LIQUID METER TYPE FMC

The FLUX Liquid Meter Type FMC
Nutating Disc Type

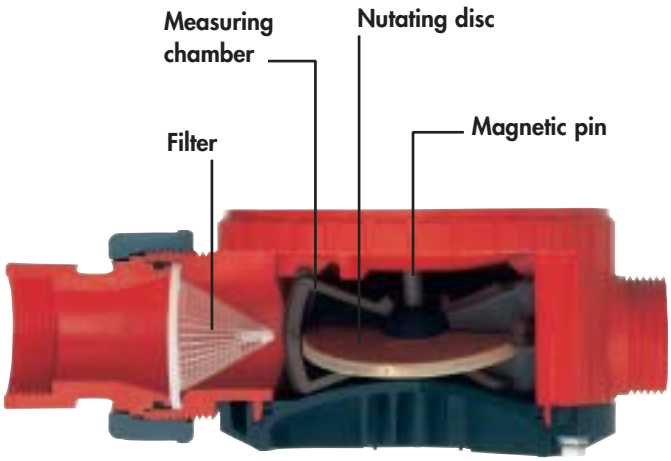
The technique: an advanced technology
For quality assurance, ecological and economic reasons, the requirement for safety and control in industry increases constantly. When it comes to liquids handling, industry is concerned with ensuring absolute safety combined with maximum measurement accuracy. The FLUX FMC liquid meter meets these concerns and criteria. Its versalitiy and operating simplicity make child's play of measuring operations.

The measuring function: a well-proven design
The flow of liquid through the measuring chamber causes the disc to nutate. This movement is converted into a rotary motion which is detected by a sensor unit. The pulses generated by this senor are processed by the integrated micro-computer and shown on the liquid cristal display. A filter at the meter inlet prevents small particles from entering the measuring chamber. To achieve high measurement accuracy, the system must always be completely filled with liquid (liquid-filled-system).

In operation: adaptable to every application
Whether for portable use wih barrel pumps or fixed installation into pipework systems, the FLUX FMC liquid meter provides high measurement accuracy and keeps the liquids under control.
The FLUX FMC handles thin to medium viscosity liquids up to 2500 mPas (cP). The models FMC 100 are available in PP, ETFE and STAINLESS STEEL for flowrates of 10 - 100 l/min. The models FMC 250 in PP and PVDF are designed especially for fixed installation into pipework systems and for flowrates of 25 - 250 l/min. All models are explosion-proof.

The control system: precise and safe
In conjunction with an interface amplifier, the FLUX FMC liquid meter can also be used as a presettable batch controller, actuating a magnetic valve and/or pump. Once the quantity has been set, a keystroke starts the metering operation. When the preset quantity has been measured, the interface amplifier disconnects the magnetic valve and/or pump motor.

Features and benefits:
- Simplified handling
- Easy-to-read 13 mm 7-digit liquid-crystal-display
- Display of quantity per operation, totalizer or instantaneous flowrate per minute
- Presettable batch controller up to 9999 litres per operation
- 10 presets for quantity
- Easy to calibrate
- 10 calibration constants for differing liquids
- Direct or remote control service
- Modular design – measuring unit, amplifier and digital display unit either integrated or separate
- explosion-proof according to Directive 94/9/EC – ATEX 100 – EC Type Examination Certificate No. PTB 03 ATEX 2014
- Protected to IP 54
- Display in litres, Imperial gallons, US gallons or kilograms
- quickly and easily mounted



Example of type code of liquid meter FMC
FMC 100/PP/0/F
FMC 100/PP/0/F = **Design**
FMC **100**/PP/0/F = **Model**
FMC 100/**PP**/0/F = **Material meter body**
FMC 100/PP/**0**/F = **Material seal**
FMC 100/PP/0/**F** = **Version (F=use with barrel pump)**
A=fixed installation into pipework)

