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GR/PRINTO

BATCHFLUX and BATCHCONTROL

volumetric batching and dosing with electromagnetic flowmeters

... A new era in volumetric batching!!!

- Optimum sanitary design
- Ceramic measuring tube
- Only 50 mm/2" overall width (DN < 25 / < 1")
- Extremely reliable and accurate

BATCHFLUX and BATCHCONTROL

... a new era in volumetric batching and dosing

BATCHFLUX and BATCHCONTROL electromagnetic flowmeters from KROHNE are eminently suitable for the batching and dosing of electrically conductive liquids and pastes.

Fleids of application

Optimum sanitary design for various sectors of the processing industry, e.g.

- chemical
- pharmaceutical
- cosmetics, and
- food.

BATCHFLUX
electromagnetic flowmeter for batching and dosing applications.

BATCHCONTROL
same as BATCHFLUX, but additionally with integrated batch controller, user programmable, backflow compensation and sensing of dribble quantities.

Calibrated on **EN 45 001** certified calibration rigs, calibration accuracy better than 99,97 % of the measured value.

CE

tüv CERT DIN ISO 9001

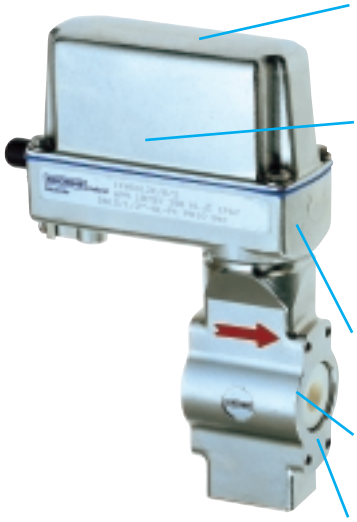
Batchflux/Batchcontrol

State-of-the art
modular designed electronic unit,
ensures extremely high accuracy,
excellent repeatability and absolute
reliability

Cable entry body of stainless steel,
solidly welded, shatterproof,
with anti-rotation element

Only 50 mm/2“ overall width for
meter sizes < DN 25/< 1”

CIP- and SIP-proof measuring
tube of Al_2O_3 ceramics,
surface roughness < 0,8 µm,
fused-in-place platinum electrodes



IMoCom interface:
for settings, documentation and
flow recording.
Only 3 W power consumption

Low maintenance reuqirement.
Detach 4 screws, remove cover,
take out electronic unit,
(no screws, no connectors to remove),
insert new one, replace cover, that’s it.
No readjustment, no recalibration.

Housings of primary head and signal
converter solidly welded

Self-draining,
same bore diameter thorughout

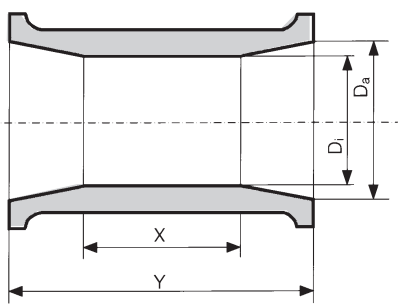
Hygienic design of the process con-
nection, metal stop, no gaps

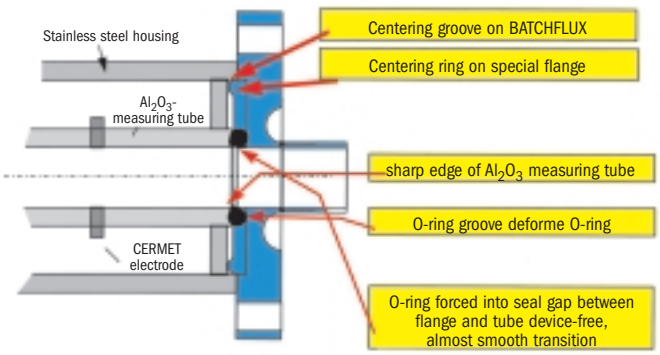
The ceramic measuring tube in detail

- Fine-grain-stablized Aluminium Oxyde Al_2O_3
- Minimal thermal expansion
- High long-term stability, absolutely vacuum resistant, no creep or flow under pressure and temperature
- Many standards calibration authorities use electromagnetic ceramic flowmeters as their custody transfer and reference standards
- Precise centering and crevice-free gasket system through exactly defined edges of the ceramic tube
- No loss of accuracy following device replacement.

