EN

FLOW-SMS
Gas flow

FS-200CV

Surface Mount Sub-System Mass Flow Controller



Bronkhorst®

Technical specifications

Measurement & control

Type of media	Gases
Flow range	min. 0.06…3 ml_n/min max. 0.18…9 ml_n/min
Accuracy	±1% FS
Repeatability	<±0.5% Rd
Turndown ratio	up to 1:187.5 (1:50 in analog mode)
Multi fluid capability	storage of max. 8 calibration curves
Settling time (in control, typical)	2…4 sec
Control stability	< ± 0.1% FS (typical for 1 ln/min N2)
Operating temperature	-10…+50°C
Temperature sensitivity	zero: < 0.05% FS/°C; span: < 0.05% Rd/°C
Leak integrity, outboard	Instruments < 2 x 10^{-9} mbar l/s He (vacuum tested) Total assembly < 10^{-6} mbar l/s He (leak tested at 15 barg against atmosphere)
Pressure sensitivity	0.1% Rd/bar typical N2; 0.01% Rd/bar typical H2
Max. Kv-value	6.6 x 10^{-2}
Leak-by through closed valve	< 10^{-4} mbar.l/s He
Mounting	max. error at 90° off horizontal 0.2% at 1 bar, typical N2
Warm-up time	30 min. for optimum accuracy
Storage/transport conditions	0...+50°C, max. 95% RH (non-condensing)

Approvals

Marking	CE, RoHS, WEEE, REACH

Mechanical specs

Pressure rating (PN) - in barg	10
Ingress protection	IP40
Material wetted parts	stainless steel 316L or comparable
Sealing material	standard: FKM/Viton®; options: EPDM, FFKM/Kalrez®, FDA and USP Class VI approved compounds
Plunger material	standard: FFKM with PI (polyimide) foil; options: EPDM with PI foil, FDA and USP Class VI approved EPDM, FDA and USP Class VI approved FFKM/Kalrez®
Weight	0.6 kg

Electrical properties

Power supply	+15…24 Vdc
Power consumption	3.5 W typical at 24 V for fieldbus: add 0.9 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, FLOW-BUS

Electrical interfaces

Power (main connector)	9-pin D-sub (male)
Function (instrument connector)	Analog, RS232
PROFIBUS DP	9-pin D-sub (female)
CANopen / DeviceNet	5-pin M12A (male)
Modbus RTU/ASCII/FLOW-BUS	RJ45
Modbus TCP / EtherNet/IP / EtherCAT®/ PROFINET / POWERLINK	2x RJ45

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