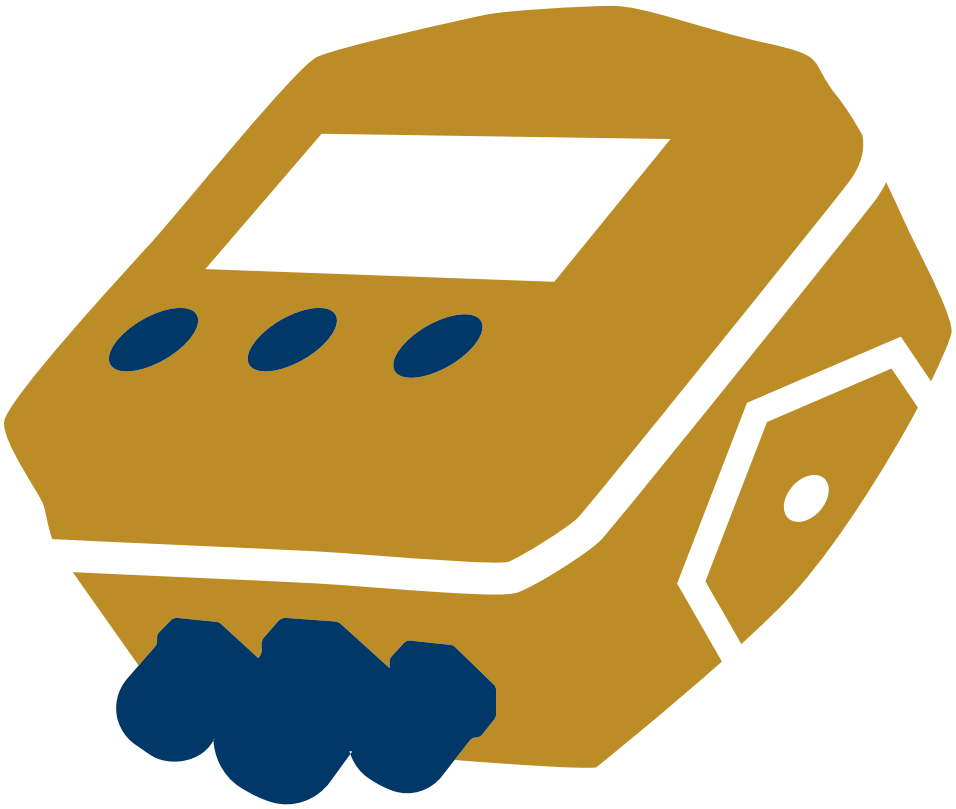
OWN THE FLOW
AQUAMETRO



FLOW MONITORS AND TOTALIZERS

Measurement, Performance Monitoring & Dosing

CONTENT

INTRODUCTION

Thank you for your decision to work with Aquametro Fuel Monitoring Products.
This technical specification describes the installation, commissioning and use of CONTOIL® monitoring units.
For additional information please contact your local sales agent at: **www.aquametro-oil-marine.com**.

Liability Disclaimer

The manufacturer cannot monitor the compliance to this manual as well as the conditions and methods during the installation, operation, usage and maintenance of the system regulator. Improper installation can cause damage and endanger people. Therefore, we assume no responsibility and liability for losses, damage or costs that result due to incorrect installation, improper operation, usage and maintenance or in any manner associated therewith. Similarly, we assume no responsibility for patent right or other right infringements of third parties caused by usage of this system regulator. The manufacturer reserves the right, without prior notification, to make modifications concerning the product, technical data or installation and operating manual.

Safety precautions

CONTOIL® monitoring units must only be used for their intended purpose and comply with local and international safety regulations. All documentation is to be followed exactly. None of the information stated here or elsewhere releases planners, installers and operators from their own careful and comprehensive assessment of the respective plant configuration in terms of functional capability and operational safety.

- Local applicable working regulations must be complied with, during all work on the plant and/or ship.
- All safety, installation and operation instructions as described in this manual must be followed.
- Our monitoring units are sensitive instruments and should be treated carefully.

F-SERIES

Universal converters with display

The universal converters are used as flow indicators and for batching control of miscellaneous liquids: water, industrial liquids, fuel etc.. These converters are designed for industrial environments.

Six versions are available: flow totalizer F113 (non explosive environment), flow totalizer F113Ex-i (explosive environment), differential flow computer F116, differential flow computer F127 with temperature compensation, batch and dosing controller F131 (non explosive environment) and batch and dosing controller F131Ex-i (explosive environment)

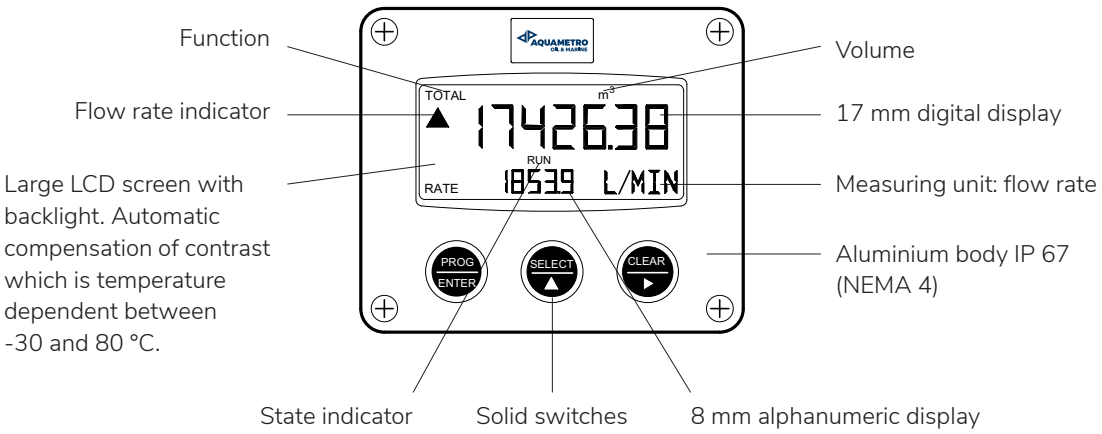
Features:

