OVAL

DENSITY COMPUTER FOR OSCILLATING-SPOOL DENSITOMETER
(For Gas Service)
MODEL：EL4321

GENERAL SPECIFICATION
GS.No.GEL332E-4

■ 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 density frequency signal from the density sensor and provides an analog output in proportion to the density of metered process fluid. In response to temperature and pressure signals, it also can provide an output corrected for reference conditions.

■ FEATURES

1. Performs calculation of density corrected for temperatur
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 a accuracy.
4. Variables such as temperature, pressure, and density c be reviewed on command with the front panel keypad, whether or not computation is in progress.
5. A nonvolatile memory ²PROM) retains all parameters in the event of an ac power failure.
6. If an error occurs, its nature is identified as an err message on the display.

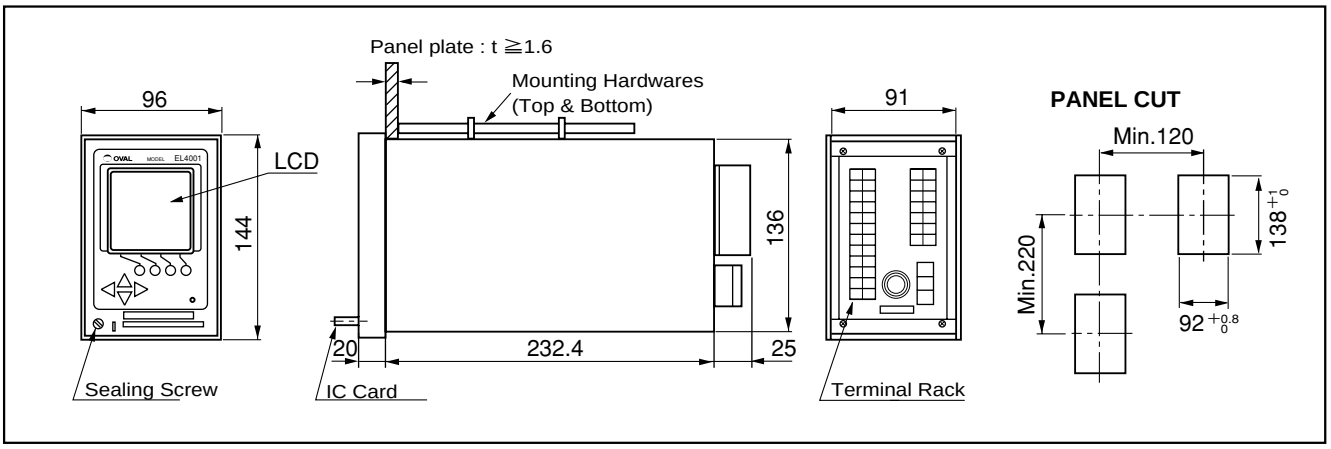
■ GENERAL SPECIFICATIONS（EL4321）

Item			Description		
Input signal	Temp. Input	Thermal resistance bulb	Pt 100 at 0˚C, 3wires system, Rated Cated Current: 2mA		
		Analog	4 to 20mADC or 1 to 5VDC		
	Pressure input		4 to 20mADC or 1 to 5VDC		
	Density input		Density period signal : 162 to 650μs		
Power Supply	To preamp of densitometer		28VDC 30mA		
	To pressure transmitter		24VDC 30mA Max.		
Output Signal	Density after correction		4 to 20mADC (max.Load：500Ω) or 1 to 5VDC (Output Impedance：250Ω) Conversion accuracy：±0.1% of F.S.		
	Alarm output		Open MOS-FET Capacity：230VAC/340VDC 0.2A		
	Conversion accuracy		±0.2% of SPAN ±0.06g/l		
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		3 digits under a decimal point（when g/l is selected.）		
	Density after correction		3 digits under a decimal point（when g/l is selected.）		
	Density period		3 digits under a decimal point（when μs is selected.）		
	Temperature		2 digits under a decimal point（when ℃ is selected.）		
	Pressure		4 digits under a decimal point（when MPa is selected.）		
	Molecular weight		3 digits under a decimal point（when g/mol is selected.）		
	Specific gravity		3 digits under a decimal point		
	Annunciation of abnormality		No. of Errors + Error Messages		
Computing Range	Temperature		Pt100Ω at 0℃	Range：−20 to +75℃	Standard span：70℃
			4 to 20mADC or 1 to 5VDC		Standard span：200℃
	Pressure		0 to 3 MPa Standard span：1/2Pmax. to Pmax., 1/5Pmax. to Pmax.		
	Density		0 to 60 g/l		
Computing accuracy	Density after correction		±0.1% of SPAN ±0.006% g/l		
	Temperature		Pt100Ω at 0℃	±0.3% of SPAN	
			4 to 20mADC or 1 to 5VDC	±0.1% of SPAN	
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. 5Ω max. Example: 300 meters max. with 3-conductor 1.25mm^2 cable; 500 meters with 2.0mm^2 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.

