to sensor



## Hazardous area applications

The F124-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).

- 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 T100 °C Da.**

- The IECEx markings for gas and dust applications are:

**Gas: Ex ia IIC/IIB T4 Ga**

**Dust: Ex ia IIIC T100 °C Da.**

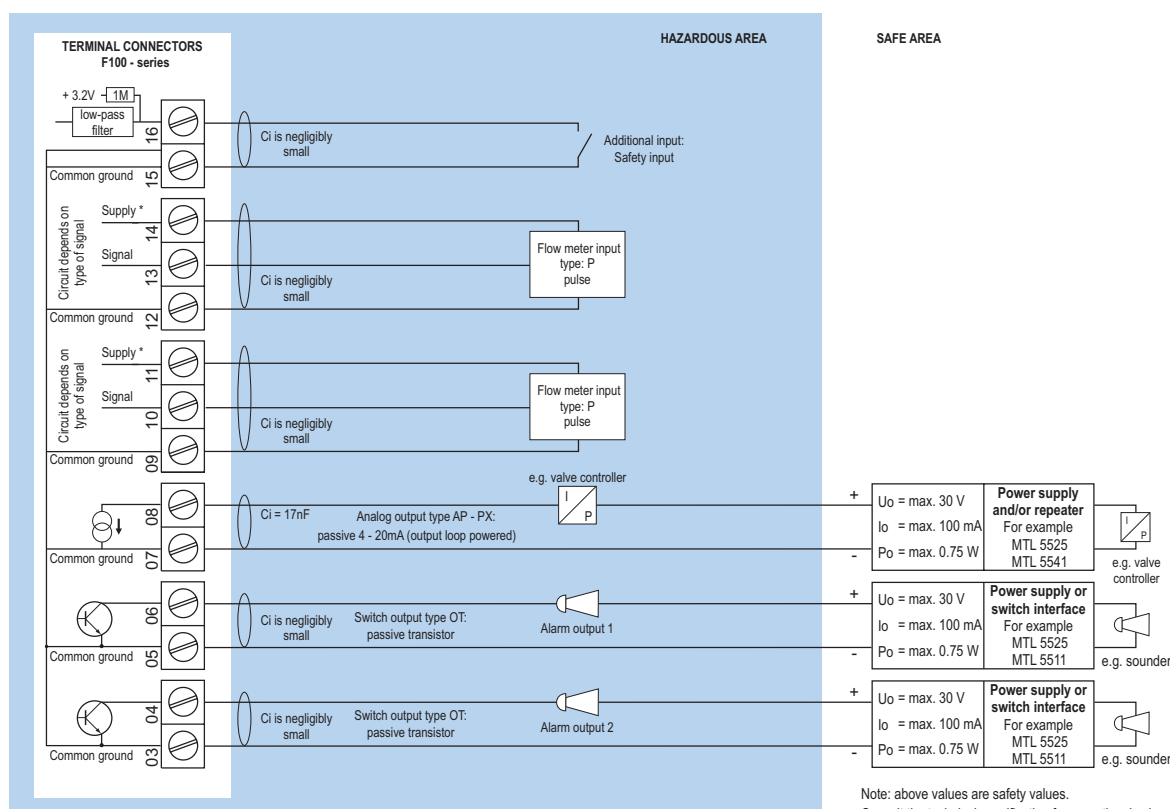
It is allowed to connect up to six barriers in IIB/IIIC applications or one barrier in IIC applications. Consult the certificate for the maximum input and output values of the circuits. Full functionality of the F124 remains available, including 8.2V sensor excitation for e.g. Namur sensors (type PD) and the Modbus communication type CT. An ATEX 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



