MASS-STREAM

D-6411 Direct Thermal Mass Flow Controller for Gases, IP65 protected





## Mechanical specs

Pressure rating (PN)	20
Ingress protection	IP65
Material wetted parts	Aluminum EN AW-6082-T6 or stainless steel SS316, elastomer seals
Sealing material	standard: FKM/Viton® options: EPDM, FFKM/Kalrez®, FDA and USP Class VI approved compounds
Plunger material	standard: FFKM with PI foil; options: EPDM with PI foil, FDA and USP Class VI approved EPDM
Process connections	1/4" BSPP female tread (ISO1179-1); compression type or face seal (VCR/VCO) couplings
Weight	Aluminum: 1.1 kg; Stainless steel: 1.6 kg

## **Electrical properties**

Power supply	+1524 Vdc ± 10 %
Power consumption	3.5 W typical at 24 V for fieldbus: add + 0.9 W for display: add + 0.5 W
Analog output	05 (10) Vdc or 0 (4)20 mA (sourcing)
Analog setpoint	05 (10) Vdc or 0 (4)20 mA (sinking)
Digital communication	standard: RS232 options: CANopen®, DeviceNet™, EtherCAT®, PROFIBUS DP, PROFINET, Modbus (RTU, ASCII or TCP/IP), EtherNet/IP, POWERLINK or FLOW-BUS

## **Electrical interfaces**

Po	wer	(mai	n co	nneo	tor)					8-pi	n DII	N (m	ale)					
Fu	nctio	on (n	nain	conn	ecto	r)				Ana	log,	RS23	2, R	5485				
PF	OFI	BUS	DP							8-pi	n M1	2B (1	ema	le)				
CA	Nop	en /	Devi	ceNe	et					5-pi	n M1	.2A (r	nale	)				
Mo	odbu	s RT	J/AS	CII/F	LOW	-BUS	5			5-pi	n M1	.2A (r	nale	)				
	odbu ROFII						ther	CAT	₽/	2x 4	l pin	M12	D (fe	male	)			

Technical specifications
Measurement & control

Type of media	almost all gases and gas-mixes, compatible with chosen materials
Flow range	min. 10200 mln/min max. 0.12 ln/min
Accuracy	±1.0% Rd plus ±0.5% FS
Repeatability	< ±0.2% FS
Turndown ratio	1:20
Multi fluid capability	up to 8 calibration curves
Settling time (in control, typical)	< 2 sec.
Control stability	< 0.2% FS typical
Response time (sensor)	approx. 0.3 sec.
Operating temperature	0+50°C
Temperature sensitivity	±0.1% Rd/°C (Air)
Leak integrity, outboard	< 2 x 10 <sup>-8</sup> mbar l/s He
Pressure sensitivity	±0.3% Rd / bar typical (Air)
Max. Kv-value	6.6 x 10 <sup>-2</sup>
Mounting	at 90° deviation from horizontal max. error 0.2% at 1 bar typical N2
Warm-up time	30 minutes
Storage/transport conditions	0+50°C, max. 95% RH (non-condensing)

## Approvals

Ma	arkin	g				CE											

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