



OVAL Coriolis Flowmeter Rack-mount Transmitter MODEL MT9431

GENERAL SPECIFICATION
GS.No.GEJ514E-4

■ GENERAL

Model MT9431 transmitter is an intelligent electronic instrument built around a microprocessor, capable of making mass flow measurement of a wide variety of fluids with a high degree of precision.

Compactly built on a rackmount chassis, it is intended for transmitter maintenance purposes of existing Oval Coriolis flowmeters in the field.

Selectable outputs include flowrate (mass and volume), density, and temperature in the analog form besides flowrate pulse output, output to the density computer, status output, and Bell 202 communication output.



■ FEATURES

1. Outstanding accuracy thanks to digital signal processing in the microprocessor.
2. Density output (4-20mA DC) available (option)
3. Volume flow output (frequency and analog) available (option).
4. Compactly built - 200mm deep.
5. Parameter changes, monitoring process variables, and error detection are simple when used in combination with Smart Communication Unit EL2310.
6. Zeroing can be performed by pushing the transmitter button. Auto zeroing through communication or status input from the EL2310 is also available.

■ GENERAL SPECIFICATIONS

Item	Description	
Companion Flowmeter	OVAL Coriolis flowmeter (Type "D" sensors manufactured before Oct. 31, 2002 and super high pressure Coriolis flowmeters)	
Rangeability	Flowrate	Per general performance table for flow sensor
	Temperature	Per general performance table for flow sensor (Transmitter measuring range -200 to +200°C)
Power Source	85 to 264V AC 50/60Hz or 20 to 30VDC	
Power Consumption	25VA max. or 10W max.	
Ambient Temperature	-10 to +50°C	
Transmission Length	200 meters max. (with 7-conductor interconnect cable)	
Ex. Construction	Intrinsically safe explosionproof [Ex ib] IIC	
Installation	Rack mounting	
Finish	Munsell N6.0 (grey)	
Weight	1.8 kilograms approx.	
Communication Interface	Bell 202 (HART compatible) Note 2	
Zeroing	Communication, zeroing button, or status input	
Pulse Output	Open collector output (30V, 50mA DC max.) or Voltage pulse "0": 0V, "1": 15V Output impedance 2.2kΩ FS 0.1 ~ 10000Hz	
Analog Output	ANA 1	4 to 20mA DC Max. load 600Ω 2 outputs from instantaneous flowrate (mass or volume), temperature, or density Note 4 Added damping: 0 to 200 sec.
	ANA 2	
Status Input	Contact-closure input (Form "a" contact) Close: 200Ω max. Open: 100kΩ min. Remote zero or (Optional feature) OFF in default setting	
Status Output	Open collector output Normal: ON Error: OFF (30V DC, 50mA max.) Select one from error (default), flow direction, auto zero in progress, or Hi/Low alarm.	
Drive Voltage Output	DC voltage output (test output)	
Output to Density Computer	Natural frequency output: EL4001 series	
Self diagnostics	Low flow cutoff: Cuts off flow signal below 0.3% of preset FS.	
	Slug flow detection: Flow signal output between 0.3 to 2g/mL (option)	
	Output upon detection of an error: Select one from downscale (default), upscale, zero, and hold.	
Flowrate accuracy	Factory calibration accuracy	Per general performance table of sensor (Depends on existing transmitter.)
	Reproducibility	Per general performance table of sensor (Depends on existing transmitter.)
Density	Measurable range	0.3 to 2.0g/mL
Analog accuracy	Accuracy ±0.1% of full scale	

- NOTES: 1. Cannot test insulation resistance and dielectric breakdown voltage.
 2. Signal for Bell 202 is superimposed over analog output 1. (Smart Communication Unit: LinkTop connected)
 3. Factors, such as rangeability and accuracy, vary with the sensor used. Consult the factory for details.
 4. Volume and density outputs are not provided when combined with a super high pressure Coriolis flowmeter.