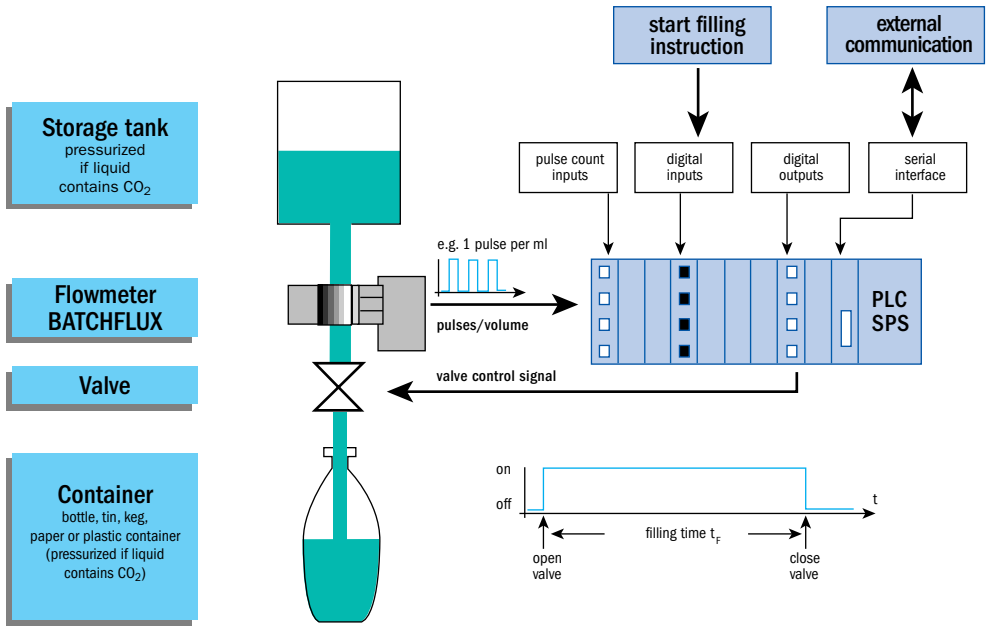
Meter size		Pressure rating measuring tube		Dimensions in mm (inches)								Specific features
DN												
mm	inches	PN	psig	D_a		D_i		X		Y		
2.5	1/10	40	580	6	(0.24)	2	(0.08)	20	(0.79)	50	(1.79)	
4	1/8	40	580	7	(0.28)	3	(0.12)	20	(0.79)	50	(1.79)	
6	1/4	40	580	9	(0.35)	5	(0.20)	20	(0.79)	50	(1.79)	
10	3/8	40	580	12	(0.47)	7	(0.28)	20	(0.79)	50	(1.79)	
15	1/2	40	580	14	(0.55)	12	(0.47)	20	(0.79)	50	(1.79)	
25	1	40	580	24	(0.94)	20	(0.79)	20	(0.79)	50	(1.79)	
40	1 1/2	40	580	37	(1.46)	30	(1.18)	20	(0.79)	50	(1.79)	
15	1/2	10	145	14	(0.55)	14	(0.55)	–		50	(1.79)	straight tube (option)

