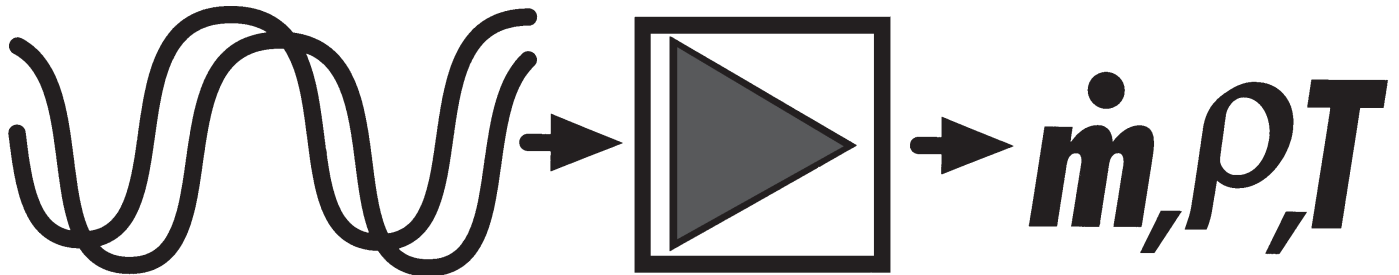


TS-610  
Rev. B  
Mass Flow Computer  
DM2100-XXXXX



## DATAMATE 2100™

### Mass Flow Computer

ISO 9001 Certified Manufacturing Facility

## SPECIFICATIONS

### DESCRIPTION

The DATAMATE 2100™ Mass Flow Computer interfaces with the entire family of Actaris Coriolis mass flowmeter transducers. The DATAMATE is unmatched in terms of user-friendliness and its flexibility to interface with your control system. You can program the four standard alarms and up to four outputs (pulse or 4–20 mA) for any of the measured variables.

The microprocessor-based DATAMATE is configurable in the field. You can change the units of measure, output ranges and alarms by simply pressing a few keys on the front panel. The DATAMATE can even function as a stand-alone two-stage batch controller. Versatility and intelligence make the DATAMATE the most cost-effective mass flow computer, complementing the accuracy of the Actaris transducers.

### DESIGN FEATURES

The DATAMATE uses three signal processing circuits working together to provide superior measurement of the Coriolis mass flow and density signals. Two of the circuits control the transducer tube amplitude, adjusting to the dynamics of your process conditions. This enables the third circuit to track accurately 100% of the Coriolis and density signals and reject signals generated by external vibration and fluid hydraulics.

The DATAMATE detects only the Coriolis and density signals, resulting in more accurate and reliable measurement data than is provided by competitive techniques. The DATAMATE's signal processing capabilities, combined with the meter's sensitivity to Coriolis force, translate into a higher level of reliability and accuracy over a wide 100:1 turndown.



- Measures mass flow rate and total mass, density, temperature, standard and actual volumetric flow rate and total volume, percent solids (concentration) and solids mass flow rate and total
- Preset (two-stage) batch control functions
- RS-422 communications
- Four user-programmable alarms with high and low output for each
- Diagnostic self-check capability
- Up to four optional user-programmable outputs (pulse or 4–20 mA)
- Reliability and accuracy with 100:1 rangeability