FLUX
Innovators in Flow Technology

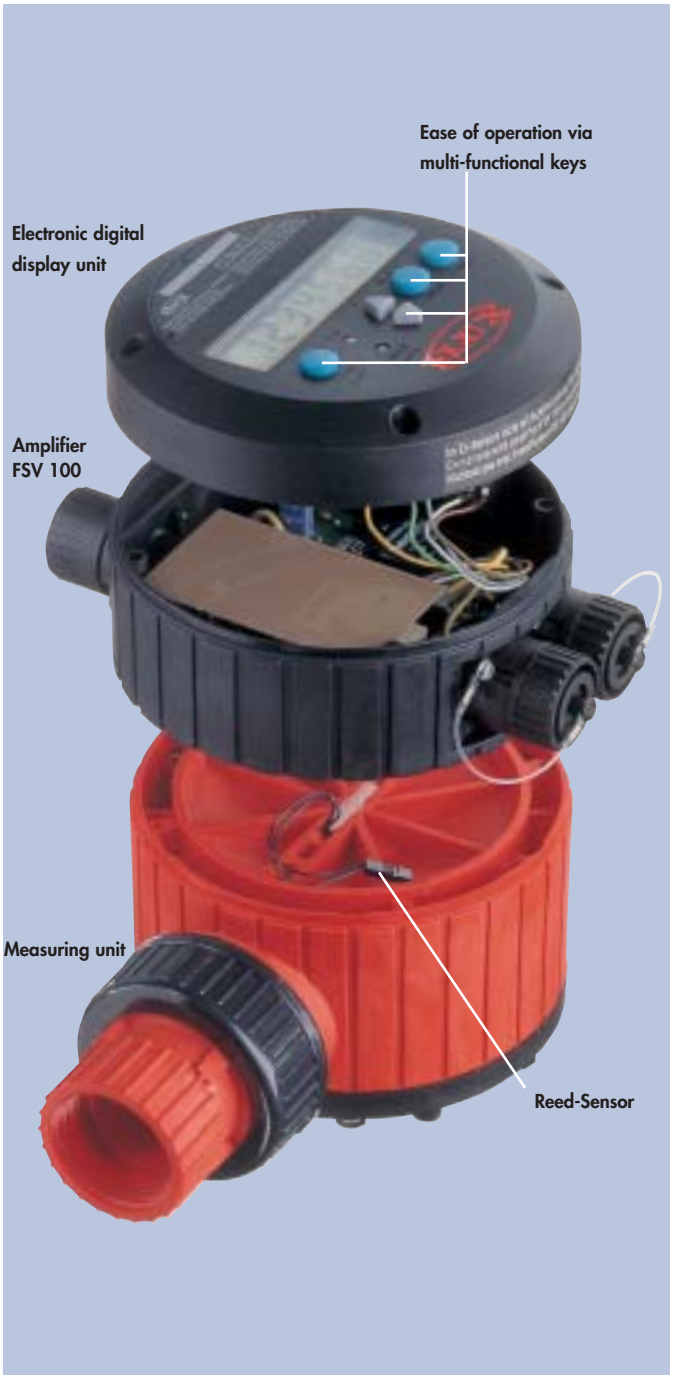
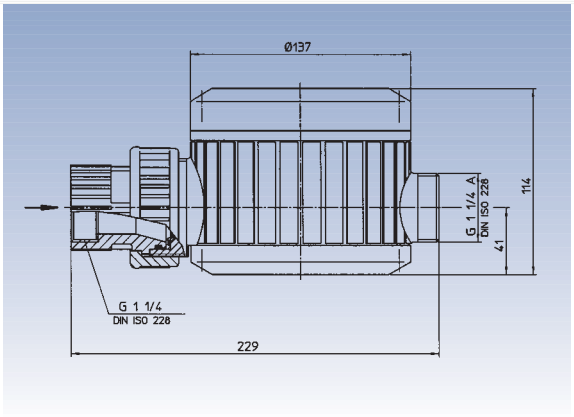


Table of Contents

- High Measurement Accuracy
- Adaptable to the Liquid for universal Application
- Integral presettable Batch Controller
- Explosion-proof to II 2G EEx ia IIB T6

FMC 100/PP/./F in Polypropylene for portable Use with Barrel Pumps



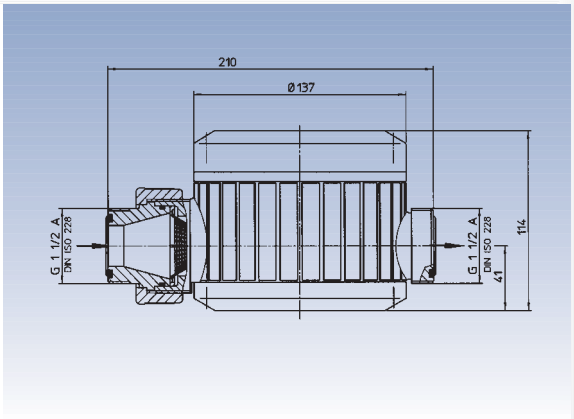
TYPE	FMC 100/PP/0/F	FMC 100/PP/1/F	FMC 100/PP/2/F
Flowrate	10 – 100 l/min	10 – 100 l/min	10 – 100 l/min
Operating pressure	max. 4 bar	max. 4 bar	max. 4 bar
Viscosity	max. 2500 mPas (cP)	max. 2500 mPas (cP)	max. 2500 mPas (cP)
Operating temperature	max. 60 °C	max. 60 °C	max. 60 °C
Accuracy	± 1%	± 1%	± 1%
Mode of operation	Normal mode or auto mode in conjunction with an interface amplifier		
Inlet-outlet connections	G 1¼ – G 1¼ A BSP 1¼" female – BSP 1¼" male connecting piece to barrel pump included in the FMC	G 1¼ – G 1¼ A BSP 1¼" female – BSP 1¼" male	G 1¼ – G 1¼ A BSP 1¼" female – BSP 1¼" male
Material: meter body	Polypropylene (PP)	Polypropylene (PP)	Polypropylene (PP)
Material: maesuring chamber	PPS (Ryton®)	PPS (Ryton®)	PPS (Ryton®)
Material: seal	EPDM	FPM (Viton®)	FEP
Weight	1,1 kg	1,1 kg	1,1 kg
Part No.	**A04 00 005**	**A04 00 007**	**A04 00 009**