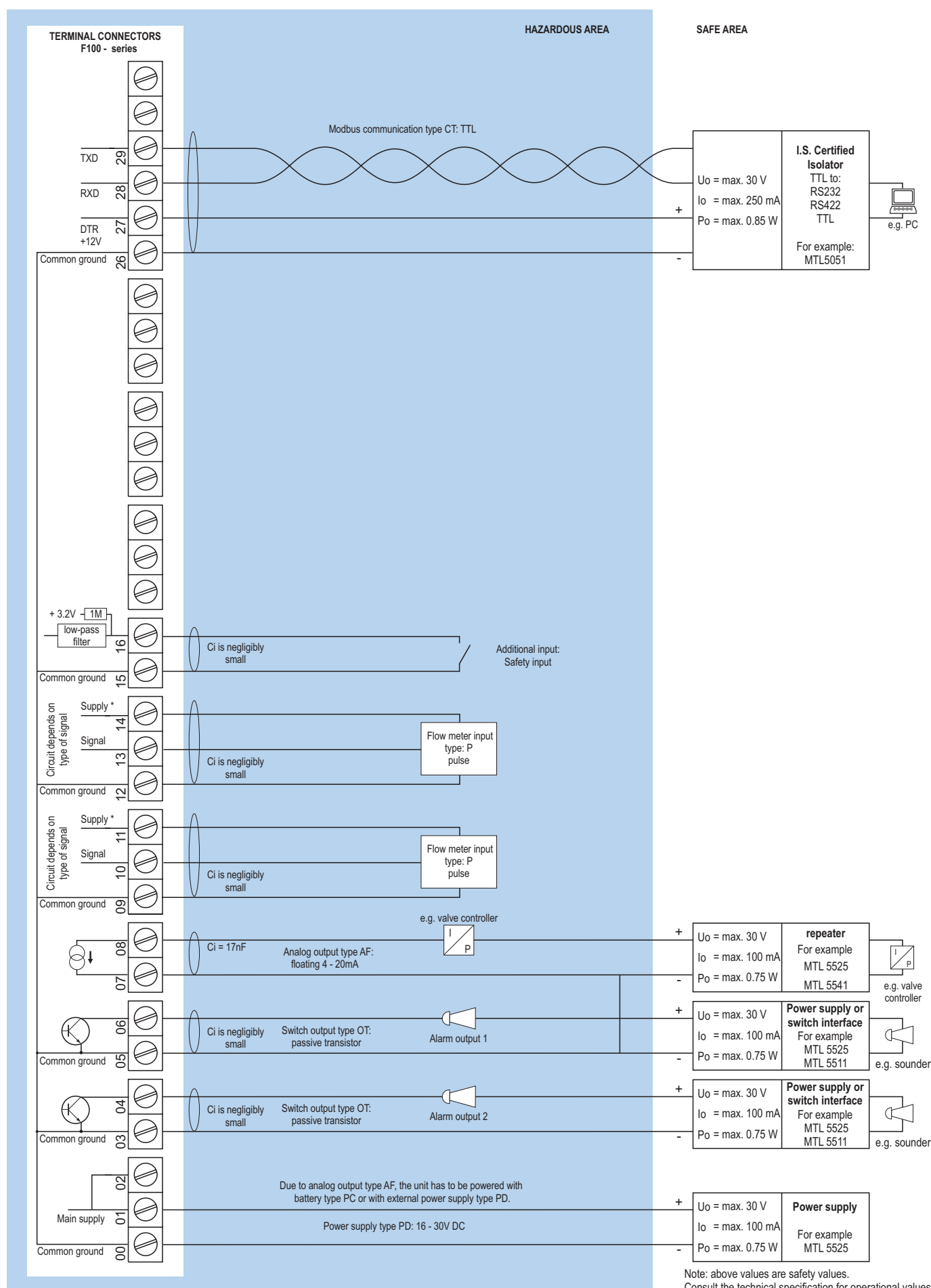
Configuration example IIB / IIIC and IIC - F124-P-AP-OT-(PX)-XI - Output loop powered unit



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

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

Configuration example IIB / IIIC - F124-P-AF-CT-OT-PD-XI - Power requirement 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).