■ OUTLINE DIMENSIONS (Unit : mm)



■ PRODUCT CODE EXPLANATION

Item	Product Code ① ② ③ ④ ⑤ ⑥	—	Supplementary Code ⑦	⑧	⑨	⑩	⑪	⑫	Description	
Model	**E L 4 3 2 1**	–							Density computer for Densitometer (For gas service)	
Power Source			**6**						20 to 30VDC	Power Consumption：20W Max.
			7						85 to 264VDC 50/60Hz	
Temp. Input				**0**					None	
				1					Pt100Ω at 0˚C	
				2					4 to 20mADC/1 to 5 VDC	
				9					Other than above	
Density Pressure Input									Density	Pressure
					0				Densitometer: DG○ for gas	None（Fixed valus）
					1					4 to 20mADC/1 to 5VDC
					9				Other than above	
Analog Output						1			Density (compensated for temp. and press.)	
						9			Other than above	
Communication Capability							**0**		No	
							1		Yes	
Finish								1	Munsell N1.5	

■ TERMINAL CONNECTIONS

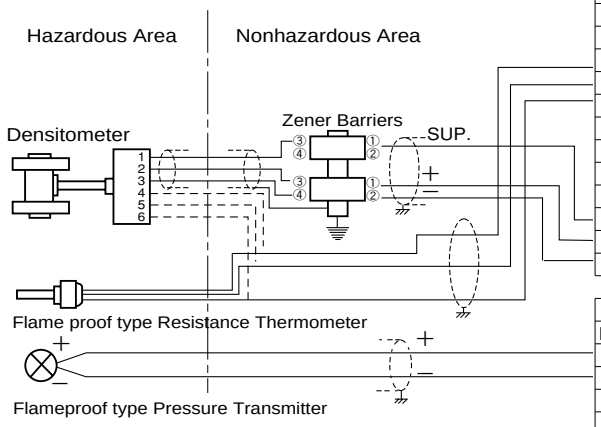
TB1					
1			12	SUP.	DENSITY IN
2			13	SIG.	
3			14	0V	
4			15		
5	b	TEMP IN	16		
6	B		17		
7	A		18	+	COMM1（※1）
8	+		19	−	
9	−		20	+	COMM2（※1）
10	+	PULSE OUT3	21	−	
11	−				

※1：Provided with communication interface

TB2					
1	SUP.	PRESS IN	8	+	PULSE OUT2
2	+		9	−	
3	−		10		
4	+	ANALOG OUT	11		
5	−		12		
6	+	PULSE OUT1	13		
7	−				

TB3		
	H（+）	POWER
	N（−）	
	GND	

■ TERMINAL IDENTIFICATION



※1：If not intrinsically safe constructed, connect the density sensor directly to the density computer, excluding zener barriers.
※2：Cable length between densitometer sensor and density computer is one kilometer max.
※3：Recommended cable for densitometer: CVVS, CEVS, 3-conductor 1.25mm² or 2mm².
※4：When a thermometer sensor is equipped (shown in dotted lines), intrinsically safe construction is not available. For intrinsically safe construction, a flameproof resistance thermometer should be provided.

TB1

No	Display		Description
1			
2			
3			
4			
5	Temp. input	b	3 wires Pt100Ω
6		B	
7		A	
8		+	4 to 20mADC/1 to 5VDC
9		−	
10	Pulse Output 3	Non Polarity	Alarm Output Open MOS-FET
11			
12	Density input	SUP.	Density Frequency Signal 162 to 650 μs
13		SIG.	
14		0V	

TB2

No	Display		Description
1	Pressure Input	SUP.	+24VDC
2		+	4 to 20mADC/1 to 5VDC
3		−	
4	Analog Output	+	Density after correction 4 to 20mADC/1 to 5VDC
5		−	
6	Pulse Output 1	Non Polarity	Open MOS-FET
7			
8	Pulse Output 2	Non Polarity	Open MOS-FET
9			
10			

TB3

No	Display		Description
1	Power Supply	H (+)	85 to 264VAC or 20 to 30VDC
2		N (−)	
3	Earth		

Terminal connection screws：M3.5

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

1. Product Co	EL4321
2. Metered Flu	
3. Mating Densitomet	DGW (Wafer type) DGV (Screw-in type) DGF (Flanged type) DGI (Insertion type)
4. Density Measuring Ran	_____ to _____ g/l
5. Temperature Inp	4 to 20mADC 1 to 5VDC Pt100Ω JPt100Ω (The former JIS) ※Temperature Range_____ to _____˚C Reference Pressure_____˚C
6. Pressure Inp	4 to 20mADC 1 to 5VDC ※Pressure Range_____ to _____MPa Reference Pressure_____MPa
7. Fallback Valu	Temperature(over)_____˚C (under)_____˚C Pressure(over)_____ MPa (under)_____MPa
8. Compression Coeff.(for ga	
9. Analog Outp	4 to 20mADC 1 to 5VDC Range_____ to _____
10. Fin	Standard
11. Tag No., e	

※：Input range shall be accorded with computing range.