Version without digital display unit for use with quick action tap – see page 13

Liquid meter with top cover and connecting cable, 5 m long.
Part No. of quick action tap on page 13.

Part No.	**A04 00 035**	**A04 00 037**	**A04 00 039**

FMC 100/PP/./A in Polypropylene
for fixed installation into pipework



TYPE	FMC 100/PP/0/A	FMC 100/PP/1/A	FMC 100/PP/2/A
Flowrate	10 – 100 l/min	10 – 100 l/min	10 – 100 l/min
Operating pressure	max. 4 bar	max. 4 bar	max. 4 bar
Viscosity	max. 2500 mPas (cP)	max. 2500 mPas (cP)	max. 2500 mPas (cP)
Operating temperature	max. 60 °C	max. 60 °C	max. 60 °C
Accuracy	± 1%	± 1%	± 1%
Mode of operation	Normal mode or auto mode in conjunction with an interface amplifier		
Inlet-outlet connections	G 1½ A – G 1½ A BSP 1½" male – BSP 1½" male	G 1½ A – G 1½ A BSP 1½" male – BSP 1½" male	G 1½ A – G 1½ A BSP 1½" male – BSP 1½" male
Material: meter body	Polypropylene (PP)	Polypropylene (PP)	Polypropylene (PP)
Material: measuring chamber	PPS (Ryton®)	PPS (Ryton®)	PPS (Ryton®)
Material: seal	EPDM	FPM (Viton®)	FEP
Weight	1,1 kg	1,1 kg	1,1 kg
Part No.	**A04 00 012**	**A04 00 014**	**A04 00 016**

Version for use with external digital display unit

Liquid meter with top cover and connecting cable, 5 m long

Part No.	**A04 00 041**	**A04 00 043**	**A04 00 045**

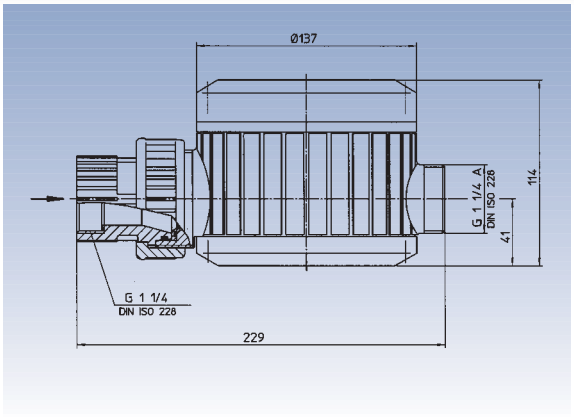
External digital display unit / Part No.

for wall mounting	**001 42 008**	for mounting into a switchboard	**001 42 009**

Accessories / Part No.			
Pipe connection DN 25 (PP)	**001 41 947**	**001 41 947**	**001 41 947**
Flange DN 25 (PVDF/PTFE)	**001 41 912**	**001 41 912**	**001 41 912**
Flange DN 32 (PVDF/PTFE)	**001 41 918**	**001 41 918**	**001 41 918**

FMC 100/ETFE/./F

IN ETHYLENE-TETRAFLUOR-ETHYLENE FOR PORTABLE USE WITH BARREL PUMPS



TYPE	FMC 100/ETFE/0/F	FMC 100/ETFE/1/F	FMC 100/ETFE/3/F
Flowrate	10 – 100 l/min	10 – 100 l/min	10 – 100 l/min
Operating Pressure	max. 4 bar	max. 4 bar	max. 4 bar
Viscosity	max. 2500 mPas (cP)	max. 2500 mPas (cP)	max. 2500 mPas (cP)
Operating temerature	max. 60 °C	max. 60 °C	max. 60 °C
Accuracy	± 1%	± 1%	± 1%
Mode of operation	Normal mode or auto mode in conjunction with an interface amplifier		
Inlet-outlet connections	G 1¼ – G 1¼ BSP 1¼" female – BSP 1¼" male connecting piece to barrel pump included in the FMC	G 1¼ – G 1¼A BSP 1¼" female – BSP 1¼" male	G 1¼ – G 1¼A BSP 1¼" female – BSP 1¼" male
Material: meter body	Ethylene-Tetrafluor-Ethylene (ETFE)	Ethylene-Tetrafluor-Ethylene (ETFE)	Ethylene-Tetrafluor-Ethylene (ETFE)
Material: measuring chamber	Ethylene-Tetrafluor-Ethylene (ETFE)	Ethylene-Tetrafluor-Ethylene (ETFE)	Ethylene-Tetrafluor-Ethylene (ETFE)
Material: seal	EPDM	FPM (Viton©)	Kalrez
Weight	1,4 kg	1,4 kg	1,4 kg
Part No.	**A04 00 006**	**A04 00 008**	**A04 00 077**

