MASS-STREAM

# D-6481/003AI

Direct Thermal Mass Flow Controller for Gases, IP65 protected





### Mechanical specs

Pressure rating (PN)	20
Ingress protection	IP65
Material wetted parts	Stainless steel SS 316
Sealing material	standard: FKM/Viton <sup>®</sup> ; options: EPDM, FFKM/Kalrez <sup>®</sup> , FDA and USP Class VI approved compounds
Process connections	G1" inlet, G1/2" outlet (ISO1179-1 cavity) / compression type couplings
Min. ΔP	2 bar(d)
Max. $\Delta P$	20 bar(d)
Weight	7.0 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

Function (main connector)   Analog, RS232, RS485     PROFIBUS DP   8-pin M12B (female)     CANopen / DeviceNet   5-pin M12A (male)     Modbus RTU/ASCII/FLOW-BUS   5-pin M12A (male)     Modbus TCP / EtherNet/IP / EtherCAT*/   2x 4 pin M12D (female)     PROFINET / POWERLINK																					
CANopen / DeviceNet 5-pin M12A (male)   Modbus RTU/ASCII/FLOW-BUS 5-pin M12A (male)   Modbus TCP / EtherNet/IP / EtherCAT*/ 2x 4 pin M12D (female)						485	2, RS	S232	og, R	Anal					r)	ecto	onn	nain d	n (m	nctic	Fui
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## **Technical specifications**

#### Measurement & control

Type of media	almost all gases and gas-mixes, compatible with chosen materials
Flow range	min. 10500 l <sub>n</sub> /min
	max. 1005000 l <sub>n</sub> /min
Accuracy	±1.0% Rd plus ±0.5% FS
Repeatability	< ±0.2% FS
Turndown ratio	1:50
Multi fluid capability	up to 8 calibration curves
Settling time (in control, typical)	< 5 sec.
Control stability	< 0.2% FS typical
Response time (sensor)	approx. 0.9 seconds
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	0.15 1.5
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

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