

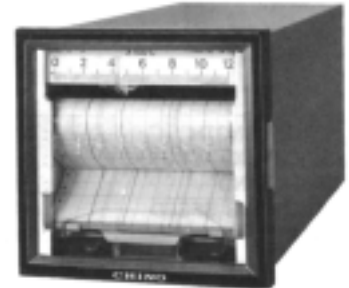
# EL SERIES COMPACT ELECTRONIC RECORDER



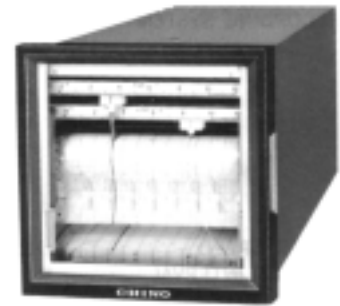
The EL recorders are compact and modular in design to provide versatility, easy maintenance and reliable operation.

The EL series includes a full range of models which accept inputs from mV mA , thermocouples, resistance thermometers or thermistors. All EL models use fanfold chart paper, 100mm wide. Model EL includes 1, 2, 3, or 6 point recording systems, and a highly dependable one, two or three-pen continuous writing systems.

The EL series offers a variety of options. For example, chart speeds are available with one, two, three or six selectable positions. In addition, alarms can be provided at high and/or low limits. The alarms feature adjustable set points which can be set to provide 1.0% accuracy. These recorders can also include optional analog transmission signals used to obtain actual values on a process controller.



MODEL EL 100-06



MODEL FLI 100

## MODELS

### ● 1-pen and dotting type instrument

Recording system	Type	Alarm action	Measurement				
			mV · mA type	Thermocouple	Resistance thermometer	Thermistor	
1-Pen	Recorder		EL800-01	EL100-01	EL200-01	EL300-01	
	Recording alarm	High (low) limit	EL826-01	EL126-01	EL226-01	EL326-01	
			High/low limits	EL836-01	EL136-01	EL236-01	EL336-01
Dotting (multi.) point)	Recorder		EL800-□	EL100-□	EL200-□	EL300-□	*1
	Recording alarm	High (low) limit	EL826-□	EL126-□	EL226-□	EL326-□	
			High/low limits	EL836-□	EL136-□	EL236-□	EL336-□

\*1□ : 01D, 02, 03, 06 4 kinds

### ● 2-pen type instrument

Recording system	Type	Alarm action of 2nd pen	Alarm action of 1st pen			
			Record	High (low) limit	High/low limits	
2-pen	Recorder		FL□□ 00	—	—	
	Recording alarm	High (low) limit	FL□□ 06	FL□□ 66	—	
			High/low limits	FL□□ 07	—	FL□□ 77

□ : Measurement System of 2nd pen 8 : mV -mA type, 1: Thermocouple type, 2 : Resistance thermometer type, 3 Thermistor type

### ● 3-pen type instrument

Recording system	Type	Alarm action of 3rd pen	Alarm action of 2nd pen			
			Record	High (low)	High/low limits	
3-pen	Recorder		GL□□□000	—	—	
	Recording alarm	High (low) limit	GL□□□007	GL□□□066	—	
		High/low limits	GL□□□006	—	GL□□□077	
		High (low) limit		GL□□□666	—	
		High/low limits		GL□□□777	*3	

□ : Measurement system of 1st-pen, 2nd pen and 3rd pen 8 : mV mA type, 1: Thermocouple type, 2 : Resistance thermometer type, 3 : Thermistor type

\*2 1st pen high (low) limit

\*3 1st pen high/low limits

## ■ GENERAL SPECIFICATIONS

<b>INPUT</b>	DC voltage	More than	10mV DC span, less than 100V DC span
	DC current	More than	20 $\mu$ A DC span, less than 50 mA DC span
	Thermocouple	More than	250°C span (K)
		More than	150°C span (E)
		More than	200°C span (J, T)
		More than	800°C span (R)
Resistance thermometer	More than	50°C span (Pt 100, JPt 100)	
Thermistor	More than	50°C span (at about room temperature)	