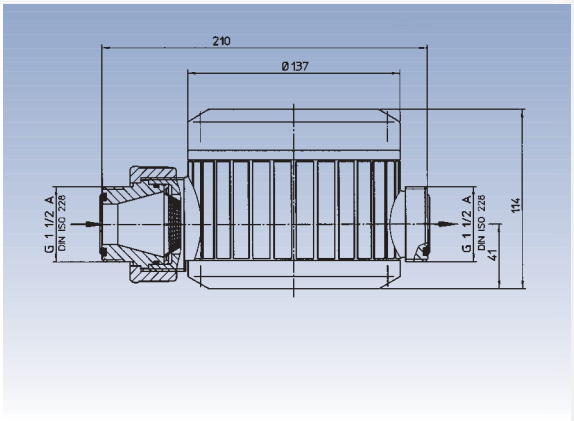
Version without digital display unit for use with quick action tap – see page 13

Liquid meter with top cover and connecting cable, 5 m long.
Part No. of quick action tap on page 13.

Part No.	**A04 00 036**	**A04 00 038**	**A04 00 079**

FMC 100/ETFE/./A

IN ETHYLENE-TETRAFLUOR-ETHYLENE FOR FIXED INSTALLATION INTO PIPEWORK



TYPE	FMC 100/ETFE/0/A	FMC 100/ETFE/1/A	FMC 100/ETFE/3/A
Flowrate	10 – 100 l/min	10 – 100 l/min	10 – 100 l/min
Operating pressure	max. 4 bar	max. 4 bar	max. 4 bar
Viscosity	max. 2500 mPas	max. 2500 mPas	max. 2500 mPas
Operating temperature	max. 60 °C	max. 60 °C	max. 60 °C
Accuracy	± 1%	± 1%	± 1%
Mode of operation	Normal mode or auto mode in conjunction with an interface amplifier		
Inlet-outlet connections	G 1½A – G 1½A BSP 1½" male – BSP 1½" male	G 1½A – G 1½ A BSP 1½" male – BSP 1½" male	G 1½A – G 1½ A BSP 1½" male – BSP 1½" male
Material: meter body	Ethylene-Tetrafluor-Ethylene (ETFE)	Ethylene-Tetrafluor-Ethylene (ETFE)	Ethylene-Tetrafluor-Ethylene (ETFE)
Material: measuring chamber	Ethylene-Tetrafluor-Ethylene (ETFE)	Ethylene-Tetrafluor-Ethylene (ETFE)	Ethylene-Tetrafluor-Ethylene (ETFE)
Material: seal	EPDM	FPM (Viton®)	Kalrez
Weight	1,1 kg	1,1 kg	1,1 kg
Part No.	**A04 00 013**	**A04 00 015**	**A04 00 078**

Version for use with external digital display unit

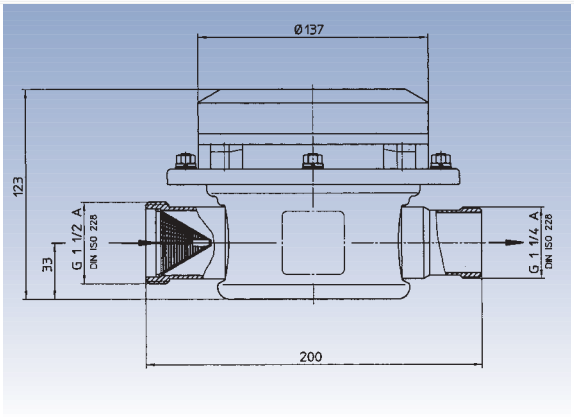
Liquid meter with top cover and connecting cable, 5 m long.

