



DENSITY COMPUTER FOR MASS FLOWMETER

MODEL : EL4301

GENERAL SPECIFICATION
GS.No.GEL330E-6

■ GENERAL

In comparison with the previously offered instruments (OVAL EL4080 series), substantial reduction in physical geometry, improved functions and ease of operation have been achieved. Included among the improvements in this newly developed instrument are simplified parameter changes and data logging with IC cards along with a large, easy-to-read LCD display.

This instrument receives tube oscillation signal and temperature signal from the OVAL Coriolis flowmeter and, upon calculation, displays the density of process fluid.

It also can display the density corrected for reference temperature and provide an analog output.

■ FEATURES

1. Performs calculation of density corrected for temperature
2. Changing the ranges of density, temperature, pressure, other parameters, of the companion densitometer is simple by keystrokes on the front-panel keypad or by inserting an IC card into the slot.
3. A built-in CPU offers a high degree of performance and accuracy.
4. Variables such as temperature, pressure, and density can be reviewed on command with the front panel keypad, whether or not computation is in progress.
5. A nonvolatile memory (EEPROM) retains all parameters in the event of an ac power failure.
6. Displays the percent concentration of solids content in the slurries and provides its analog output.
7. Produces high and low density alarm outputs (set to desired limits).
8. If an error occurs, its nature is identified as an error message on the display.



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■ GENERAL SPECIFICATIONS (EL4301)

Item				Description		
Input signal	Temp.	Thermal resistance bulb		Pt 100 at 0°C, 3wires system, Rated Current: 2mA		
	Input	Analog		4 to 20mADC or 1 to 5VDC, 10mV/°C or 5mV/°C		
	Density input		Tube period signal (from LH sensor) ±5V square wave			
Output signal	Analog output	Density or concentration compensated (%MASS)		4 to 20mADC (max.Load : 500Ω) or 1 to 5VDC (Output Impedance : 250Ω) Conversion accuracy : ±0.1% of F.S.		
	Alarm output 1	Upper alarm		Open MOS-FET Capacity : 230VAC/340VDC 0.2A		
	Alarm output 2	Lower alarm		with respect to density compensated for temperature		
	Alarm output 3		Open MOS-FET Capacity : 230VAC/340VDC 0.2A			
Display mode				ST Displayer (128 x 128dot) w/Back Light Items:Data, Unit, Error message are displayed at a time (※1) (※2)		
Display items	Density before correction			4 digits under a decimal point (when g/ml is selected.)		
	Density after correction			4 digits under a decimal point (when g/ml is selected.)		
	Temperature			2 digits under a decimal point (when °C is selected.)		
	Density period			1 digits under a decimal point (when μs is selected.)		
	% M A S S			2 digits under a decimal point		
	Annunciation of abnormality			No. of Errors + Error Messages		
Computing Range	Temperature			Pt100 Ω at 0°C	Range : -50 to +200°C	Standard span : 70°C
				4 to 20mADC or 1 to 5VDC	Range : -200 to +200°C	Standard span : 200°C
				10mV/°C	Range : -50 to +150°C	
				5mV/°C	Range : -100 to +200°C	
	Density		0.0000 to 6.0000g/ml			
Computing accuracy	ULTRAmassMKII (CN series)	Density before correction	±0.001 g/ml (factory calibrated accuracy: option)			
		Density after correction	±0.002 g/ml (with temp. input 4 to 20mA DC or 1 to 5V DC)			
			±0.006 g/ml (with temp. input of Pt 100Ω at 0°C, 3-wire) (※3)			
	Temperature			Pt100 Ω at 0°C	±0.3% of SPAN	
				4 to 20mADC or 1 to 5VDC	±0.1% of SPAN	
				10mV/°C		
				5mV/°C		
	Battery for clock IC				Lithium Battery, Life:Approx. 10 years	
Communication (when com. interface is provided.)				Interface: RS485 Multipoint (Up to 16 units can be connected.) Dedicated protocol Baud rate: 4800 bps standard 9600 bps max.		
Transmission cable				Use 3-conductor shielded cable to the resistance thermometer bulb. Loop resist. 5 Ω max. Example: 300 meters max. with 3-conductor 1.25mm² cable; 500 meters with 2.0mm² cable		
Power supply				85 to 264VAC, 50/60Hz, or 20 to 30VDC		
Power consumption				20W Max.		
Ambient Temperature				-10 to +50°C		
Installation				Panel mount type		
Finish				Munsell; NI.5		
Weight				Approx. 2.5kg		