## Display

<b>Type</b>	High intensity reflective numeric and alphanumeric LCD, UV-resistant.
<b>Dimensions</b>	90 x 40mm (3.5" x 1.6").
<b>Digits</b>	Seven 17mm (0.67") and eleven 8mm (0.31") digits. Various symbols and measuring units.
<b>Refresh rate</b>	User definable: fast, 1sec, 3sec, 15sec, 30sec, off.
<b>Option ZB</b>	Transflective LCD with white LED-backlight. Intensity can be adjusted in the configuration menu. Good readings in full sunlight and darkness.
<b>Note ZB</b>	Only available for safe area applications.

## Ambient temperature

<b>Safe areas</b>	-40°C to +80°C (-40°F to +176°F).
<b>Intrinsically Safe</b>	-40°C to +70°C (-40°F to +158°F).

## Terminal connections

<b>Type</b>	Removable plug-in terminal strip. Wire max. 1.5mm <sup>2</sup> and 2.5mm <sup>2</sup> .
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## Data protection

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

## Directives & Standards

<b>EMC</b>	Directive 2014/30/EU, FCC 47 CFR part 15.
<b>Low voltage</b>	Directive 2014/35/EU
<b>RoHS</b>	Directive 2011/65/EU
<b>ATEX / IECEx</b>	Directive 2014/34/EU, IEC 600079-0, IEC 60079-11. IP & NEMA EN 60529 & NEMA 250

## Intrinsically Safe (Type XI)

<b>ATEX</b>	Gas: II 1 G Ex ia IIB/IIC T4 Ga. Dust: II 1 D Ex ia IIIC T100 °C Da.
<b>IECEx</b>	Gas: Ex ia IIC/IIB T4 Ga. Dust: Ex ia IIIC T100 °C Da.
<b>Ambient Ta</b>	-40°C to +70°C (-40°F to +158°F).

## Explosion proof (Type XF)

<b>ATEX</b>	Gas: II 2 G / Ex d IIB T5 Gb. Dust: II 2 D / Ex t IIB T100 °C Db.
<b>Type XF</b>	Dimensions of enclosure: 300 x 250 x 200mm (11.8" x 9.9" x 7.9") L x H x D.
<b>Weight</b>	Appr. 15kg.
<b>Note XF</b>	IECEx available on request.

## Enclosure

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

## Panel mount enclosures

<b>Dimensions</b>	130 x 120 x 60mm (5.12" x 4.72" x 2.36") - W x H x D.
<b>Panel cut-out</b>	115 x 98mm (4.53" x 3.86") L x H.
<b>Type HB</b>	Die-cast aluminum panel mount enclosure IP65 / NEMA Type4X.
<b>Weight</b>	600 gr.
<b>Type HC</b>	GRP panel mount enclosure IP65 / NEMA Type4X, UV-resistant and flame retardant.
<b>Weight</b>	450 gr.

## GRP wall / field mount enclosures

<b>General</b>	GRP wall/field mount enclosure IP67 / NEMA Type4X, UV-resistant and flame retardant.
<b>Dimensions</b>	130 x 120 x 75mm (5.12" x 4.72" x 2.95") - W x H x D.
<b>Weight</b>	600 gr.
<b>Type HD</b>	Cable entry: no holes.
<b>Type HE</b>	Cable entry: 2 x Ø 16mm and 1 x Ø 20mm.
<b>Type HF</b>	Cable entry: 1 x Ø 22mm (7/8").
<b>Type HG</b>	Cable entry: 2 x Ø 20mm.
<b>Type HH</b>	Cable entry: 6 x Ø 12mm.
<b>Type HJ</b>	Cable entry: 3 x Ø 22mm (7/8").
<b>Type HK</b>	Flat bottom, cable entry: no holes.

## Aluminum wall / field mount enclosures

<b>General</b>	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.
<b>Dimensions</b>	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.
<b>Weight</b>	1100 gr. / extended enclosure: 1310 gr.
<b>Type HA</b>	Cable entry: 2 x PG9 and 1 x M20.
<b>Type HL</b>	Cable entry: 2 x 1/2" NPT.
<b>Type HM/HBM</b>	Cable entry: 2 x M16 and 1 x M20.
<b>Type HN</b>	Cable entry: 1 x M20.
<b>Type HO/HBO</b>	Cable entry: 2 x M20.
<b>Type HP</b>	Cable entry: 6 x M12.
<b>Type HT</b>	Cable entry: 1 x 1/2" NPT.
<b>Type HB/HBU</b>	Cable entry: 3 x 1/2" NPT.
<b>Type HV</b>	Cable entry: 4 x M20.
<b>Type HZ</b>	Cable entry: no holes.