Part No.	**A04 00 042**	**A04 00 044**	**A04 00 080**

External digital display unit / Part No.			
for wall mounting	**001 42 008**	for mounting into a switchboard	**001 42 009**

Accessories / Part No.			
Pipe connection DN 25 (PVDF/ETFE)	**001 41 948**	**001 41 948**	**001 41 948**
Flange DN 25 (PVDF/PTFE)	**001 41 912**	**001 41 912**	**001 41 912**
Flange DN 32 (PVDF/PTFE)	**001 41 918**	**001 41 918**	**001 41 918**

FMC 100/S/./F in Stainless Steel for portable Use with Barrel Pumps



TYPE	FMC 100/S/0/F	FMC 100/S/1/F	FMC 100/S/2/F
Flowrate	10 – 100 l/min	10 – 100 l/min	10 – 100 l/min
Operating pressure	max. 6 bar	max. 6 bar	max. 6 bar
Viscosity	max. 2500 mPas (cP)	max. 2500 mPas (cP)	max. 2500 mPas (cP)
Operating temperature	max. 80 °C	max. 80 °C	max. 80 °C
Accuracy	± 1%	± 1%	± 1%
Mode of operation	Normal mode or auto mode in conjunction with an interface amplifier		
Inlet-outlet connections	G 1 1/2 A – G 1 1/4 A BSP 1 1/2" male – BSP 1 1/4" male connecting piece to barrel pump NOT included in the FMC	G 1 1/2 A – G 1 1/4 A BSP 1 1/2" male – BSP 1 1/4" male	G 1 1/2 A – G 1 1/4 A BSP 1 1/2" male – BSP 1 1/4" male
Material: meter body	Stainless steel 316 Ti (S)	Stainless steel 316 Ti (S)	Stainless steel 316 Ti (S)
Material: measuring chamber	PPS (Ryton®)	PPS (Ryton®)	PPS (Ryton®)
Material: seal	EPDM	FPM (Viton®)	FEP
Weight	1,7 kg	1,7 kg	1,7 kg
Part No.	**A04 00 029**	**A04 00 031**	**A04 00 033**

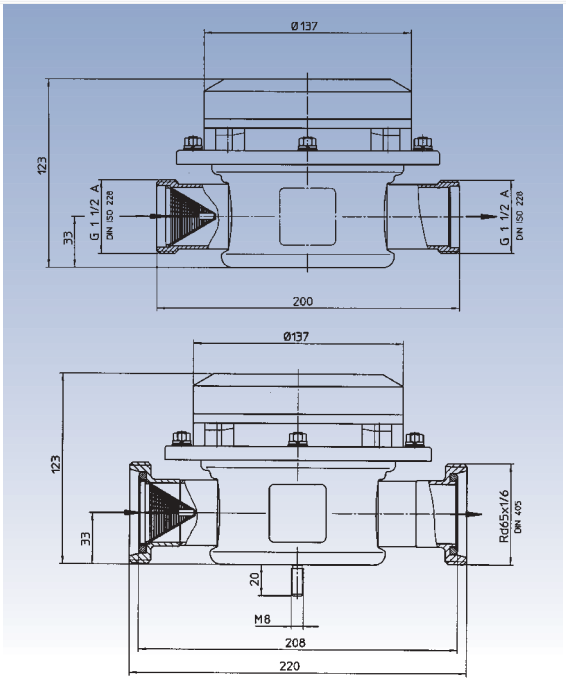
Version without digital display unit for use with quick action tap – see page 13

Liquid meter with top cover and connecting cable, 5 m long.
Part No. of quick action tap on page 13.

Part No.	**A04 00 053**	**A04 00 055**	**A04 00 057**

Accessories / Part No.			
Connecting piece to barrel pump G 1 1/4	**959 06 059**	**959 06 059**	**959 06 059**

FMC 100/S/./A IN STAINLESS STEEL FOR FIXED INSTALLATION INTO PIPEWORK



TYPE	FMC 100/S/0/A	FMC 100/S/1/A	FMC 100/S/2/A
Florate	10 – 100 l/min	10 – 100 l/min	10 – 100 l/min
Operating pressure	max. 6 bar	max. 6 bar	max. 6 bar
Viscosity	max. 2500 mPas (cP)	max. 2500 mPas	max. 2500 mPas
Operating temperature	max. 80 °C	max. 80 °C	max. 80 °C
Accuracy	± 1%	± 1%	± 1%
Mode of operation	Normal mode or auto mode in conjunction with an interface amplifier		
Inlet-outlet connection	G 1 1/2 A – G 1 1/2 A BSP 1 1/2" male – BSP 1 1/2" male or Rd 65 x 1/6	G 1 1/2 A – G 1 1/2 A BSP 1 1/2" male – BSP 1 1/2" male or Rd 65 x 1/6	G 1 1/2 A – G 1 1/2 A BSP 1 1/2" male – BSP 1 1/2" male or Rd 65 x 1/6
Material: meter body	Stainless steel 316 Ti (S)	Stainless steel 316 Ti (S)	Stainless steel 316 Ti (S)
Material: measuring chamber	PPS (Ryton®)	PPS (Ryton®)	PPS (Ryton®)
Material: seal	EPDM	FPM (Viton®)	FEP
Weight	1,7 kg	1,7 kg	1,7 kg
Part No.			
Connection G 1 1/2 A	**A04 00 071**	**A04 00 072**	**A04 00 073**
Connection Rd 65 x 1/6	**A04 00 023**	**A04 00 025**	**A04 00 027**

Version for use with external digital display unit

Liquid meter with top cover and connecting cable, 5 m long.