<b>SCALE LENGTH</b>	: 100mm
<b>INDICATING ACCURACY</b>	: $\pm 0.5\%$ of input span
<b>DEAD BAND</b>	: 0.2% of input span
<b>BALANCING SPEED</b>	: About 2 sec, (50Hz) or 1.6 sec (60Hz) for traveling full scale
<b>CHART</b>	: Fanfold chart
	Effective width 100mm
	Total width 11.4mm
	Total length 10m
<b>RECORDING POINTS</b>	: Pen-writing type — 1-pen, 2-pen, or 3-pen
	Dotting type — 1, 2, 3, or 6 points
	: Pen-writing type — 1-pen continuous recording (red) — 2-pen continuous recording (1st-pen : red 2nd-pen green) — 3-pen continuous recording (1st-pen: red 2nd-pen: green 3rd-pen: blue)
<b>RECORDING SYSTEM</b>	Dotting type — 1, 2, 3, or 6 points
	Ink pad dotting recording at each point with each color
	1 point — red
	2 points — 1 red, 2 black
	3 points — 1 red, 2 black, 3 blue
	6 points — 1 red, 2 black, 3 blue, 4 green, 5 brown, 6 purple
	: 20mm/h
	: 5sec (60Hz)
	$\pm 1.0\%$ of measuring range
	Full scale
0.4% of measuring range	
: 100V, 110V AC — 1A	
200V, 220V AC — 0.5A	

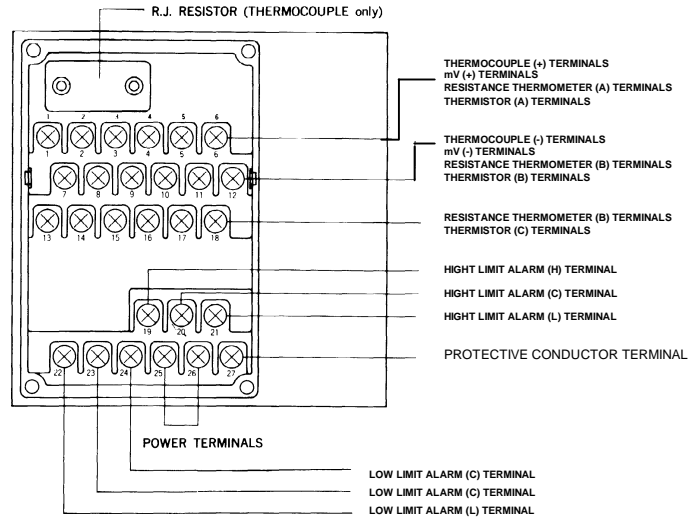
<b>POWER SUPPLY</b>	: 100, 110, 115, 120, 200, 220, 230 or 240V AC, 50Hz or 60Hz
<b>ALLOWABLE VOLTAGE FLUCTUATION</b>	: (+)10 — (-)10% of rated value
<b>AMBIENT TEMPERATURE</b>	: (-) 10 to 50°C
<b>AMBIENT HUMIDITY</b>	: 30 to 90% RH
<b>LE SIGNAL SOURCE RESISTANCE</b>	mV — Less than 10k $\Omega$
	Thermocouple — Less than 10k $\Omega$ (with burnout circuit less than 150 $\Omega$ )
	Resistance thermometer — Less than 10 $\Omega$ (per wire)
	: DC voltage input — 10mV $\leq$ Span voltage $\leq$ 500mV About 8M $\Omega$
	50 $\mu$ V $\leq$ Span voltage $\leq$ 100V About 1M $\Omega$
	Thermocouple input — About 8M $\Omega$
	DC current input — 20 $\mu$ A $\leq$ Span current $\leq$ 200 $\mu$ A About 500 $\Omega$
20 $\mu$ A $\leq$ Span current $\leq$ 50mA About 10 $\Omega$	