## Stainless steel 316L wall / field mount enclosures

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



## Signal inputs - Flowmeter

<b>Type P</b>	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.
<b>Frequency</b>	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.
<b>K-Factor</b>	0.000010 - 9,999,999 with variable decimal position.
<b>Low-pass filter</b>	Available for all pulse signals.
<b>Option ZF</b>	coil sensitivity 10mVpp.

## Additional inputs

<b>Function</b>	Standard available: Safety input. Terminal input to activate the predefined safety ratio.
<b>Type IR</b>	Internally pulled-up switch contact - NPN.
<b>Duration</b>	Minimum pulse duration 100msec.

## Signal outputs - Digital output

<b>Function</b>	Low or high flow rate alarm output. Alarm value limits: 0 - 100%.
<b>Type OA</b>	Two active 24V DC transistor outputs (PNP); max. 50mA per output (requires -PD, PF, PM or PX). Requires min. 24V power supply
<b>Type OR</b>	Two electro-mechanical relay outputs isolated max. switch power 230V AC (N.O.) - 0.5A per relay (requires PF or PM).
<b>Type OT</b>	Two passive transistor outputs (NPN) - not isolated. Max. 50V DC - 300mA per output.

## Signal outputs - Analog output

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

## Signal outputs - Communication option

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

## Mounting accessories

<b>ACF02</b>	Stainless steel wall mounting kit.
<b>ACF05</b>	Stainless steel pipe mounting kit (worm gear clamps not included).
<b>ACF06</b>	Two stainless steel worm gear clamps Ø 44 - 56mm.
<b>ACF07</b>	Two stainless steel worm gear clamps Ø 58 - 75mm.
<b>ACF08</b>	Two stainless steel worm gear clamps Ø 77 - 95mm.
<b>ACF09</b>	Two stainless steel worm gear clamps Ø 106 - 138mm.
<b>ACF11</b>	Swivel with 25° movement from center axis for direct flowmeter mounting: 1" NPT to 1/2" NPT.

## Cable glands

<b>ACF20</b>	For HA enclosure, includes O-rings.
<b>ACF25</b>	For HE enclosure, includes locknuts and O-rings.
<b>ACF26</b>	For HF enclosure, includes locknuts and O-rings.
<b>ACF27</b>	For HG enclosure, includes locknuts and O-rings.
<b>ACF28</b>	For HH enclosure, includes locknuts and O-rings.
<b>ACF29</b>	For HJ enclosure, includes locknuts and O-rings.
<b>ACF32</b>	For HM enclosure, includes O-rings.
<b>ACF33</b>	For HN enclosure, includes O-rings.
<b>ACF34</b>	For HO enclosure, includes O-rings.
<b>ACF35</b>	For HP enclosure, includes O-rings.
<b>ACF39</b>	For HT enclosure, includes O-rings.
<b>ACF40</b>	For HU enclosure, includes O-rings.

## Blind plugs

<b>ACF50</b>	For HA enclosure, includes O-rings.
<b>ACF55</b>	For HE enclosure, includes locknuts and O-rings.
<b>ACF56</b>	For HF enclosure, includes locknuts and O-rings.
<b>ACF57</b>	For HG enclosure, includes locknuts and O-rings.
<b>ACF58</b>	For HH enclosure, includes locknuts and O-rings.
<b>ACF59</b>	For HJ enclosure, includes locknuts and O-rings.
<b>ACF62</b>	For HM enclosure, includes O-rings.
<b>ACF63</b>	For HN enclosure, includes O-rings.
<b>ACF64</b>	For HO enclosure, includes O-rings.
<b>ACF65</b>	For HP enclosure, includes O-rings.
<b>ACF69</b>	For HT enclosure, includes O-rings.
<b>ACF70</b>	For HU enclosure, includes O-rings.