- Large LCD screen with LED backlight
- Easy electrical connection
- Relay and analog outputs
- Simplified programming
- Data stored in EEPROM
- Aluminum body painted IP 67 (NEMA4)

Benefits:

- User friendly
- Flexibility for different needs
- Compact design
- Many possibilities for installation
- Convenient for all our flow meter range
- Solid, resistant and long term robustness

DISPLAY


Function
Flow rate indicator
Large LCD screen with backlight. Automatic compensation of contrast which is temperature dependent between -30 and 80 °C.
Volume
17 mm digital display
Measuring unit: flow rate
Aluminium body IP 67 (NEMA 4)
State indicator
Solid switches
8 mm alphanumeric display
AQUAMETRO
TOTAL
m³
17426.38
RUN
RATE
18539
L/MIN
PROG ENTER
SELECT
CLEAR

TECHNICAL SPECIFICATIONS

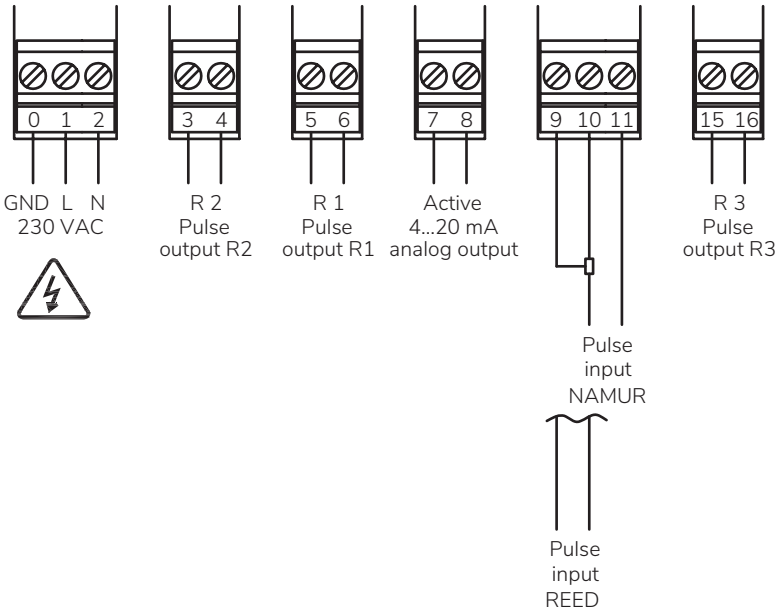
Technical data F-Series

Type	F113	F113Ex-i	F116	F127	F131	F131Ex-i
Flow totalizer for non explosive environments	◁▷					
Flow totalizer for explosive environments		◁▷				
Differential flow computer			◁▷			
Differential flow computer with temperature compensation				◁▷		
Batch and dosing controller in non explosive environments					◁▷	
Batch and dosing controller in explosive environments						◁▷
Installation						
Wall mounted	◁▷	◁▷	◁▷	◁▷	◁▷	◁▷
Front panel	◁▷	◁▷	◁▷	◁▷	◁▷	◁▷
Ambient temperature						
-40 to 80 °C	◁▷	◁▷	◁▷	◁▷	◁▷	◁▷
Measuring units						
Volume ml, l, m^3, USG	◁▷	◁▷	◁▷	◁▷	◁▷	◁▷
Time per second, minute, hour, day	◁▷	◁▷	◁▷	◁▷	◁▷	◁▷
Input						
Pulser (Reed, NAMUR, open collector transistor, relay)	◁▷	◁▷	◁▷	◁▷	◁▷	◁▷
Body						
Aluminium IP 67 / NEMA 4	◁▷	◁▷	◁▷	◁▷	◁▷	◁▷

