

MASS-STREAM

# D-6471/004BI

Direct Thermal Mass Flow Controller for Gases, IP65  
protected

## Technical specifications

### Measurement & control

Type of media	almost all gases and gas-mixes, compatible with chosen materials
Flow range	min. 2...100 l <sub>n</sub> /min max. 20...1000 l <sub>n</sub> /min
Accuracy	±1.0% Rd plus ±0.5% FS (FS relates to the instrument max FS)
Repeatability	< ±0.2% FS
Turndown ratio	up to 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 < 2 x 10 <sup>-6</sup> mbar l/s He (D-6471/DR3)
Pressure sensitivity	< ±0.3% Rd / bar typical (Air)
Max. Kv-value	0.1 ... 1
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

Marking	CE, RoHS, WEEE, REACH
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### Mechanical specs

Pressure rating (PN) - in barg	10
Ingress protection	IP65
Material wetted parts	Aluminum EN AW-6082-T6 or stainless steel SS316, elastomer seals
Sealing material	standard: FKM/Viton®; option: EPDM
Process connections	G1/2" (ISO1179-1 cavity) / compression type or face seal (VCR/VCO) couplings
Max. ΔP	5 bar(d)
Weight	Aluminum: 4.4 kg; Stainless steel: 6.9 kg

### Electrical properties

Power supply	+15...24 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	0...5 (10) Vdc or 0 (4)...20 mA (sourcing)
Analog setpoint	0...5 (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

Power (main connector)	8-pin DIN (male)
Function (instrument 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® / PROFINET / POWERLINK	2x 4 pin M12D (female)