

# Technical Data for CODA KF-Series Mass Flow Pump Controllers

**40 GRAMS PER HOUR** full scale to **300 KILOGRAMS PER HOUR** full scale

Standard specifications. Consult Alicat for available options.

SENSOR AND CONTROL PERFORMANCE	
Mass flow accuracy <sup>1</sup>	Liquid: $\pm 0.6\%$ of reading or $\pm 0.2\%$ of full scale, whichever is greater Gas: $\pm 1\%$ of reading or $\pm 0.2\%$ of full scale, whichever is greater Liquid with high-accuracy option: $\pm 0.2\%$ of reading or $\pm 0.05\%$ of full scale, whichever is greater Gas with high-accuracy option: $\pm 0.5\%$ of reading or $\pm 0.05\%$ of full scale, whichever is greater
Flow repeatability ( $2\sigma$ )	$\pm 0.1\%$ of full scale High-accuracy option: $\pm 0.05\%$ of reading or $\pm 0.025\%$ of full scale, whichever is greater
Steady state control range	5 – 100% of full scale High-accuracy option: 2 – 100% of full scale
Temperature sensitivity	Mass flow zero shift: $\pm 0.02\%$ of full scale per °C from tare temperature <sup>2</sup> Mass flow span shift: $\pm 0.01\%$ of reading per °C from 25° C High-accuracy option mass flow zero shift: $\pm 0.01\%$ of full scale per °C from tare temperature <sup>2</sup> High-accuracy option mass flow span shift: $\pm 0.005\%$ of reading per °C from 25° C
Operating temperature range	–35 – 70°C
Ambient temperature range	0 – 60°C Consult Alicat for additional options
Typical control response time	40 – 10,000 g/h: < 140 ms (T63), pump dependent, user adjustable 30,000 – 300,000 g/h: < 200 ms (T63), pump dependent, user adjustable
Typical indication response time	40 – 10,000 g/h: < 40 ms (T63) 30,000 – 300,000 g/h: < 60 ms (T63)
Typical warm-up time	15 minutes
Density accuracy <sup>3</sup>	$\pm 5$ kg/m <sup>3</sup>
Density range	100 – 2,000 kg/m <sup>3</sup> measureable
Viscosity range	0 – 200 cP
Zero stability	$\pm 0.2\%$ of full scale (included in mass flow accuracy) High-accuracy option: $\pm 0.05\%$ of full scale (included in mass flow accuracy)

<sup>1</sup> Stated accuracy is after tare, under equilibrium conditions, includes repeatability and linearity.

<sup>2</sup> Density reading and density accuracy are independent of the mass flow reading and mass flow accuracy.

<sup>3</sup> Mass flow zero shift for 40 g/h is  $\pm 0.025\%$  of full scale per °C from tare temperature.

MECHANICAL	
Wetted materials	316L stainless steel and FKM; nickel alloy and FFKM optional. Consult Alicat for additional wetted materials options.
Ingress protection	IP40 or IP67
Mounting orientation sensitivity	None
Mounting holes	2× M5-0.8 threaded, $\nabla 0.39"$ [10 mm]

POWER AND COMMUNICATION	
Digital input and output options	ASCII and Modbus RTU, over RS-232 or RS-485, EtherCAT, EtherNet/IP, PROFINET
Digital update rate	50 Hz at 19200 baud
Analog input and output options	0 – 5 Vdc, 0 – 10 Vdc, 4 – 20 mA
Analog update rate	50 Hz
Interactive display	Monochrome LCD display with integrated touchpad; simultaneously displays mass flow, volumetric flow, density, and temperature. Also available without display.
Electrical connection options	USB-C and DB-15, M12, RJ45 (industrial protocol models)
Power requirements <sup>4</sup>	Powered through DB-15, M12, or power jack (industrial protocol models) 40 – 10,000 g/h: 9.7 W, 9 – 30 Vdc 30,000 – 300,000 g/h: 11.7 W, 9 – 30 Vdc