venturi measuring tube

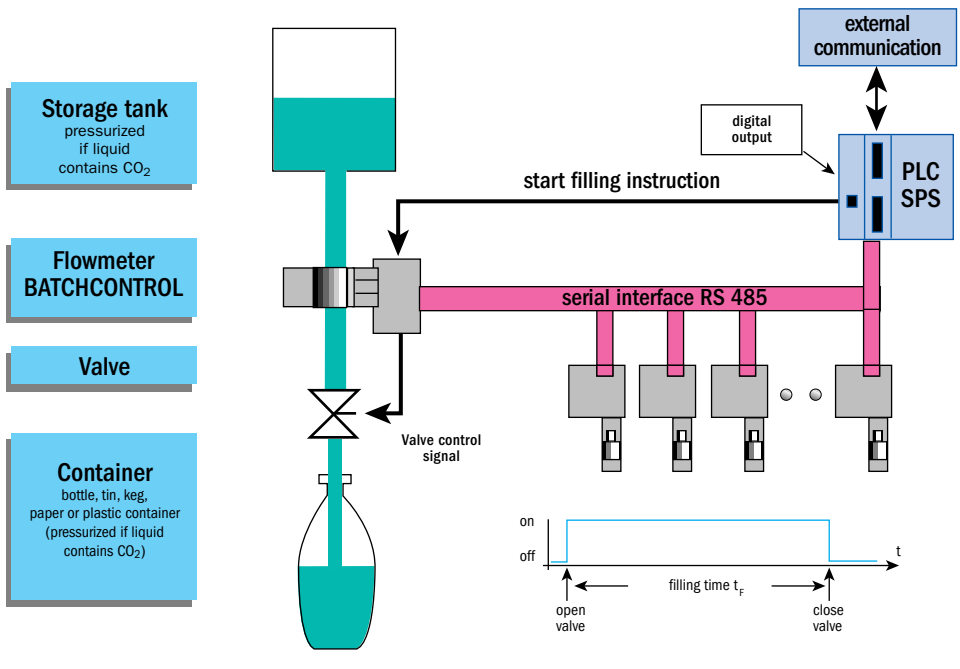




BATCHFLUX

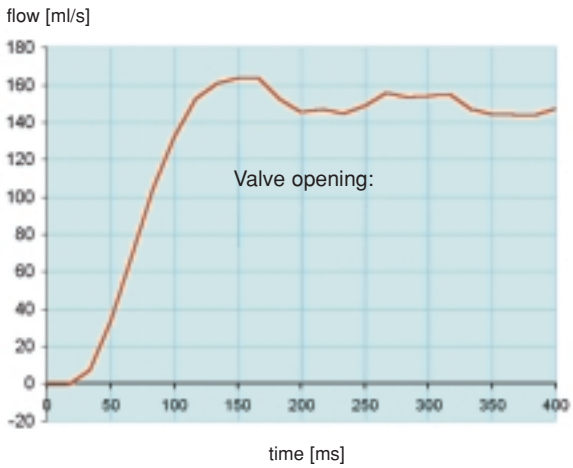


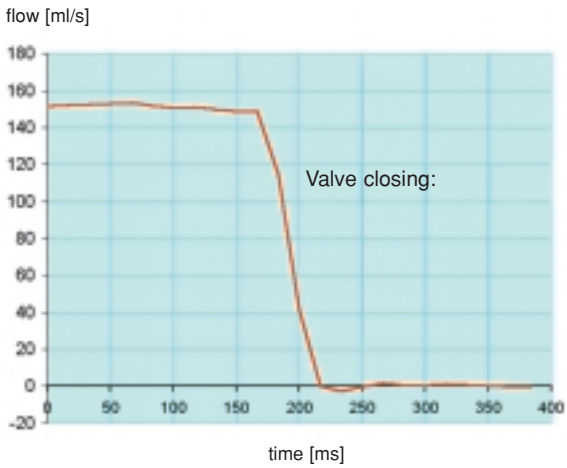
BATCHCONTROL
with integrated batch controller