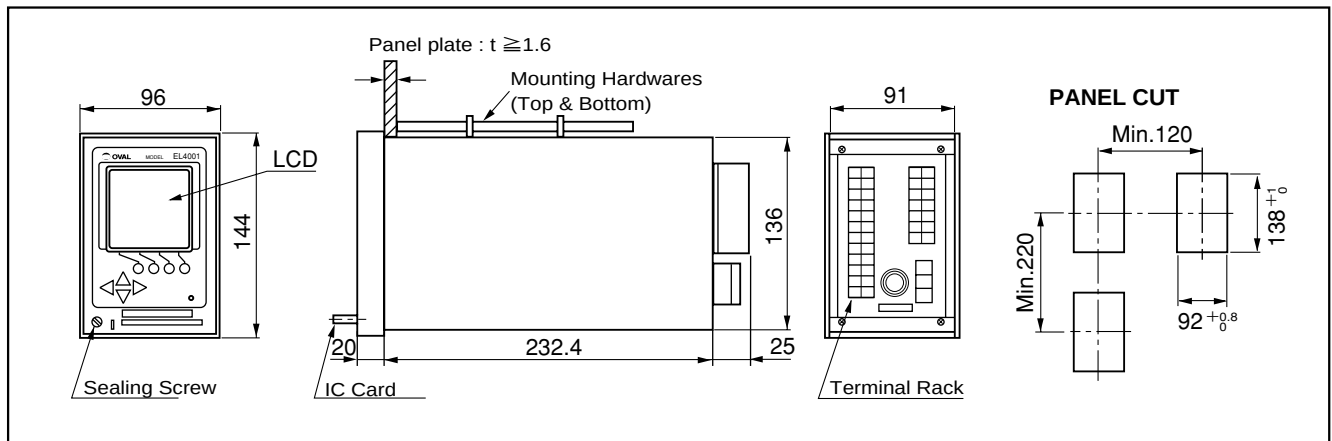
※1 : ST display stands for Super Twisted Nematic display.

※2 : Backlight life (luminance declined to one half its original luminance): 2500h approx.

※3 : Depends on the accuracy of temperature input and density expansion coefficient of the process fluid with respect to density before compensation.

(With respect to the difference between temperature input and reference temperature, the accuracy is shown with constant change of density.)

■ OUTLINE DIMENSIONS (Units in mm)



■ PRODUCT CODE EXPLANATION

Item	Code No.						Supplementary Code						Description			
	①	②	③	④	⑤	⑥	—	⑦	⑧	⑨	⑩	⑪			⑫	
Model	E	L	4	3	0	1	—							Density computer for mass flowmeter		
Power								6						20 to 30VDC		Power Consumption : 20W Max.
								7							85 to 264VAC 50/60Hz	
Temperature Input								0						None		
								1						Pt100 Ω at 0℃		
								2						4 to 20mADC/1 to 5VDC		
								3						5mV/℃ (RFT9739, MT9739 combined)		
								4						10mV/℃ (MT9712 combined)		
								9						Other than above		
Analog output								1						Density after correction		
								2						Concentration (% MASS)		
								9						Other than above		
Sensor tube material								1						SUS316L		
								2						Hastelloy		
Communication Capability								0						No		
								1						Yes		
Finish								1						Munsell N1.5		