<b>MAXIMUM COMMON MODE VOLTAGE</b>	: 200VAC
<b>COMMON MODE REJECTION RATIO (CMRR)</b>	: More than 100 dB
<b>SERIES MODE REJECTION RATIO (SMRR)</b>	: More than 50 dB
<b>INSULATION RESISTANCE</b>	: 500V DC, 20M $\Omega$ or more between measuring terminals and ground terminal
	1000V DC, 20M $\Omega$ or more between power terminals and ground terminal
	1000V DC, 20M $\Omega$ or more between measuring terminals and power terminals
<b>WITHSTAND VOLTAGE</b>	: 500V AC, for 1 min between measuring terminals and ground terminal
	1000V AC, for 1 min between power terminals and ground terminal
	1000V AC, for 1 min between measuring terminals and power terminals
<b>POWER CONSUMPTION</b>	: About 8VA (1-pen type)
	About 10VA (Dotting type)
	About 16VA (2-pen type)
	About 20VA (3-pen type)

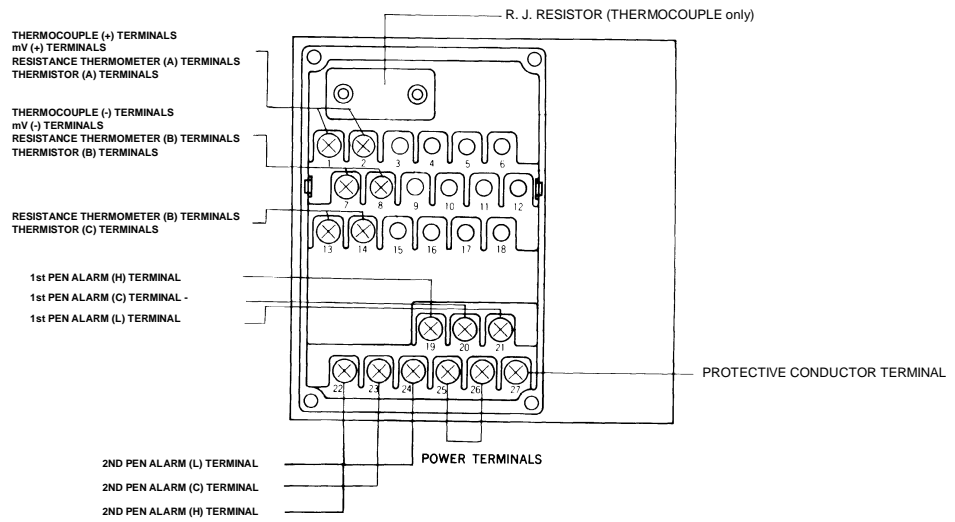
<b>CASING</b>	: Front door — ABS resin
	: Rear case — Steel plate
<b>COLOR</b>	: Door — Black
	: Case — Metallic silver
<b>MOUNTING</b>	: Flush panelmount
<b>WEIGHT</b>	: About 3.4kg (1-pen), about 3.8kg (Dotting), about 4.9kg (2 pen), about 5.6kg (3-pen)