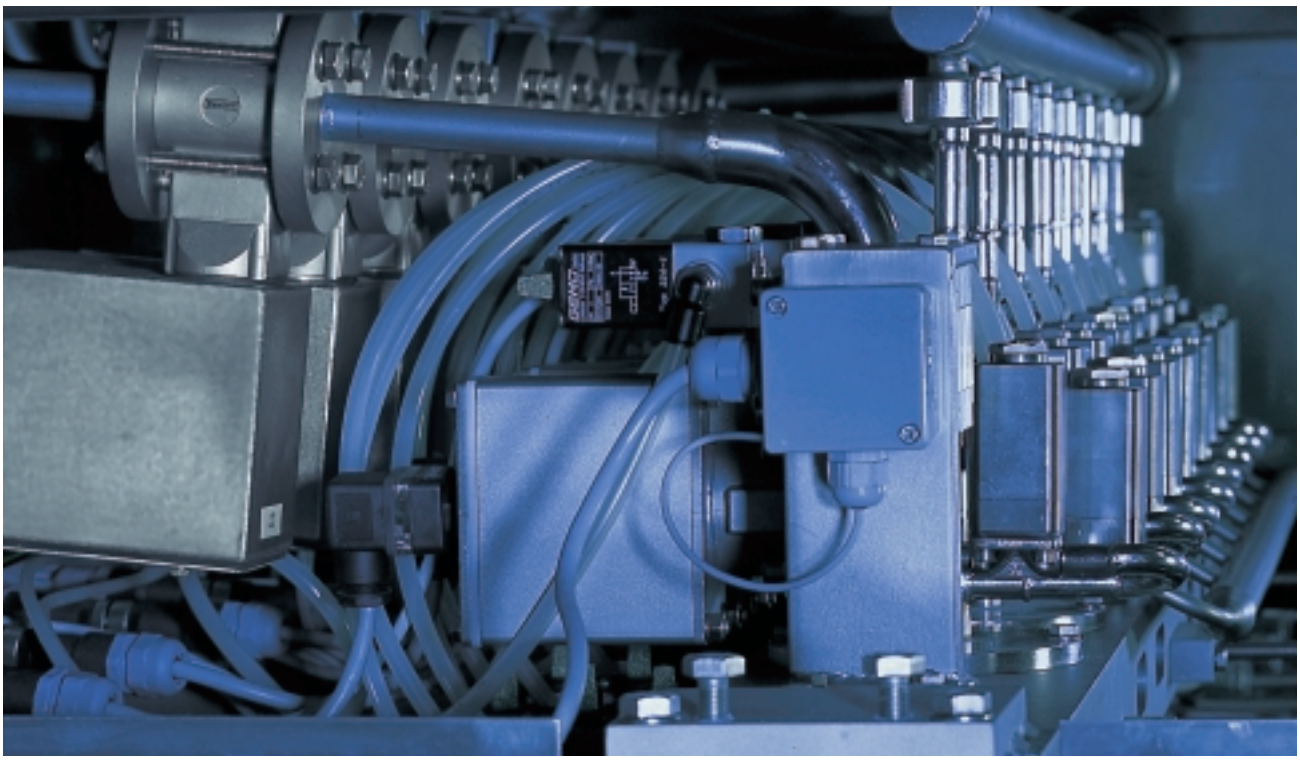


Optimization of system parameters

The IMoCom interface allows visualization of system and valve properties, permitting longterm studies for optimization of the overall system.







Technical data

Meter sizes			
with venturi measuring tube	DN 2.5, 4, 6, 10, 15, 25, 40 ($^1/_{10}$", $^1/_8$", $^1/_4$", $^3/_8$", $^1/_2$", 1",1$^1/_2$")		
with straight measuring tube (option)	DN 15 ($^1/_2$")		
Connection	sandwich (flangeless) design with precisely defined sealing faces		
Electrical conductivity	≥ 5 µS/cm (≥ 20 µS/cm for demineralized cold water)		
Ambient temperature	**Product temperature**		
-25 ... +40 °C / -13 ... +104 °F	-60 ... +140 °C / -76 ... +356 °F		
-25 ... +60 °C / -13 ... +140 °F	-60 ... + 60 °C / -76 ... +140 °F (information on higher temperatures available on request)		
	steam cleaning up to +150 °C / +302 °F		
Temperature shock resistance	*Temperature rising*	*Temperature falling*	
in 10 minutes	ΔT = 150 °C = 302 °F	ΔT = 120 °C = 248 °F	
sudden change	ΔT = 120 °C = 248 °F	ΔT = 80 °C = 176 °F	
Operating pressure	40 bar / 580 psig, dependent on gaskets used		
	(10 bar / 150 psig for DN 15 and $^1/_2$" with straight measuring tube)		
Electrode design	fused-in-place electrodes		
Protection category (EN 60 529/IEC 529)	IP 67 equivalent to NEMA 6 (complete device, incl. signal converter)		
Materials of construction			
Housing	≤ DN 15 / $^1/_2$": stainless steel 1.4462 / Duplex		
	≥ DN 25 / ≥1": stainless steel 1.4301 or SS 304 AISI		
Measuring tube	fine-grain-stabilized, high-density HiTec ceramics,		
	purity 99.7 % Al_2O_3 (+ZrO_2), CIP- and SIP-proof		
Electrodes	platinum		
Cover seal	silicone		
Low-flow cutoff	cutoff 'on' value	1 - 19 % }	adjustable
	cutoff 'off' value	2 - 20 %	
Power supply			
Voltage	24 V DC, ± 25% (18-30 V DC)		
Power consumption	BATCHFLUX: ≤ 3 W	BATCHCONTROL: ≤ 5 W	
Electrical connection	M12×1 - connector		
Operator control	All operating data factory-set to your specifications.		
	Available as **option** for change of operating data:		
	- **HHT 010, hand-held terminal** *or*		
	- **KROHNE software** for operator control and data output via PC, connected to the IMoCom interface		

