

# FF-AM20

Pre-configured product, available with ModBus/FLOW-BUS or EtherNet based communication



## Technical specifications

### Measurement & control

Type of media	Gases
Flow range	0...200 l/min
Accuracy	±0.8% Rd plus ±0.2% FS (N <sub>2</sub> /Air/O <sub>2</sub> )
Repeatability	< ±0.2% Rd
Turndown ratio	1:500
Multi fluid capability	embedded gas data for 22 unique gases plus any mixture of these gases
Pre-installed gases	C <sub>2</sub> H <sub>2</sub> , Air, C <sub>3</sub> H <sub>4</sub> , Ar, CO <sub>2</sub> , CO, C <sub>3</sub> H <sub>6</sub> , D <sub>2</sub> , C <sub>2</sub> H <sub>6</sub> , C <sub>2</sub> H <sub>4</sub> , He, H <sub>2</sub> , Kr, CH <sub>4</sub> , Ne, N <sub>2</sub> , N <sub>2</sub> O, O <sub>2</sub> , C <sub>3</sub> F <sub>8</sub> , C <sub>3</sub> H <sub>6</sub> , C <sub>3</sub> H <sub>8</sub> , C <sub>3</sub> H <sub>4</sub>
Settling time (in control, typical)	<1 sec
Control stability	< ± 0.1% FS (typical for 1 l/min N <sub>2</sub> )
Response time (sensor)	<30 ms
Operating temperature	0...+50 °C (32 - 122°F)
Temperature sensitivity	Flow sensor: zero 0.015% FS/°C; span 0.05% Rd/°C; Pressure sensors: zero 0.16 mbar/°C; span 0.05% Rd/°C
Leak integrity, outboard	tested < 2 × 10 <sup>-9</sup> mbar l/s He
Long term stability	<0.5% FS over period of 3 years, then <0.2% FS per year
Pressure sensitivity	standard: < 0.15% Rd/bar typical N <sub>2</sub> ; with pressure correction: typical factor 5 improved
Pressure range sensor	0...17 bar(a)
Leak-by through closed valve	typical < 0.1% FS Note: a minimum ΔP of 1 bard is required to ensure max. 0.1% FS leak-by rate.
Mounting	any position, attitude sensitivity negligible
Warm-up time	30 min
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	16
Ingress protection	IP40
Surface roughness wetted parts	<1.6 μm Ra (<0.8 μm Ra for stainless steel body)
Material wetted parts	aluminium, stainless steel, silicon nitride, epoxy, aluminiumoxide, glas, FKM
Sealing material	FKM 51415
Plunger material	FFKM with PI (polyimide) foil
Process connections	1/2"BSPP female thread (ISO1179-1); compression type, push-in or face seal (VCR/VCO) couplings to be ordered seperately
Max. ΔP	16 bar(d)
Weight	626 g; add 50 g for Ethernet interface

### Electrical properties

Power supply	+24 Vdc ± 10%
Power consumption	2.5 Watt (typical, in control); add 0.9 Watt for EtherNet communication
Digital communication	Modbus-RTU, Modbus-ASCII, FLOW-BUS, EtherCAT®, EtherNet/IP, Modbus-TCP, POWERLINK, PROFINET

### Electrical interfaces

Service interface	USB-C, Bluetooth
Power (main connector)	9-pin D-sub (male)
Function (instrument connector)	RS485
Modbus RTU/ASCII/FLOW-BUS	9-pin D-sub (male)
Modbus TCP / EtherNet/IP / EtherCAT® / PROFINET / POWERLINK	2x RJ45