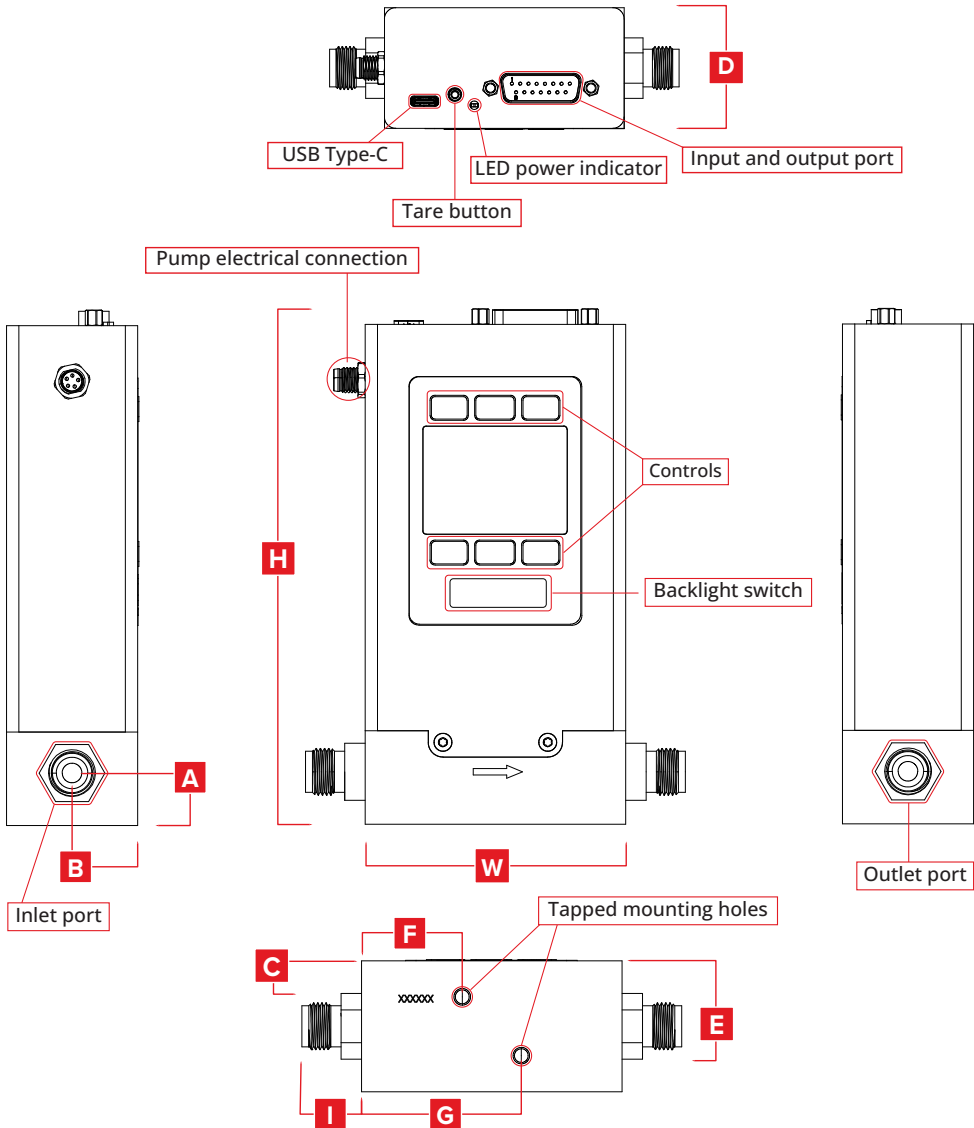
<sup>4</sup> Subtract 1.7W for devices with no integrated display.

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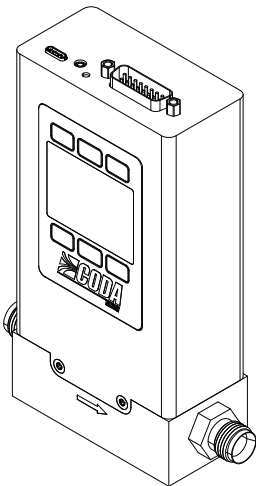
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RANGE-SPECIFIC TECHNICAL DATA			
Full scale flow (g/h)	Recommended inlet filter	Nominal pressure drop (H <sub>2</sub> O)	Proof pressure (PSIA) <sup>5</sup>
40	2 µm	≥ 6 PSID	1500
100 – 1000	20 µm	≥ 15 PSID	1500
3000 – 10,000	40 µm	≥ 15 PSID	1500
30,000 – 100,000	120 µm	≥ 15 PSID	1500

5 6000 PSIA proof option available.



Representative Example



DIMENSIONS										WEIGHT
Full scale flow	Width	Depth	Height	A	B	C	E	F	G	
40 – 10,000 g/h	3.54"	1.49"	5.10"	0.49"	0.75"	0.39"	1.10"	1.02"	1.73"	≈ 3.0 lb
	89.8 mm	37.9 mm	129.5 mm	12.5 mm	18.9 mm	10.0 mm	27.9 mm	26.0 mm	44.0 mm	≈ 1.4 kg
30,000 – 300,000 g/h	4.56"	1.58"	6.19"	0.63"	0.79"	0.43"	1.14"	1.21"	1.92"	≈ 4.2 lb
	115.9 mm	40.0 mm	157.3 mm	16.0 mm	20.0 mm	11.0 mm	29.0 mm	30.8 mm	48.7 mm	≈ 1.9 kg