To help you select the right device...

Meter size		Optimum flow rate **for filling .....**		Filling times > 1.5 s, **fill quantity .....**	
DN mm	inches	ml / s	US Gal / min	ml	US Gal
2.5	$^1/_{10}$	3 - 10	0.048 – 0.159	≥ 10	≥ 0.003
4	$^1/_8$	10 - 30	0.159 – 0.476	≥ 20	≥ 0.005
6	$^1/_4$	20 - 60	0.317 – 0.951	≥ 40	≥ 0.011
10	$^3/_8$	60 - 200	0.951 – 3.170	≥ 100	≥ 0.026
15	$^1/_2$	150 - 500	2.378 – 7.925	≥ 200	≥ 0.053
25	1	400 - 1200	6.340 – 19.020	≥ 600	≥ 0.159
40	1$^1/_2$	1000 - 3000	15.850 – 47.551	≥ 1500	≥ 0.396

Outputs BATCHFLUX

Pulse output (standard)	passive circuit
Function	All operating data factory-set to your specifications, connection of electronic totalizers, digital pulse division, interpulse period non-uniform, therefore if frequency meters c ounters connected, allow for minimum counting interval: gate time, counter $\geq \frac{1000}{P_{100\%}\ [Hz]}$
Pulse rate for Q = 100%	max. 10 kHz, fixed **or** optionally in pulses per m^3, litres, US gallons or in user-defined unit
Pulse width	≤ 10 Hz: 50, 100, 200 or 500 ms > 10 Hz: • automatic, pulse width = $\frac{1}{2 \times f_{100\%}}$ • symmetrical, 1 : 1
Passive mode	connection of electronic or electromechanical totalizers external voltage: U_{ext} ≤ 30 V DC / ≤ 24 V AC load rating: I_{max} ≤ 20 mA
Pulse and status outputs (option 1 + 2)	active circuit
Pulse output	
Function, pulse rate and pulse width	see pulse output (standard) above
Active mode	internal voltage: U_{ext} ≤ 30 V AC load rating: I_{max} ≤ 20 mA
Status output	
Function	all operating data factory-set to your specifications, can be set to signal direction, errors or trip points
Active mode	voltage internal: $U_{int.}$ ≤ 30 V DC load rating:: I_{max} ≤ 150 mA

Outputs BATCHCONTROL

Valve output 1	passive, max. 300 mA, max. 30 V, switches to ground
Valve output 2 and 3	passive, max. 150 mA, max. 30 V, switches to ground
Control input	passive, 20 mA, max. 30 V

Error limits under reference conditions

F = errorr in % M.V.
M.V. = measured value

Pulse output		**DN 2.5 - 6 / $^1/_{10}$" $^1/_4$"**	**DN 10 - 40 / $^3/_8$" $1^1/_2$"**
Flow velocity	v ≥ 1 m/s ≥ 3.3 ft/s	F < ± 0.5 % v.M.	F < ± 0.3 % v.M.
	v ≥ 1 m/s < 3.3 ft/s	F < ± 0.4 % v.M. + 1 mm/s < ± 0.4 % v.M. + 0.04 inches/s	F < ± 0.2 % v.M. + 1 mm/s < ± 0.2 % v.M. + 0.04 inches/s