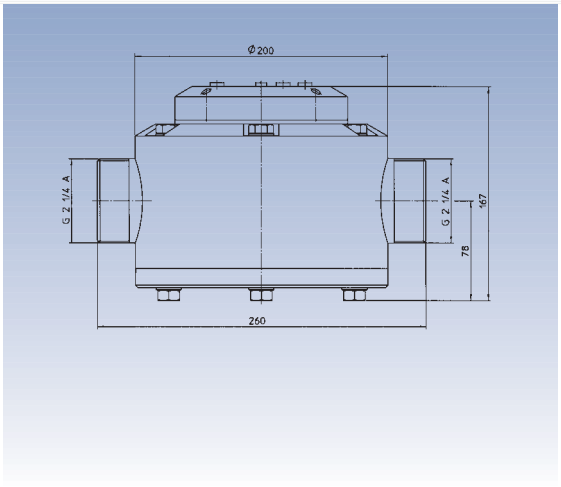
Part No.			
Connection G 1 1/2 A	**A04 00 074**	**A04 00 075**	**A04 00 076**
Connection Rd 65 x 1/6	**A04 00 059**	**A04 00 061**	**A04 00 063**

External digital display unit / Part No.			
for wall mounting	**001 42 008**	for mounting into a switchboard	**001 42 009**

Accessories / Part No.			
Pipe connection			
RV32-40/25	**001 41 986**	**001 41 987**	**001 41 988**
RV32-40/32	**001 41 989**	**001 41 990**	**001 41 991**
Flange DN 40*	**001 42 013**	**001 42 013**	**001 42 013**

(*for models with connection Rd 65 x 1/6 only)

FMC 250/PP/./A, FMC 250/PVDF/./A
FOR FIXED INSTALLATION INTO PIPEWORK



TYPE	FMC 250/PP/0/A	FMC 250/PP/1/A	FMC 250/PVDF/0/A	FMC 250/PVDF/1/A
Flowrate	25 – 250 l/min	25 – 250 l/min	25 – 250 l/min	25 – 250 l/min
Operating pressure	max. 6 bar	max. 6 bar	max. 6 bar	max. 6 bar
Viscosity	max. 2500 mPas (cP)	max. 2500 mPas (cP)	max. 2500 mPas (cP)	max. 2500 mPas (cP)
Operating temperature	max. 60 °C	max. 60 °C	max. 60 °C	max. 60 °C
Accuracy	± 1%	± 1%	± 1%	± 1%
Mode of operation	Normal mode or auto mode in conjunction with interface amplifier Type FSV 100			
Inlet-outlet connection	G 2 1/4 A BSP 2 1/4" male	G 2 1/4 A BSP 2 1/4" male	G 2 1/4 A BSP 2 1/4" male	G 2 1/4 A BSP 2 1/4 " male
Material: meter body	Polypropylene (PP)	Polypropylene (PP)	Polyvinylidenfluoride (PVDF)	Polyvinylidenfluoride (PVDF)
Material: measuring chamber	Polyethylene (PE)	Polyethylene (PE)	Polyvinylidenfluoride (PVDF)	Polyvinylidenfluoride (PVDF)
Material: seal	EPDM	FPM (Viton®)	EPDM	FPM (Viton®)
Weight	4,2 kg	4,2 kg	4,2 kg	4,2 kg
Part No.	**A04 25 400**	**A04 25 410**	**A04 25 600**	**A04 25 610**