■ TERMINAL CONNECTIONS

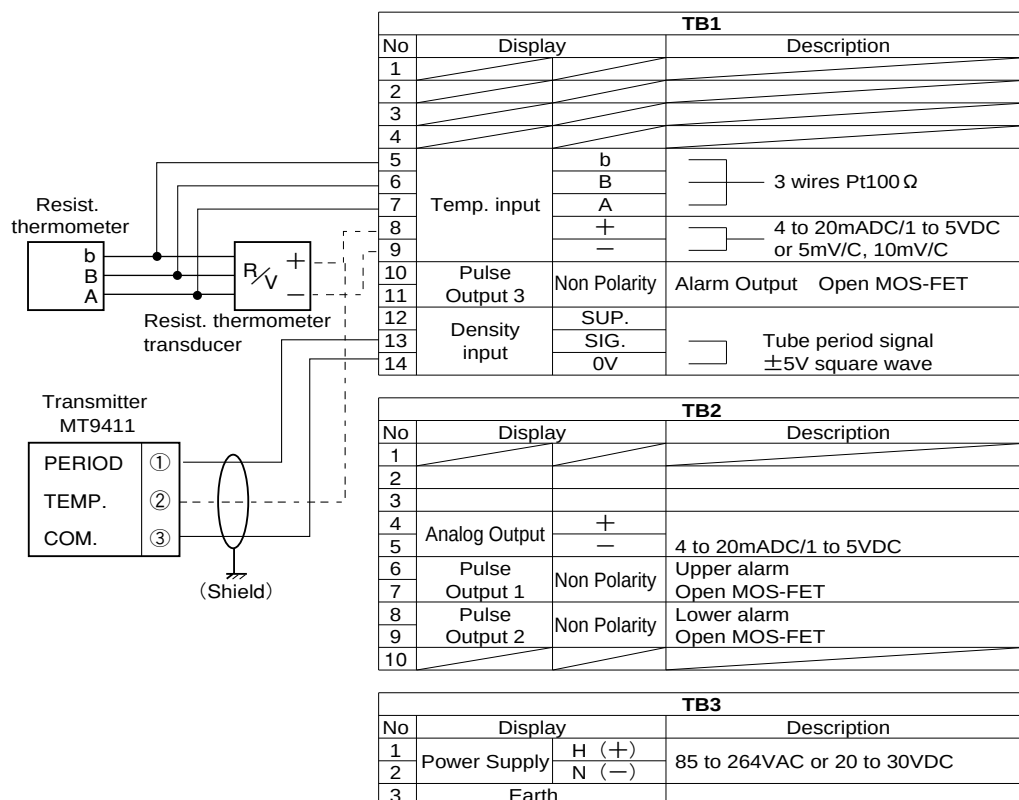
TB1					
1		12	SUP.	DENSITY IN	
2		13	SIG.		
3		14	0V		
4		15			
5	b	16			
6	B	17			
7	A	18	+	COMM1 (※1)	
8	+	19	—		
9	—	20	+	COMM2 (※1)	
10	+	21	—		
11	—				
				PULSE OUT3	

※1 : Provided with communication interface

TB2					
1		8	+	ALARM 2	
2		9	—		
3		10			
4	+	11			
5	—	12			
6	+	13			
7	—				
				ANALOG OUT	
				ALARM 1	

TB3		
H (+)	POWER	
N (—)		
GND		

■ TERMINAL IDENTIFICATION



Terminal connection screws : M3.5

■ When you make inquiries please state the following: (fill in blanks or check ☐ with ✓ mark)

1. Companion Mass Flowmeter	
Model	
2. Process Fluid Name	
3. Receiving Instrument	Type (indicator, recorder, etc.) Model Specifications, Manufacturer
4. Power Source Specifications	
5. Probe (flowmeter)	Transmitter
6. Density computer	Length to the receiving instrument and installation location
7. Temperature Compensation	_____ to _____ °C
Range	Ref. Temperature _____ °C
8. Density Expansion Coeff.	_____ g/ml/°C
9. Miscellaneous	In case of displaying the concentration Temp./density/concentration characteristics

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