## Intrinsically Safe isolators

<b>ACG01</b>	MTL5511 - One channel pulse or switch output transfer from hazardous area to safe area.
<b>ACG02</b>	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).
<b>ACG03</b>	MTL5541 - One channel 4 - 20mA repeater from hazardous area to safe area.
<b>ACG04</b>	MTL 5051 - Bi-direction serial-data-isolator (for Modbus communication).
<b>ACG05</b>	MTL5516C - Two channel pulse or switch output transfer from hazardous area to safe area.
<b>ACG06</b>	MTL5513 - One channel pulse or switch output transfer from hazardous area to safe area.
<b>ACG07</b>	MTL5546Y - One channel isolated driver bringing 4 - 20mA from safe area to hazardous area, HART transparent, OCD.

## Power requirements

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

## Sensor excitation

<b>Type PB/PC/PX</b>	3V DC for pulse signals and 1.2V DC for coil pick-up.
<b>Note PB/PC/PX</b>	This is not a real sensor supply. Only suitable for sensors with a very low power consumption like coils (sine wave) and reed-switches.
<b>Type PD</b>	1.2 / 3 / 8.2 / 12 / 24V DC - max. 50mA @ 24V DC. $U_{max}$ sensor is 2V below $U_{supply}$
<b>Type PD-XI</b>	1.2 / 3 / 8.2V DC - max. 7mA @ 8.2V DC and mains power supply voltage (as connected to terminal 1).
<b>Note PD-XI</b>	In case PD-XI and signal A: the sensor supply voltage is according to the power supply voltage connected to terminal 1. Also terminal 2 offers the same voltage.
<b>Type PF / PM</b>	1.2 / 3 / 8.2 / 12 / 24V DC - max. 400mA @ 24V DC.

## Operator functions

<b>Displayed info</b>	<ul style="list-style-type: none"> <li>Ratio setpoint in %.</li> <li>Actual ratio in %.</li> <li>Flowrate A.</li> <li>Flowrate B.</li> <li>Low ratio alarm value.</li> <li>High ratio alarm value.</li> <li>Operation modes: Hand, Local or Ratio.</li> <li>Safety mode.</li> </ul>
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## Flow rate

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

## Control Parameters

<b>Operation mode</b>	Hand, Local, Ratio.
<b>Control action</b>	Direct / Reverse.
<b>Proportional band</b>	0.1 to 999,9%.
<b>Integral time</b>	0.1 to 6,000.0 s or OFF (0.0).
<b>Safety output</b>	-5.0 to 105.0% (0) = Run / (1) = Safety output.
<b>Control output limiter</b>	-5.0 to 105.0% for both high and low limits.