EXAMPLE OF APPLICATION

The FLUX FMC 250
for fixed installation
into pipework systems

Examples of Liquids

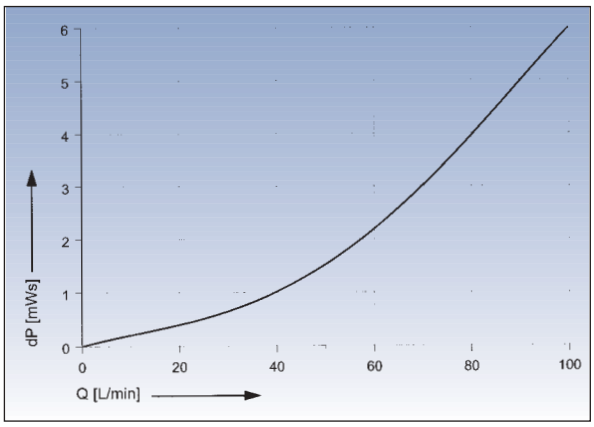
Material	Polypropylene (PP)	Ethylene-Tetrafluor-Ethylene (ETFE)	Polyvinyliden-fluoride (PVDF)	Stainless steel 316 Ti (S)
The examples are based on a temperature of 20 °C. Factors such as higher temperatures, different concentrations, impurities and mixtures of liquids have to be taken into account. For further information please see FLUX Resistance Chart.	Accumulator acid* Acetic acid Ammonia water Arsenic acid* Boric acid* Brake fluid Calcium chloride* Caustic soda Citric acid* Ferric chloride* Formic acid Glycol* Hydrochloric acid* Mineral oil* Phosphoric acid* Photo developper* Sulfuric acid up to 60%* Tartaric acid* Zinc chloride*	Aqua regia** Bromine acid Butylamine Chloroforme** Diethylamine Essential oils** Ethyl acetate Ethylene oxide* Hydrofluoric acid up to 40%* Hydrogene peroxide* Nicotinic acid** Nitrating acid up to 70%** Nitric acid (concentrated)** Petroleum ether* Sulfuric acid up to 98%* Tetrahydrofurane**	Chloric acid Chromic acid Hydrobromic acid Hydrofluoric acid* Hydrogene peroxide* Nitric acid up to 75% Paraffine emulsion* Potassium bromide Sodium hypochlorite Sulfuric acid up to 98% Trichlorobenzene as well as most liquids listed under PP	Acetone Butanone Ether Ethyl alcohol Freon/Frigen** Glycerine Hexanol Isopropyl ether** Linseed oil* Methanol Methylene chloride* Methoxybutanol Mineral oil* Perchlorethylene* Petroleum* Styrene** Trichlorethylene** Vinegar

Seal: EPDM = 0; *Seal: FPM (Viton©) = 1; **Seal: FEP = 2 or Kalrez = 3

Pressure Loss Charts

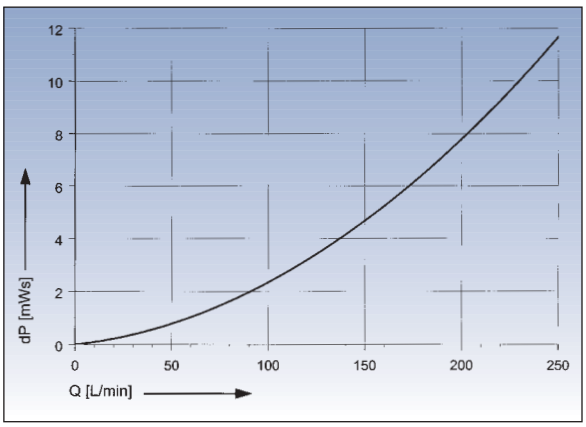
Type FMC 100

Values with water at 20 °C
Tolerance ± 5%

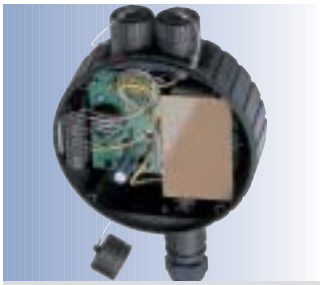


Type FMC 250

Values with water at 20 °C
Tolerance ± 5%



Interface Amplifier for Pre-Set Batch Control with FLUX FMC Liquid Meter in Auto Mode



TYPE FSV 100

Integral mounting onto FMC. Supply voltage 230 Volt, 50 Hz, protected to IP 54. With 5 m power supply cable. Two output signals for: main flow control for a pump and/or magnetic valve and secondary control for turn down controlling a magnetic valve or relay: Two output plugs for control features.
Not explosion proof.
Part No. 001 49 040

TYPE FSV 112

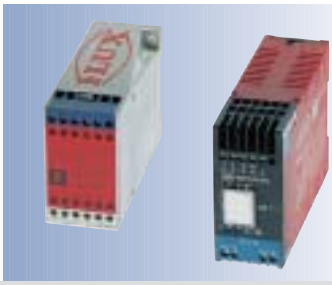
Complete with housing for wall mounting. Supply voltage 230 Volt, 50 Hz, protected to IP 54. Two output signals for: main flow control for a pump and/or magnetic valve and secondary control for turn down controlling a magnetic valve or relay. Input socket for power supply and two output plugs for control features.

Part No. 001 49 041

TYPE FSV 121-1 Ex

Explosion-proof to EEx de (ia) IIC T6. Supply voltage 230 Volt, 50 Hz, protected to IP 54. One output signal for control of a pump and/or magnetic valve.