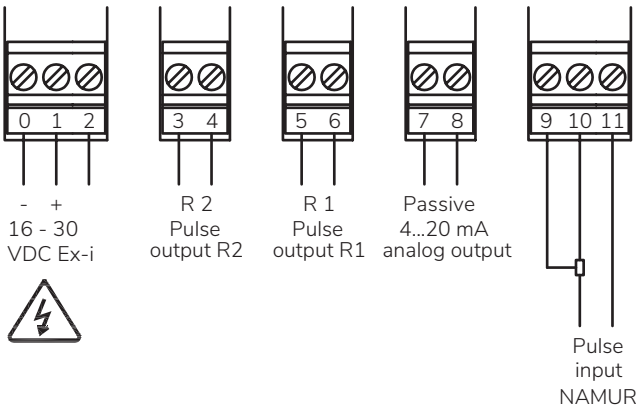
Type		F113	F113Ex-i	F116	F127	F131	F131Ex-i
Totaliser							
Total without reset		◁▷	◁▷	◁▷	◁▷	◁▷	◁▷
Subtotal with reset		◁▷	◁▷	◁▷	◁▷	◁▷	◁▷
Flow rate indicator							
Flow		◁▷	◁▷	-	-	◁▷	◁▷
Supply & Return flow		-	-	◁▷	◁▷	-	-
Flow difference (consumption)		-	-	◁▷	◁▷	-	-
Outputs							
Two mechanical relay outputs: max . 240 VAC / 0.5 A, max. 5 Hz: relay pulses; 2 relays	OR	-	-	-	-	◁▷	-
Three passive transistor outputs max. 50 VDC / 300 mA, max. 64 Hz: passive transistor pulses;	OT	-	◁▷	-	-	-	◁▷
Three active transistor outputs: max. 50 mA at 24 VDC active transistor	OA	◁▷	-	◁▷	-	-	-
Active 4 - 20mA output, 24 VDC, max. load 1'000 Ohm: active analog signal	AA	◁▷	-	◁▷	◁▷	◁▷	-
Passive 4 - 20mA output, max. 30 VDC, passive analog signal	AP	-	◁▷	-	-	-	◁▷
Optional: Communication RS 485 - 2wire Modbus ASCII / RTU	CH	◁▷	-	◁▷	-	◁▷	-
Power supply							
115 - 230V AC + sensor supply 50/60 Hz	PM	◁▷	-	◁▷	◁▷	◁▷	-
8 - 24V AC/DC + sensor supply 16 - 30 VDC Ex-i	PD		◁▷	-	-	-	◁▷
Backlight display		◁▷	-	◁▷	◁▷	◁▷	-
Security							
ATEX, IECEx Intrinsically Safe		-	◁▷	-	-	-	◁▷

ELECTRICAL CONNECTIONS

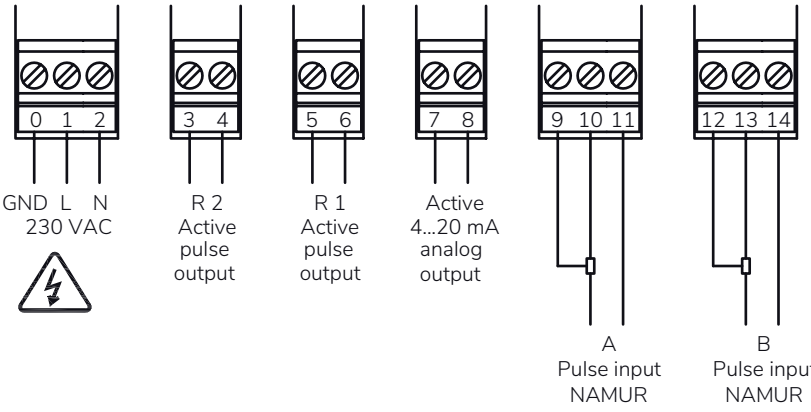
Flow totalizer for non explosive environments F113



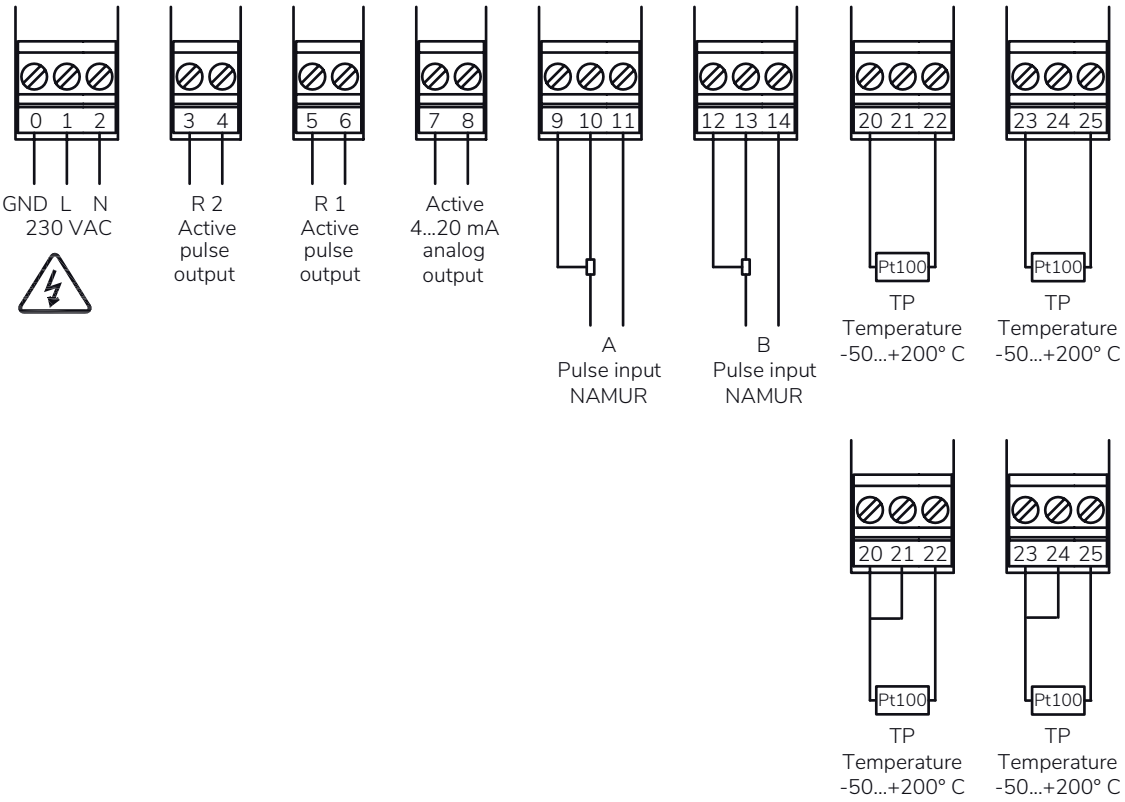
Flow totalizer for explosive environments F113Ex-i