Reproducibility	Fill time T_F	Standard deviation
	1.5 s < T_F ≤ 3 s	≤ 0.4 %
	3.0 s < T_F ≤ 5 s	≤ 0.2 %
	5.0 s < T_F	≤ 0.1 %

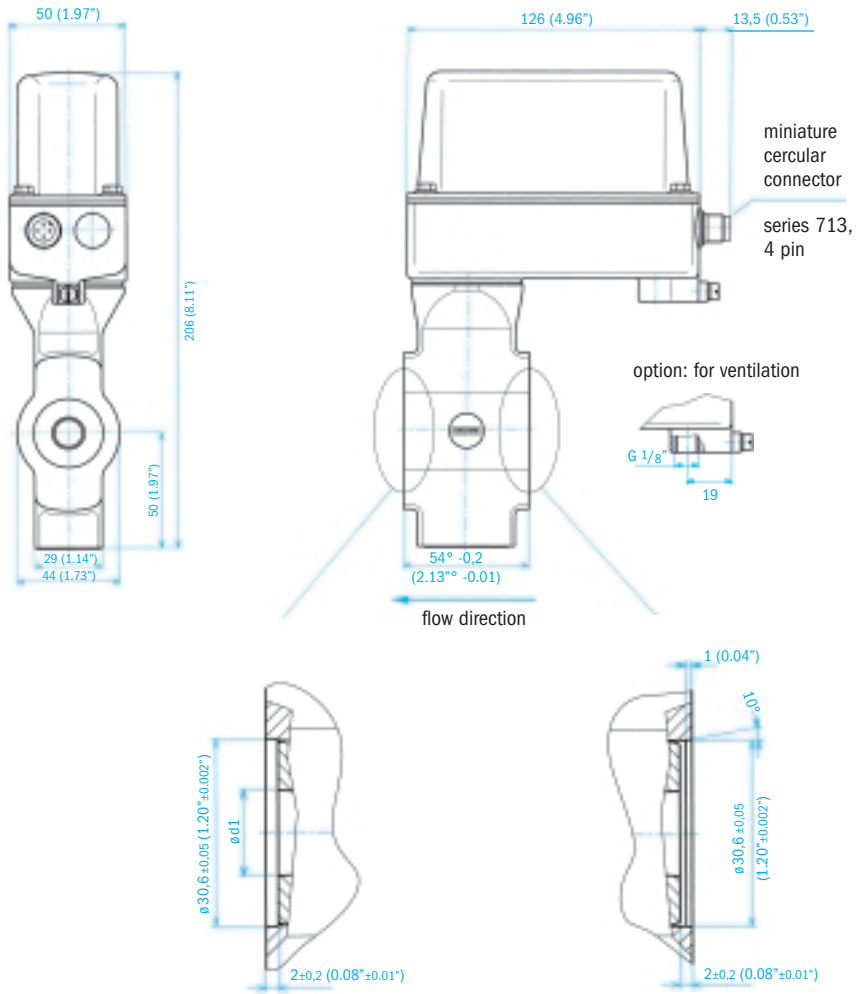
Reference conditions: similar to EN 29 104	
Product	water at 20°C / 68°F
Inlet / outlet runs	10 x DN / 5 x DN (DN = meter size)
Primary head	properly grounded and centered
Valve closing time variation	< 1 ms
Flow velocity	1 m/s / 3.3 ft/s

Wet calibrated on EN 45 001 certified calibration rigs by direct comparison of volumes.