Part No. 001 49 039



TYPE FSV 131 **TYPE FSV 132**

FSV 131 without housing for mounting into a switchboard. Supply voltage 230 Volt, 50 Hz, protected to IP 20.
One output signal for control of a pump and/or a magnetic valve.

Part No. 940 04 017

FSV 132 as above, but two output signals for control of a pump and two magnetic valves.

Part No. 940 04 020

Other voltages on request.

Power Supply and Connecting Cables for FMC

1 Power supply cable, 5 m, for use with FSV 112
Part No. 934 08 037

2 Connecting cable to motor, 0,5 m, for use with FSV 100 and FSV 112
Part No. 934 08 035

3 Connecting cable to magnetic valve, 5 m, for use with FSV 100 and FSV 112
Part No. 934 08 036

4 Connecting cable 5 m,
to transmit the pulses from FMC to FSV 112
Part No. 934 08 039

5 Connecting cable, to transmit the pulses from FMC to FSV 121-1 Ex, FSV 131 and FSV 132.
Part No. 934 08 038 5 m long
Part No. 934 08 040 10 m long

Protective Boot

Protective boot for display unit against impurities and corrosive vapours.
Part No. 001 42 017

Quick Action Tap complete with Electronic Digital Display Unit for Use with FMC 100 with Top Cover

TYPE	**Quick Action Tap PP**	**Quick Action Tap PVDF**
Flowrate	max. 50 l/min	max. 50 l/min
Operating pressure	max. 3 bar	max. 3 bar
Viscosity	max. 900 mPas (cP)	max. 900 mPas (cP)
Operating temperature	max. 50 °C	max. 50 °C
Inlet connection	DN 19	DN 19
Outlet tube	Ø 22 mm	Ø 22 mm
Material	Polypropylene (PP)	Polyvinylidenfluoride (PVDF)
Seal	FPM (Viton®)	FPM (Viton®)
Weight	0,5 kg	0,6 kg
Part No.	**001 12 390**	**001 12 391**

TYPE	**Quick Action Tap MS**	**Quick Action Tap S**
Flowrate	max. 80 l/min	max. 65 l/min
Operating pressure	max. 4 bar	max. 4 bar
Viscosity	max. 900 mPas (cP)	max. 900 mPas (cP)
Operating temperature	max. 80 °C	max. 80 °C
Inlet connection	Ø 32 mm	Ø 32 mm
Outlet tube	Ø 25 mm*	Ø 28 mm*
Material	Brass, nickel-plated (MS)	Stainless Steel 316 Ti (S)
Seal	PTFE	PTFE/FEP
Weight	1,5 kg	1,6 kg
Part No.	**001 12 364**	**001 12 292**

* Longer outlet tube Ø 20 mm for use with fume cone on request

Examples of Applications FLUX Liquid Meter Type FMC 100

Portable use:
FLUX FMC 100 with barrel pump

Auto mode: FLUX FMC 100 in conjunction with interface amplifier Type FSV 100 as a presettable batch controller actuating a barrel pump

Fixed installation into pipework systems:
FLUX FMC 100 with pipe or flange connections

Use with quick action tap:
FLUX FMC 100 with top cover in conjunction with quick action tap complete with electronic digital display unit

THE GREAT RANGE OF FLUX PUMPS

YES!

I am interested in top class pump technology.
Please send the following catalogues:

- ☐ FLUX BARREL AND CONTAINER PUMPS
- ☐ FLUX BRUSHLESS MOTOR FBM 4000 EX
- ☐ FLUX HIGH VISCOSITY LIQUID PUMPS
- ☐ FLUX CENTRIFUGAL IMMERSION PUMPS
- ☐ FLUX AIR-OPERATED DIAPHRAGM PUMPS
- ☐ FLUX PROCESS CONTROL SYSTEM PCS

Mr. / Mrs:

Company:

Address:

ZIP / City / Country:

Telephone: Fax:

eMail:

Please mark with a cross, complete the address and then sent us a fax. Fax number see on the back side!

FLUX

INNOVATORS IN FLOW TECHNOLOGY

WORLD OF PUMPS – PUMPS FOR THE WORLD

All around the globe, FLUX is synonymous with top standards in pump technology. Whether it is barrel pumps, high viscosity liquid pumps, vertical centrifugal immersion pumps, air-operated diaphragm pumps, liquid meters, mixers or top class accessories – FLUX with its complete and comprehensive range is always the one to address to. Benefit from our competence. We look forward to hearing from you!

FLUX-GERÄTE GMBH

Talweg 12 · D-75433 Maulbronn
Tel. 07043/101-0 · Fax 07043/101-444
Fax International +49 70 43 / 1 01 -555
info@flux-pumpen.de · www.flux-pumpen.de

FMC 014/1 EFA