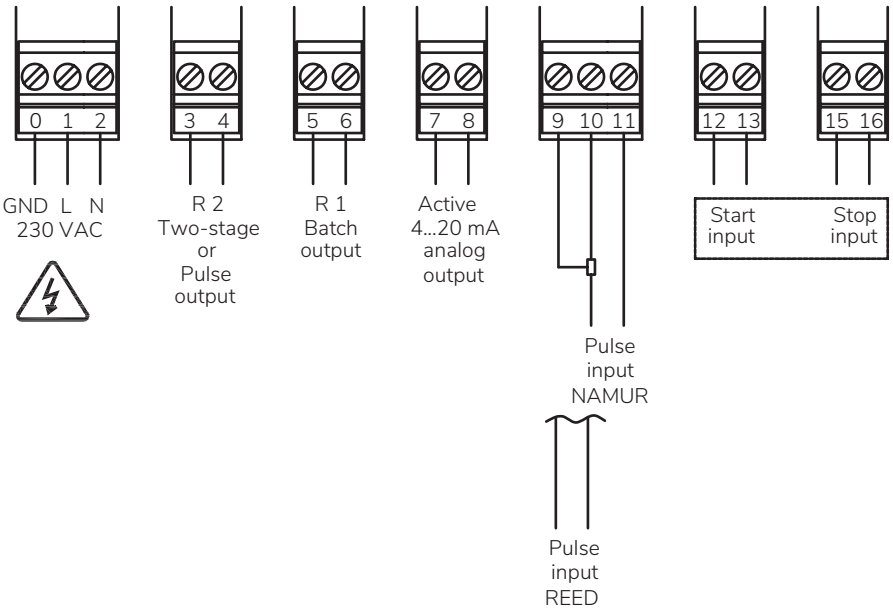
Differential flow computer F116



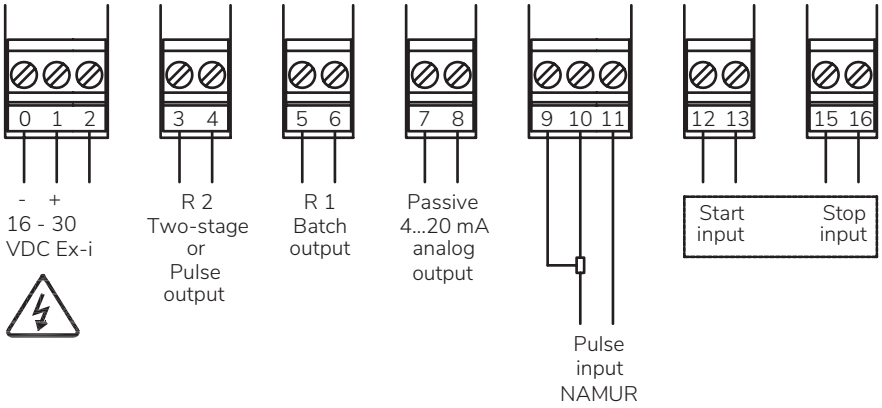
Differential flow computer with temperature compensation F127