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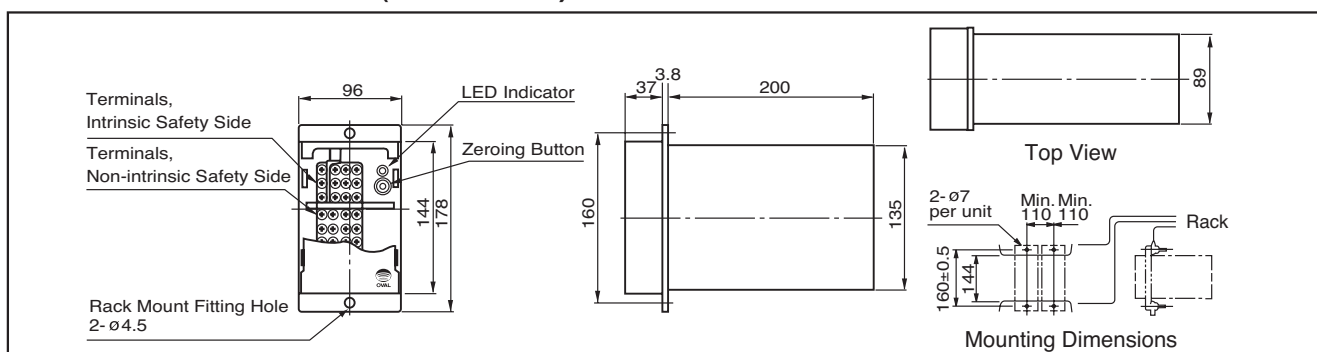
■ TERMINAL IDENTIFICATION

MT9431						
INTRINSICALLY SAFE SIDE						
1 BRN	DRIVE SIG.	3 ORN	TEMP. B	5 GRN	L.P.O (+)	8 GRA R.P.O (-)
2 RED	DRIVE OV	4 YEL	SHIELD TEMP.b	6 BLU	R.P.O (+)	9 WHT L.P.O (-)
E	EARTH	0 BLK	SHIELD	7 VIO	TEMP. A	10
NON INTRINSICALLY SAFE SIDE						
1	PERIOD	5	+ ANALOG 1	9	+ ANALOG 2	13 + STIN
2	N.C.	6	-	10	-	14 -
3	COM.	7	+ PULSE	11	+VF	15
4	D.GAIN	8	-	12	CONTROL	16
POWER SUPPLY						
L1 (+)		GND			L2 (-)	

tem	Terminal No.	Label	Description	Cable color to sensor body	
Intrinsically safe side	1	DRIVE SIG.	Flow tube drive output	BRN	
	2	DRIVE OV		RED	
	E	EARTH	Sensor combined	Grade A or Grade D grounding *	
	3	TEMP B		Temperature input	ORG
	4	SHIELD TEMP.b		Common	YEL
	0	SHIELD		Shield	BLK
	5	L.P.O (+)		Left pos. pickoff sensor input(+)	GRN
	6	R.P.O (+)		Right pos pickoff sensor input(+)	BLU
	7	TEMP A		Temperature input A	PUR
	8	R.P.O (-)			
9	L.P.O (-)				
10					
Non-intrinsically safe side	1	PERIOD	Tube frequency output		
	2	N.C.			
	3	COM.	Common		
	4	D.GAIN	Drive voltage		
	5	+ ANALOG OUT 1	Analog output 1		
	6	-			
	7	+ PULSE	Pulse output: Voltage pulse or open collector output		
	8	-			
	9	+ ANALOG OUT 2	Analog output 2		
	10	-			
	11	+ STATUS OUT	Error output, flow direction, zeroing output, Hi/Low alarm output		
	12	-			
	13	+ STATUS IN	Remote zero input (Form "a" contact input) or (Optional feature) OFF in default setting		
	14	-			
	15				
16					
Power	L1	+ POWER	Power source		
	L2	- POWER			
	G	GND	Connected to the shield wire of output wiring		

*: Explosionproof model requires Grade "A" grounding; nonexplosionproof model requires Grade "D" grounding.

■ OUTLINE DIMENSIONS (units in mm)



■ MODEL CODE NUMBER

Item	Code No.						Supplemental Code							Description
	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫	⑬	
Model	M	T	9	4	3	1	-							Rack-mount Transmitter
Power Source							6							20 to 30VDC
							7							85 to 250VDC
Analog Output							M	M						2 mass flow outputs (same for single output)
							M	D						Mass flow + density
							M	T						Mass flow + temperature
							M	V						Mass flow + volume flow
							D	T						Density + temperature
							V	D						Volume flow + density
Pulse Output							V	T						Volume flow + temperature
							1							Mass flow voltage pulse
							2							Volume flow voltage pulse
							3							Mass flow open collector pulse
Status Output							4							Volume flow open collector pulse
							1							Error output
							2							Flow direction
							3							Auto zero in progress
Explosionproof							4							Hi/Low alarm
							0							Non-explosionproof
							1							TIIS (domestic explosionproof) Temperature Class T3 Note 1
						9								TIIS (domestic explosionproof) Temperature Class T1 Note 2
							B							Always "B"

Note 1: Sensor temperature class when combined with a type "D" sensor.

Note 2: Sensor temperature class when combined with a super high pressure type sensor.

The specification as of December, 2017 is stated in this GS Sheet. Specifications and design are subject to change without notice.

Sales Representative: