



STEAM FLOW COMPUTER

(Superheated steam service)

MODEL : EL4111

GENERAL SPECIFICATION

GS.No.GEJ321E-4

■ GENERAL

Using the most advanced electronic technologies, this digital instrument has been developed specifically to meet the most demanding steam flow measurement applications where accuracy is the prime requirement. In response to flowrate, temperature, and pressure information arriving from the sensing terminal, such as a DELTA flowmeter, it calculates superheated steam flow, transforms it to mass and calorific quantities, and totalizes the flow. It also provides a totalizer pulse output and an instant flowrate analog output (mass equivalent).

■ FEATURES

1. Changing the meter factor, ranges of temperature, pressure, or other parameters, of the companion flowmeter is simple by keystrokes on the front-panel keypad, or by inserting an IC card into the slot.
2. Built around a microprocessor, the instrument carries out calculations entirely in digital signal processing circuits to achieve a high degree of accuracy and reliability.
3. Variables, such as temperature and pressure, can be reviewed on command with the front panel keypad, whether or not calculation is in progress.
4. A nonvolatile memory (E²PROM) retains all parameters and variables. Variables are resettable following a power cycle or reset if so configured.



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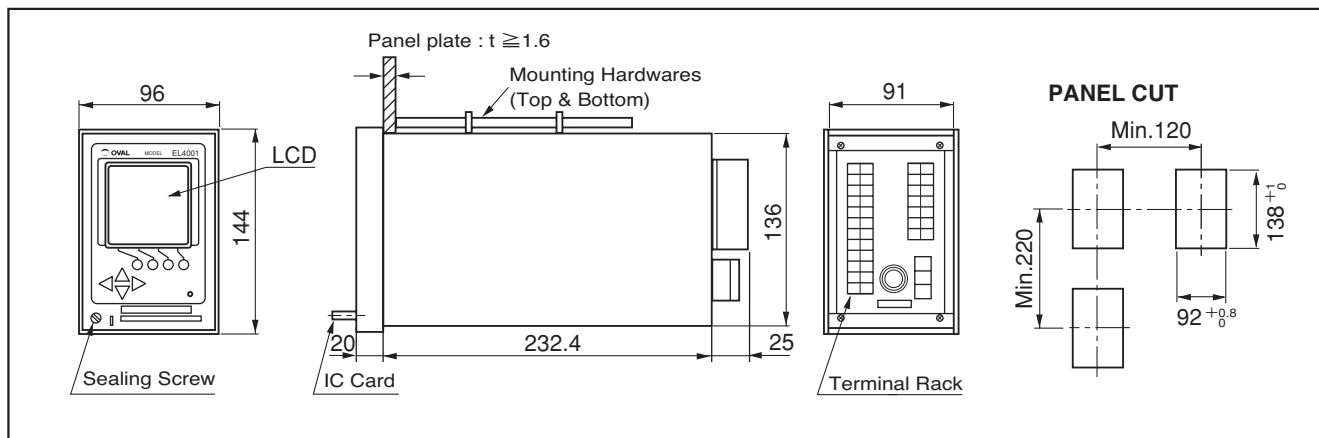
■ GENERAL SPECIFICATIONS (EL4111)

Item			Description								
Input signal			Type of Signal		Pulse Generator		Power Supply		Response pulse		
			Contact Pulse		————		13.5VDC	Current Capacity: 40mA */short	50Hz		
			2wire •12VDC 3wires Voltage Pulse		————				2kHz		
			24VDC, 2wire Current Pulse (4/20mA)		PA15, 25		24.0VDC	Protection Circuit Provided			
			Open Collector Pulse		————		13.5VDC				
			Temp. Input		Thermal resistance bulb	Pt 100 at 0°C, 3wires system, Rated Current: 2mA					
					Analog	4 to 20mADC or 1 to 5VDC					
Pressure input			4 to 20mADC or 1 to 5VDC								
Output signal	Pulse output	Totalized flow in mass		Open MOS-FET, Capacity : 230VAC/340VDC 0.2A Pulse width : 1ms/50ms							
		Totalized flow in calorie									
		Synchronous output to flowrate input		Open collector pulse							
	Alarm output		Open MOS-FET Capacity : 230VAC/340VDC 0.2A								
	Analog output	Instantaneous mass flowrate		4 to 20mADC (max.Load : 500Ω) or 1 to 5VDC (Output Impedance : 250Ω) Conversion accuracy : ±0.1% of F.S.							
Display mode			ST Displayer (128 x 128dot) w/Back Light Items:Data, Unit, Error message are displayed at a time (※1) (※2)								
Display items			Totalized flow in mass		Same as Output Pulse Unit (kg etc.)		Display capacity : 8 digits				
			Totalized flow in calorie		Same as Output Pulse Unit (J etc.)						
			Instantaneous mass flowrate		kg/h etc.						
			Temperature		2 digits under a decimal point (when °C is selected.)						
			Pressure		4 digits under a decimal point (MPa etc.)						
			Correction factor 1		5 digits under a decimal point						
			Correction factor 2		5 digits under a decimal point						
			Meter error correction factor		5 digits under a decimal point						
			Meter correction factor		5 digits under a decimal point						
			Sp. Gravity		4 digits under a decimal point (when kg/m³ is selected.)						
			Specific enthalpy		2 digits under a decimal point (when kJ/kg is selected.)						
			Annunciation of abnormality		No. of Errors + Error Messages						
Computing range			Temperature		Pt100Ω at 0°C		Range : —50 to +350°C		Normal span : 70°C		
					4 to 20mADC or 1 to 5VDC				Normal span : 200°C		
			Pressure		0 to 3MPa, St'd span:1MPa						
Computing accuracy			Mass flowrate		±0.5% of R.D.						
			Calorific flowrate		±0.6% of R.D.						
			Temperature		Pt100Ω at 0°C		±0.3% of SPAN				
					4 to 20mADC or 1 to 5VDC		±0.1% of SPAN				
			Pressure		±0.1%						
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 1.25mm² 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.

■ DIMENSION (Unit in mm)



■ MODEL CODE NUMBER

Item	Code No.						Supplementary Code						Description			
	①	②	③	④	⑤	⑥	—	⑦	⑧	⑨	⑩	⑪			⑫	
Model	E	L	4	1	1	1								Flow computer for superheated steam		
Power Supply							6							20 to 30VDC	Power Consumption : 20W Max.	
							7									85 to 264VAC 50/60Hz
Temperature Input							1							Pt100Ω at 0°C		
							2								4 to 20mADC/1 to 5VDC	
							9								Special	
Pressure Input							1							4 to 20mADC/1 to 5VDC		
							9								Special	
Output							1							Mass · Calorie Flowrate Pulse + Instantaneous Mass Flowrate Analog + Alarm Output		
							9								Special	
Communication							0							No		
							1								Yes	
Finish												1	Munsell N1.5			

■ TERMINAL CONNECTIONS

TB1				
1	SUP.	FLOW IN	12	
2	SIG.		13	
3	0V		14	
4	OUT1/1		15	
5	b	TEMP IN	16	
6	B		17	
7	A		18	+
8	+		19	-
9	-	PULSE OUT3	20	+
10	+		21	-
11	-			

※1 : Model provided with communication interface

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

TB3		
	H (+)	POWER
	N (-)	
	GND	

■ TERMINAL IDENTIFICATION

TB1			
No	Display		Description
1	Flowrate Input	SUP.	Flowmeter converter (PA15 ets.)
2		SIG.	
3		0V	Synchronous Output to Flowrate Input (O.C)
4		OUT1/1	
5	Temp. input	b	3 wires Pt100Ω
6		B	
7		A	4 to 20mADC/1 to 5VDC
8		+	
9	Pulse Output 3	-	Alarm Output Open MOS-FET
10		Non Polarity	
11			

TB2			
No	Display		Description
1	Pressure Input	SUP.	+24VDC
2		+	4 to 20mADC/1 to 5VDC
3		-	
4	Analog Output	+	Instant Flowrate
5		-	4 to 20mADC/1 to 5VDC
6	Pulse Output 1	Non Polarity	Totalized Flow in Mass
7	Pulse Output 2	Non Polarity	Open MOS-FET
8			Totalized Flow in Calorie
9			Open MOS-FET
10			
11			
12			
13			

TB3		
No	Display	Description
1	Power Supply	H (+)
2		N (-)
3	Earth	85 to 264VAC or 20 to 30VDC

Terminal connection screws : M3.5

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

1. Product Mod	EL4111_____ No. of units_____
2. Spec. of Flowrate Inp	Model of Flowmeter to be connected
	Model of a Pulse Generator to be connected
	Meter Factor:_____ I/P (at 20°C)
3. Spec. of Temperature Inp	Model of a Thermal resistance Bulb:
	Temperature Input: ☐ 4 to 20mADC
	☐ 1 to 5VDC
	☐ Pt 100Ω
	☐ JPt 100Ω (The former JIS)
	※Temperature Range:_____ to _____ MPa
4. Spec. of Pressure Outp	Pressure Input: ☐ 4 to 20mADC
	☐ 1 to 5VDC
	※Pressure Range:_____ to _____ MPa
5. Value of Fall ba	Temperature:_____°C
	Pressure:_____MPa
6. Spec. of Flowrate Outp	Unit of Output Pulse: Mass_____ kg/P
	Calorie_____ MJ/P
7. Spec. of Analog Outp	Full Scale of Instant Mass Flowrate _____ to _____ t/h
8. Finish Color (Fram	☐ Standard ☐ Specified
9. Tag No., et	

※ : Input range shall be accorded with computing range.

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