Batch and dosing controller in non explosive environments F131

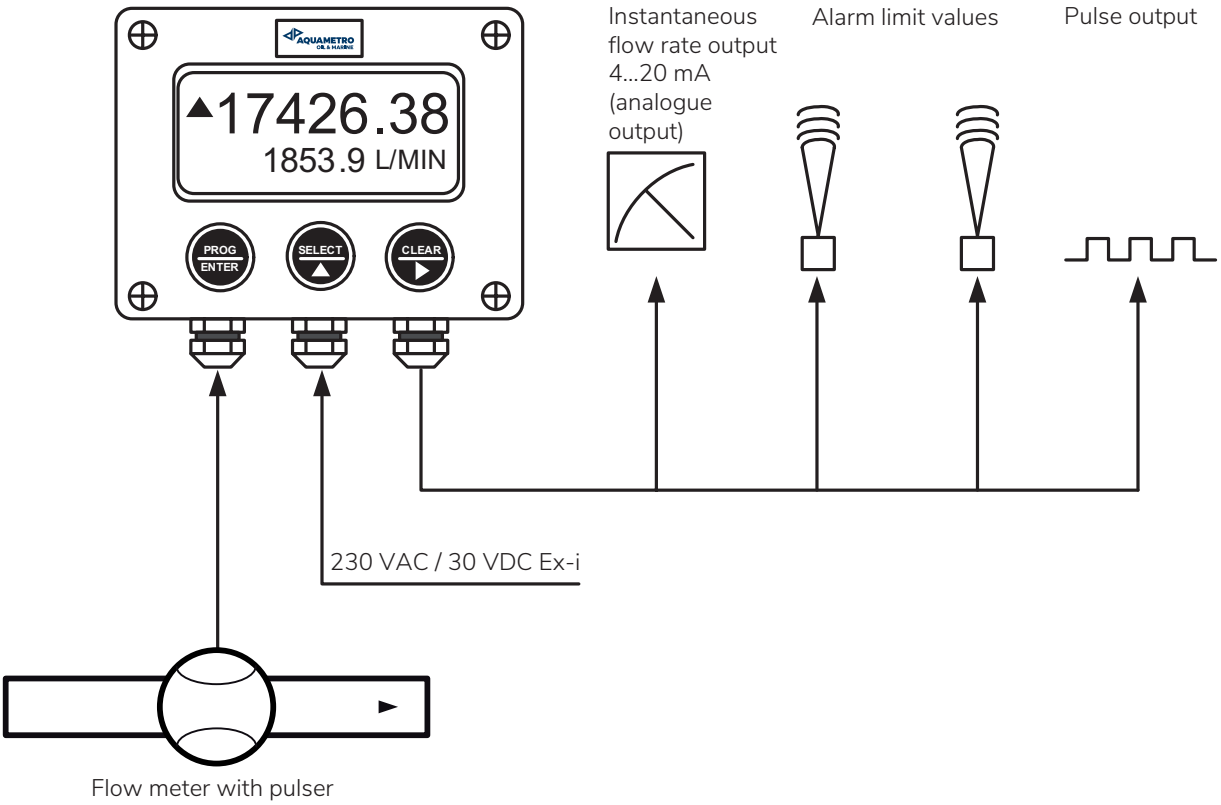


Batch and dosing controller in explosive environments F131Ex-i

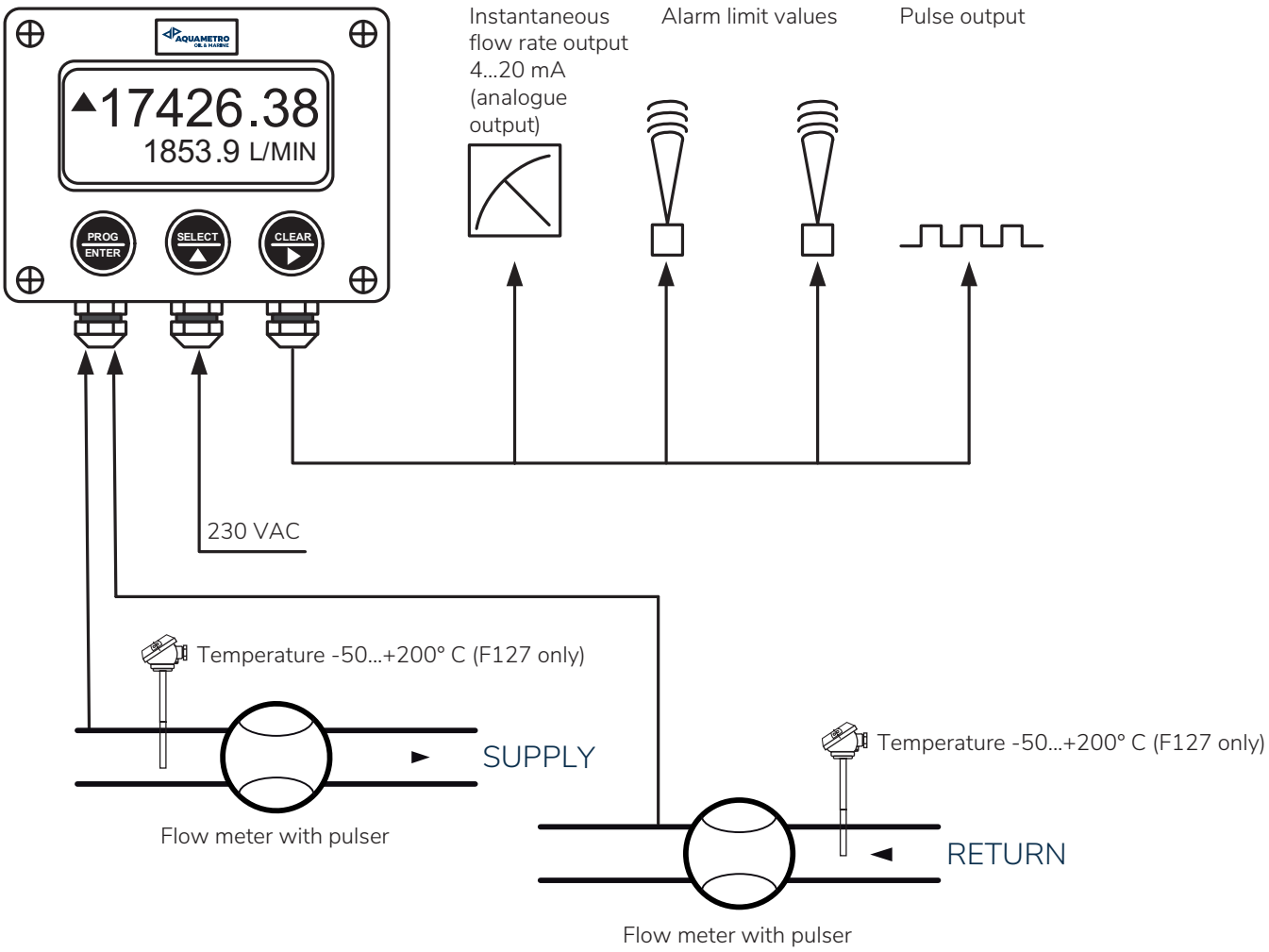


PROJECT PLANNING NOTES

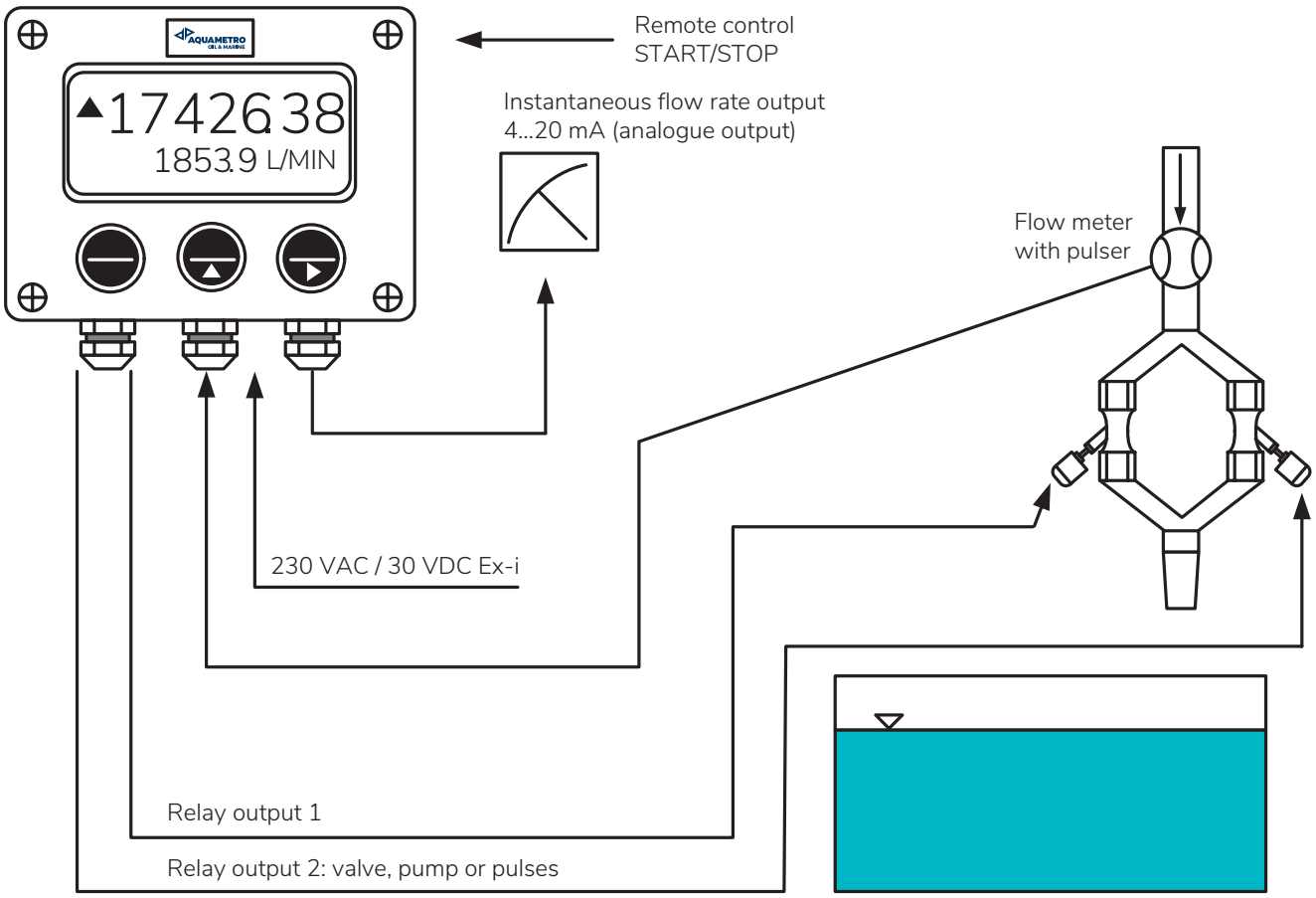
Flow totalizer F113 & F113Ex-i



Differential flow computer F116 & F127 with temperature compensation F127

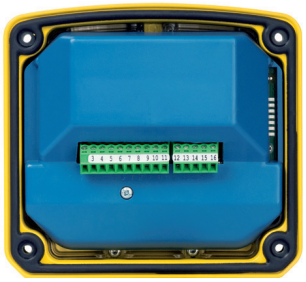


Batch and dosing controller F131 & F131Ex-i



INSTALLATION

Front panel mounting

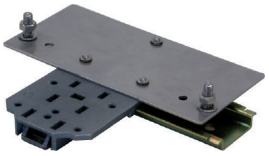


Wall or mounting on DIN rail (option)

Compact mounting on a DOMINO® flow meter

Mounting accessories (option)

Mounting kit for wall or DIN rail (MS-WDS)

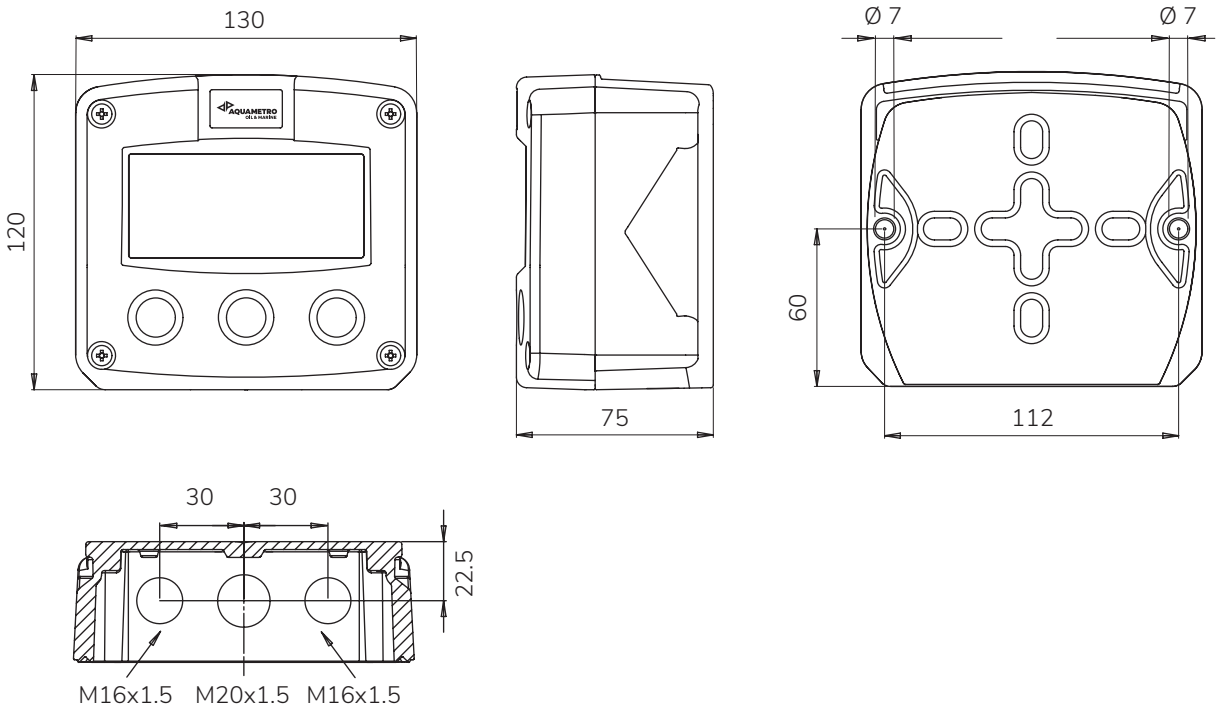


Compact mounting on a flow meter (KS-KP)

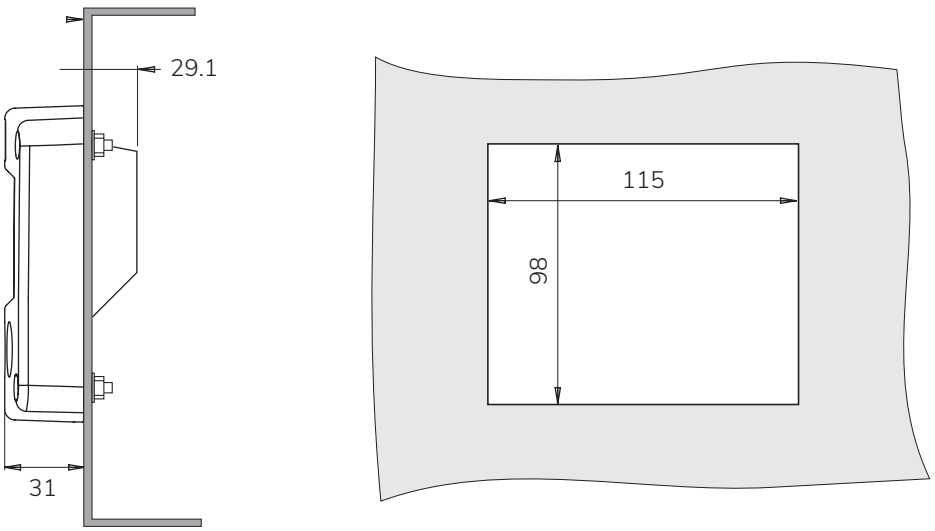
Accessories	Type	Art. No.
Mounting kit for wall or DIN 35 mm rail	MS-WDS	80082
Compact mounting on a DOMINO® or CONTOIL® flow meter	MS-KP	80083

Dimensional drawings (all dimensions in mm)

Wall mounting



Front panel mounting



CONTOIL® DFM-BC

Fuel consumption calculation and transmission to remote device

The CONTOIL® DFM-BC is the suitable computer and display, which covers all direct and differential applications in fuel metering. It can be used for all available flow meter sizes (except meter with NAMUR signal).

Features:

- Range: from 0.1 to 9'999'999 l/h
- Number of inputs: 2 (pulse)
- Display: 3" Graphic Display with back-light
- Operation: 4 keys
- Output for Fleet Manager or GPS-System
- Power supply: from vehicle battery 12 - 24 V
- IP 54

Benefits:

- User friendly
- Flexibility for different needs
- Compact design
- Many possibilities for installation
- Solid, resistant and long term robustness
- Suitable for all fuel metering and management applications

TECHNICAL SPECIFICATIONS

Technical data CONTOIL® DFM-BC

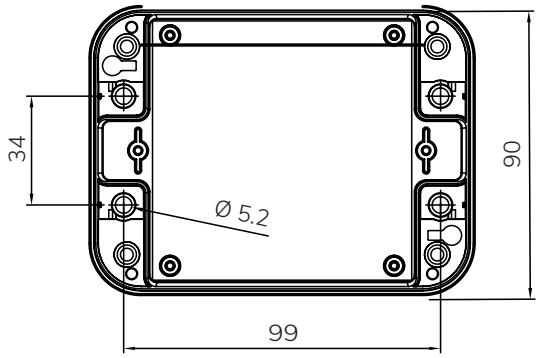
Device		
Registration		100.000.000
Input (flow meter connections), adjustable from 0.1 ml to 9999.9 ml		2
Output (for remote device), adjustable from 0.1 ml to 9999.9 ml		1
Max. environmental temperature	°C	-10 to +70
Data storage		EEPROM
Online Status of the connected fuel oil meters		Yes
Protection class	IP	66