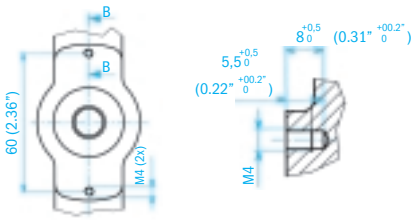
Dimensions and weights

DN 2.5 – 15 / 1/10" – 1/2"

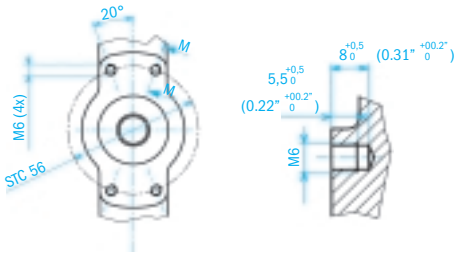
Dimensons in mm (inches)

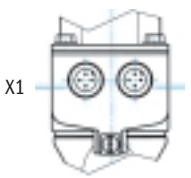


option: 2x M4 threaded wholes
on both sides
(section B-B)



option: 4x M6 threaded wholes
on both sides
(section M-M)



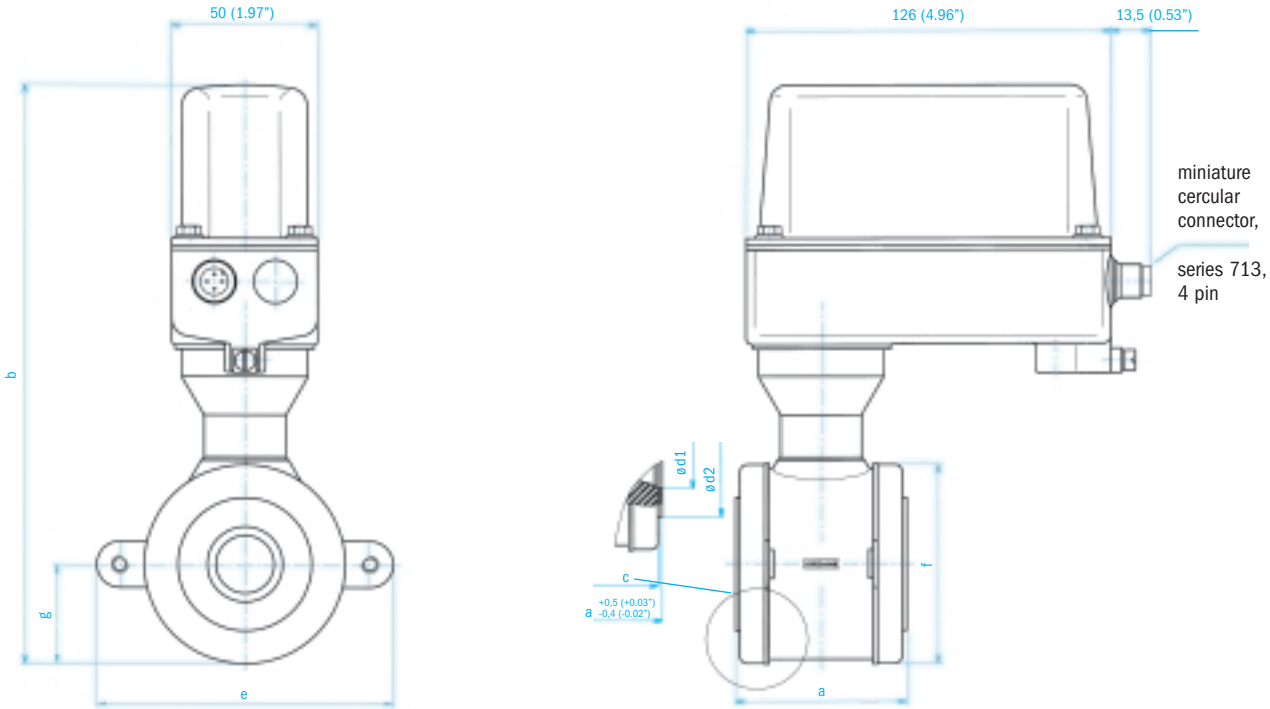


Meter size		Dimension ø d_1		Weight	
DN	inches	mm	(inches)	kg	(lb)
2.5	1/10	6	(0.24)	1.6	(3.6)
4	1/8	7	(0.28)	1.6	(3.6)
6	1/4	9	(0.35)	1.6	(3.6)
10	3/8	12	(0.47)	1.6	(3.6)
15	1/2	14.3	(0.56)	1.6	(3.6)

Dimensions and weights

DN 25 – 40 / 1" – 1½"

Dimension in mm (inches)



Meter size		Dimension in mm (inches)												Weight	
DN	inches	a		b		c		e		f		g		kg	lb
25	1"	58	(2.28)	200	(7.87)	55	(2.17)	102	(4.02)	68	(2.68)	34	(1.34)	1.6	(3.6)
40	1½"	83	(3.27)	215	(8.46)	80	(3.15)	117	(4.61)	83	(3.27)	42	(1.65)	2.3	(5.1)

Electrical connection

To ensure correct functioning of your flowmeter, please take note of the following.