■ **TERMINAL BOARD**

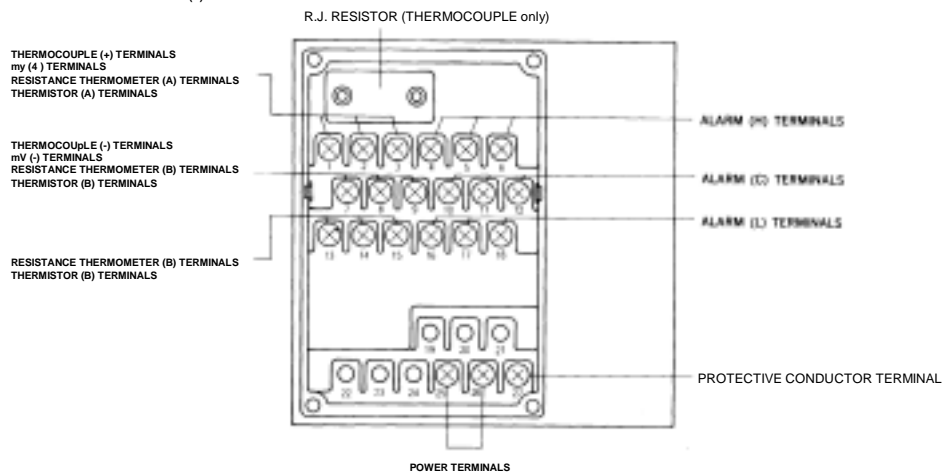
• **1-pen and dotting type**



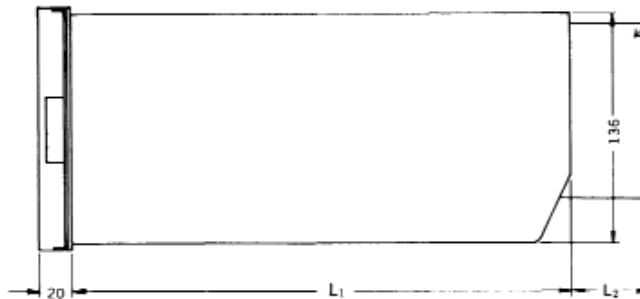
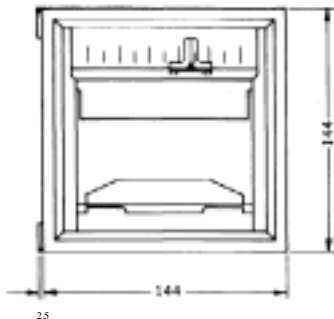
• **2-pen type**



**3-pen type**



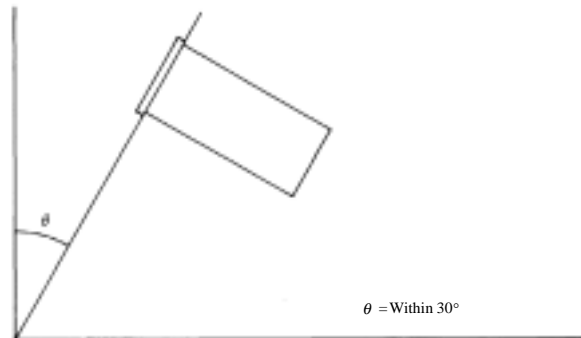
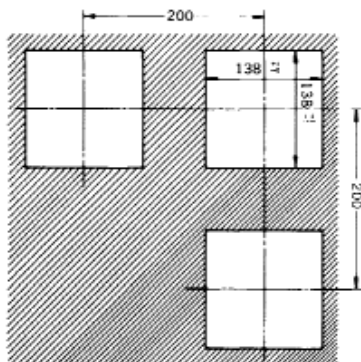
■ EXTERNAL DIMENSIONS



When the power supply is other than AC100V, a down-transformer is installed on the instrument case as shown in the left drawing.

L<sub>1</sub> : 1-pen and dotting type — 200mm  
 2-pen and 3-pen type — 350mm  
 L<sub>2</sub> : 2-pen and 3-pen type — 80mm

PANEL CUTOUT AND MOUNTING ANGLE



$\theta = \text{Within } 30^\circ$

■ STANDARD SCALE

	Input	Standard scale (°C)
Thermocouple	R	0 to 1400(20) 0 to 1600(20) 800 to 1600(10)
	K	0 to 250(5) 0 to 300(5) 0 to 400(5) 0 to 600(10) 0 to 800(10) 0 to 1000(20) 0 to 1200(20) 500 to 1200(10)
	E	0 to 150(2) 0 to 200(5) 0 to 300(5) (-)50 to 100(2)
	J	0 to 300(5) 0 to 400(5)
	T	0 to 200(5) 0 to 300(5) (-)50 to 150(5)
mV		0 to 10mV(0.2) 0 to 20mV (0.5) 0 to 50mV(1) (-)5 to 5mV(0.2) (-)10 to 10mV(0.5)

	Input	Standard scale (°C)
Resistance thermometer	Pt 100 JPt 100	0 to 50(1) 0 to 100(2) 0 to 150(2) 0 to 200(5) 0 to 300(5) 0 to 500(10) (-)20 to 80(2) (-)50 to 50(2) (-)50 to 150(5)
	Thermistor	0 to 100(2) 0 to 200(5)
Linear scale		4 to 20mA 1 to 5V

( ) shows 1 graduation.

Specifications subject to change without notice. 2001.4

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