Description			
Model	<b>F124</b>	<b>Ratio controller with analog control output and high / low alarms.</b>	
	<b>P</b>	<b>Pulse input, e.g., coil, npn, pnp, namur, reed-switch.</b>	<b>-P</b>
Analog output	AA	Active 4 - 20mA output - requires XX.	-AA
	AB	Active 0 - 20mA output - requires XX.	-AB
	AF	I.S. floating 4 - 20mA output - requires XI + PD.	-AF
	AI	Isolated 4 - 20mA output - requires XX.	-AI
	<b>AP</b>	<b>Passive 4 - 20mA output, loop powered unit.</b>	<b>-AP</b>
	AU	Active 0 - 10V DC output - requires XX.	-AU
Communication	CB	Communication RS 232 - Modbus RTU - requires XX.	-CB
	CH	Communication RS 485 - 2wire - Modbus RTU - requires XX.	-CH
	CI	Communication RS 485 - 4wire - Modbus RTU - requires XX.	-CI
	CT	Intrinsically Safe TTL - Modbus RTU - requires XI.	-CT
	<b>CX</b>	<b>No communication.</b>	<b>-CX</b>
Enclosures	HB	Aluminum panel mount enclosure.	-HB
	<b>HC</b>	<b>GRP panel mount enclosure.</b>	<b>-HC</b>
	HD	GRP field mount - Cable entry: no holes.	-HD
	HE	GRP field mount - Cable entry: 2 x Ø 16mm & 1 x Ø 20mm.	-HE
	HF	GRP field mount - Cable entry: 1 x Ø 22mm ( $\frac{7}{8}$ ").	-HF
	HG	GRP field mount - Cable entry: 2 x Ø 20mm.	-HG
	HH	GRP field mount - Cable entry: 6 x Ø 12mm.	-HH
	HJ	GRP field mount - Cable entry: 3 x Ø 22mm ( $\frac{7}{8}$ ").	-HJ
	HK	GRP field mount - Flat bottom, cable entry: no holes.	-HK
	HA	Aluminum field mount - Cable entry: 2 x PG9 + 1 x M20.	-HA
	HL	Aluminum field mount - Cable entry: 2 x $\frac{1}{2}$ "NPT.	-HL
	HM	Aluminum field mount - Cable entry: 2 x M16 + 1 x M20.	-HM
	HN	Aluminum field mount - Cable entry: 1 x M20.	-HN
	HO	Aluminum field mount - Cable entry: 2 x M20.	-HO
	HP	Aluminum field mount - Cable entry: 6 x M12.	-HP
	HT	Aluminum field mount - Cable entry: 1 x $\frac{1}{2}$ "NPT.	-HT
	HU	Aluminum field mount - Cable entry: 3 x $\frac{1}{2}$ "NPT.	-HU
	HZ	Aluminum field mount - Cable entry: no holes.	-HZ
	HBM	Extended Alu. field/meter mount - Cable entry: 2 x M16 + 1 x M20.	-HBM
	HBO	Extended Alu. field/meter mount - Cable entry: 2 x M20.	-HBO
	HBU	Extended Alu. field/meter mount - Cable entry: 3 x $\frac{1}{2}$ "NPT.	-HBU
	HSM	Stainless steel 316L field mount - Cable entry: 2 x M16 + 1 x M20.	-HSM
	HSO	Stainless steel 316L field mount - Cable entry: 2 x M20.	-HSO
	HSU	Stainless steel 316L field mount - Cable entry: 3 x $\frac{1}{2}$ "NPT.	-HSU
	HZ	Aluminum field mount - Cable entry: no holes.	-HZ
Additional	<b>IR</b>	<b>Remote control input as safety input.</b>	<b>-IR</b>
Digital output	OA	Two active transistor outputs- requires XX and PD, PF, PM or PX.	-OA
	OR	Two mechanical relay outputs - requires XX and PF or PM.	-OR
	<b>OT</b>	<b>Two passive transistor outputs.</b>	<b>-OT</b>
Power	PD	8 - 24V AC/DC + sensor supply - with XI: 16 - 30V DC.	-PD
	PF	24V AC/DC + sensor supply - requires XX.	-PF
	PM	115 - 230V AC + sensor supply - requires XX.	-PM
	<b>PX</b>	<b>Basic power supply 8 - 30V DC.</b>	<b>-PX</b>
Battery	PB	Additional lithium battery powered (optional) - requires XX and PD or PX.	-PB -P_
	PC	Additional lithium battery powered (optional) - Intrinsically safe - requires XI, and PD or PX.	-PC -P_
Hazardous	XI	Intrinsically safe, according ATEX and IECEx.	-XI
	XF	Ex d enclosure - 3 keys according ATEX.	-XF
	<b>XX</b>	<b>Safe area only.</b>	<b>-XX</b>
Options	ZB	Backlight - requires XX.	-ZB
	ZF	Coil input 10mVpp.	-ZF
	<b>ZX</b>	<b>No options.</b>	<b>-ZX</b>

**Limited  
Availability**  
Please consult your local supplier  
for prices and lead times.

The **bold** marked text contains the standard configuration: F124-P-AP-CX-HC-IR-OT-PX-XX-ZX.

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