- **Overvoltage class:** in conformity with VDE 0120 and IEC 664, the integral flowmeters are designed for overvoltage category III in the supply circuits and overvoltage category II In the output circuits.
- **Safety isolation:** the integral flowmeters need to be fitted with an Isolating facility.
- Electrical connection and repairs may only be carried out by specialists.
- Protect flowmeters against direct radiant heat (e.g. hot product tanks), insulate if necessary.
- Do not expose flowmeters to intense vibration; if necessary, support the pipeline on both sides of the flowmeter. Level of vibration according to IEC 068-2-34; below 2.2 g in the 20 - 150 Hz frequency range.
- Power supply (voltage) 24 V DC ± 25 %.
- For measurement reasons, connect the FE functional ground of the power supply to the remote U-clamp terminal on the signal converter housing.
- Forfunctional extra-low voltage of 24 V DC, protective separation (PELV) must be ensured (VDE 0100 / VDE 0106 and IEC 364 / IEC 536 or equivalent national regulations).

BATCHFLUX

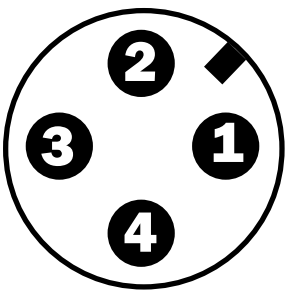
Standard version	4-pin connector M12×1 for power supply 24 V DC and passive pulse output
Option 1	4-pin connector M12×1 for power supply 24 V DC and active pulse and status outputs, switch to ground of the supply power
Option 2	same as Option 1, both outputs switch to +24 V DC of the power supply

Pin	Standard	Option 1	Option 2
1	+ 24 V	+ 24 V	+ 24 V
2	pulse output	status output (to ground)	status output (to +24 V)
3	pulse output ⊥	pulses output (to ground)	pulse output (to +24 V)
4	ground	ground	ground

BATCHCONTROL

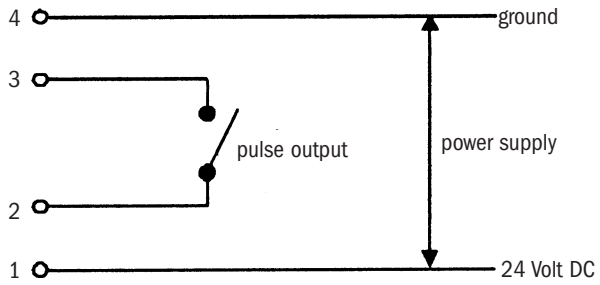
Pin	Connector X1	Connector X2
1	1st switching output	Profibus - B -
2	2nd switching output	Profibus - A -
3	+24 V	control input
4	ground	3rd switching output

Pin assignment
(customer-specific arrangement possible)

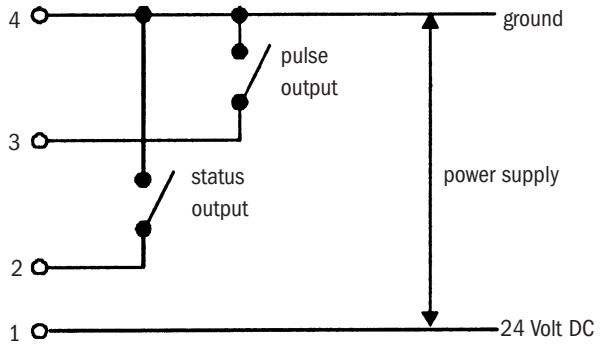


Connection diagrams BATCHFLUX

Standard



Option 1



Option 2