## DATAMATE OPERATING SPECIFICATIONS

Housing Standard Temperature limitations <sup>1</sup> Housing LCD display Power supply  Max length of signal cable between the transducer and DATAMATE	Fiberglass IP 66, NEMA 4X [5.4 kg (12 lb)]  –40 to 65°C (–40 to 150°F) –20 to 65°C (–4 to 150°F) 110/240 VAC, 50–60 Hz 20–40 VA depending on number of analog outputs, batching relays, etc. 150m (500 ft) Belden 89892, 8 conductor, 4 shielded twisted-pairs
Hazardous Area Approvals (Optional)	See Hazardous Area Approvals Table (Page 3)
Operator interface	Front panel keypad RS-422 serial communications
Configuration (via keypad or RS-422)	Display format, engineering units, system constants, scaling factors, output ranges, alarm set points, serial communication parameters, batch presets
Function commands	Display, interrogate, run, program, zero, calibrate, reset totals, clear alarms, initiate measurement
Local display  Flow range Data retention Fault diagnostics High and low alarms  Serial communications	2-line, 20-character alphanumeric, variable contrast LCD; Displays mass and volume flow rate and totals, density, temperature, percent solids and solids flow rate Complements the mass flow meter Battery-backed RAM for 10 years in absence of power Error message display and/or alarm outputs Four user-configured, open collector, 50 VDC and 100 mA maximum; programmable for all variables (“Local display,” above), plus batch total and diagnostics RS-422 — selectable: baud rate; 1200, 2400, 4800, 9600 parity; odd, even, or none
Performance Specifications	Mass Accuracy: $\pm 0.15\%$ of rate $\pm$ zero stability Mass Repeatability: $\pm 0.10\%$ of rate (M400: $\pm 0.05\%$ ) Density Accuracy: per transducer specifications Temperature Accuracy: $\pm 0.56^\circ\text{C}$ ( $\pm 1^\circ\text{F}$ )
Mass flow rate Mass flow total Density Temperature Percent solids current Volume flow rate Standard volume flow Two-stage batch control	g, kg, oz, lb in time units of seconds, minutes or hours g, kg, oz, lb g/cc $^\circ\text{C}$ , $^\circ\text{F}$ % Liters, US gal, Imp. gal, in time units of seconds, minutes or hours Liters, US gal, Imp. gal, in time units of seconds, minutes or hours Standard: Dual SPST rated 10 A at 40 VDC resistive or 7 A at 240 VAC inductive FM: Dual SPST relays rated 200 mA at 24 VDC resistive or 13.88 mA at 120 VAC resistive — NOT APPROVED FOR INDUCTIVE LOADS CSA: Dual SPST relays rated 200 mA at 24 VDC resistive or 12.8 mA at 120 VAC resistive — NOT APPROVED FOR INDUCTIVE LOADS Remote Start/Stop inputs: Independent momentary contact
Manufacturer Instrument model number	Actaris-Neptune Liquid Measurement Division DM2100-XXXXXX (refer to Order Information, page 3)
Actaris-Neptune Liquid Measurement Division pursues a policy of continuous development and product improvement. The specifications in this document may therefore be changed without notice.	

<sup>1</sup> Ambient temperature limits for hazardous area approved units are as follows:

FM: –20 to –65°C (Datamate 2100)

CSA: –20 to –65°C (Datamate 2100)

# DATAMATE 2100 Mass Flow Computer Ordering Information

DM2100	X	X	X	X	X	Description
						<b>SENSOR WETTED MATERIALS</b>
	2					HASTELLOY® C-22 (m012 to m200)
	3					HASTELLOY® C-22 (M400)
	4					W&M <sup>2</sup> HASTELLOY® C-22 (m012 to m200)
	5					W&M <sup>2</sup> HASTELLOY® C-22 (m400)
	8					316L Stainless Steel (m012 to m200)
	9					316L Stainless Steel (m300, m400)
	A					W&M <sup>2</sup> 316L Stainless Steel (m025 to m200)
	B					W&M <sup>2</sup> 316L Stainless Steel (m300, m400)
		0				<b>ELECTRICAL CLASSIFICATION</b> (refer to the product TS for specific ratings) General Purpose
		1				FM approved
		2				CSA approved
			0			<b>ANALOG OUTPUTS 4-20mA<sup>1</sup></b> No analog outputs
			1			One output
			2			Two outputs
			3			Three outputs
			4			Four outputs
				0		<b>FREQUENCY PULSE OUTPUTS<sup>1</sup></b> No pulse outputs
				1		One output
				2		Two outputs
				3		Three outputs
				4		Four outputs
					0	<b>TOTALIZER PULSE OUTPUTS<sup>1,2</sup></b> No output
					1	One output
					2	Two outputs
					3	Three outputs
					4	Four outputs