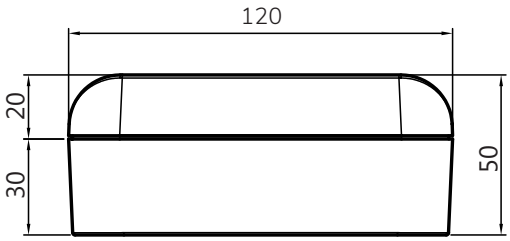
Electrical specifications		
Max. frequency of input-pulse	Hz	25
Cable lengths	m	7.5
Power supply	VDC	12 - 24
Power supply cable	mm^2	2 x 0.75
Current load max.	mA	15
Pulse width min. (pulse in/pulse out; open drain output)	ms	20
Output operational voltage max.	VDC	48

- Safety; tested for vibration, shock and electrical emission and immission (vehicle industry standards)
- 3” graphic display
- 4 navigations keys

Dimensional drawings (all dimensions in mm)

CONTOIL® DFM-B





WARRANTY, SAFETY INSTRUCTIONS

Warranty Disclaimer

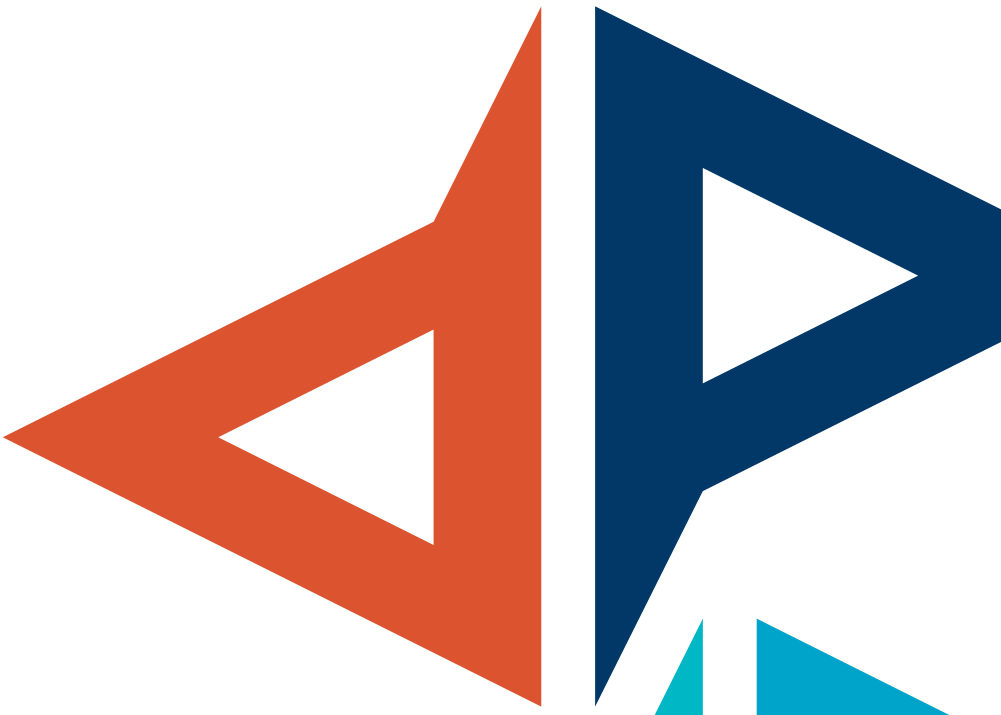
Aquametro guarantees the quality of the product in the context of its General Terms of Business. The owner, operator or installer will be liable for the correct installation as well as the appropriate handling of the equipment upon its receipt.

- Please observe the application, mounting and operating instructions.
- Use the unit exclusively for its designed purpose.
- Maintain the unit and service it according to prescriptions.
- Use accessories only if their applicability is technically safe.

Safety rules and precautionary measures

The manufacturer accepts no responsibility if the following safety rules and precautions are disregarded.

- Modifications of the device implemented without preceding written consent from the manufacturer, will result in the immediate termination of product liability and warranty period.
- Installation, operation, maintenance and decommissioning of this device must be carried out by trained, qualified specialists, authorized by the manufacturer, operator or owner of the facility. The specialist must have read and understood these mounting and operating instructions and must follow the instructions here in.
- Check the voltage and the information on the type plate before installing the device.
- Check all connections, settings and technical specifications of peripherals which may be present.
- Open the housing or parts of housings, which electric or electronic components included, only when the electric power is turned off.
- Do not touch any electronic components (ESD sensitivity).
- Expose the system with respect to the mechanical load (pressure, temperature, IP protection, etc.), only to a maximum of the specified classifications.
- During operations that involve mechanical components of the system, release the pressure in the pipe system or reduce the temperature of the medium to a safe level for humans.
- None of the information stated here or elsewhere releases planners, installers and operators from their own careful and comprehensive assessment of the respective system configuration in terms of functional capability and operational safety.
- The local labour and safety laws and regulations must be observed.



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