**MATERIALS OF CONSTRUCTION**  
Housing: NEMA 4X fiberglass  
Shipping wt.: 5.4 kg (12 lb)

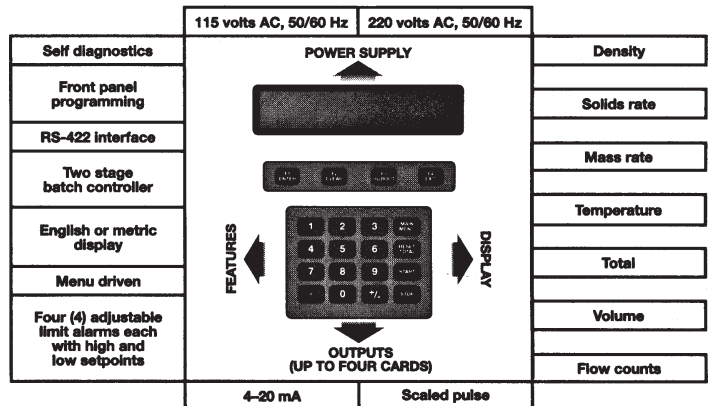
- Note:** 1. Maximum total of four (4) outputs in the Datamate 2100 (i.e., DM2100-81230 is not possible).  
2. For W&M applications requiring a pulse output, order the proper number of totalizer pulse outputs.

## AGENCY APPROVALS

Agency	Components	Method	Class	Div./ Zone	Group	Temp. Class	Ambient Temp.
FM	Transducer	Intrinsic Safety	I,II,III	1, 2	C,D,E,F,G	T5*	2
		Non-incendive	I	2	A,B,C,D	T5*	2
		Special Protection	II,III	2	F,G	T5	2
	Datamate	Non-incendive	I	2	A,B,C,D	T5	4
CSA	Transducer	Intrinsic Safety	I,II,III	1	C,D,E,F,G		2
	Datamate	Non-incendive	I	2	C,D	T4A	4

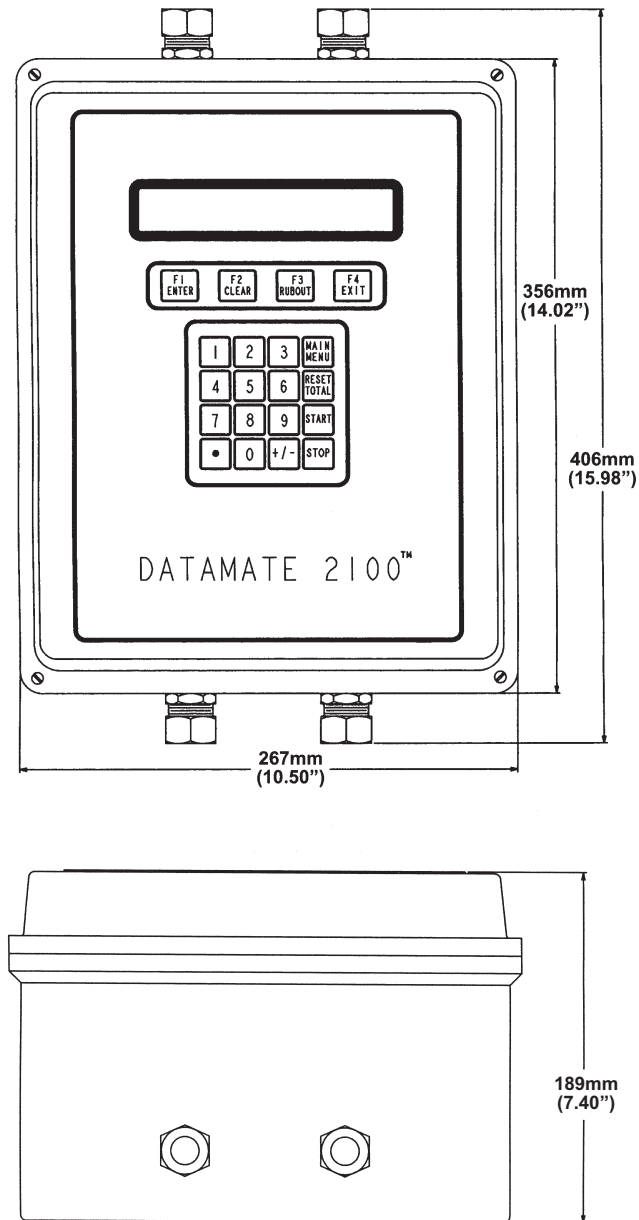
Units approved for hazardous areas are limited to the ambient temperatures listed below:  
<sup>2</sup> -20°C to 40°C (-4 to 104°F)      \*M300 Rated at T6  
<sup>4</sup> -20°C to 65°C (-4 to 149°F)

## DYNAMIC MASS ANALYSIS SYSTEM



# DIMENSIONAL DATA, mm (in.)

## Standard Enclosure



**U.S.A./International**  
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