CELCIUXº – CONTROL AND CONNECTIVITY

CelciuXº – Multi Loop Temperature Controller

The CelciuXº is designed to handle complex temperature profiles thanks to Omron's unique Gradient Temperature Control (GTC) algorithm and to offer easy program-less communication with Omron and third-party PLCs and HMI. Above all, the CelciuXº incorporates all "simple to use" clever temperature control technology, like 2-PID, disturbance control and various ways of tuning.

- Interfaces to a wide range of industrial networks
- Reduced engineering due to program-less communications, Smart Active Parts and Function Block Libraries
- One unit handling various types of input, such as Pt, Thermocouple, mA, and V input

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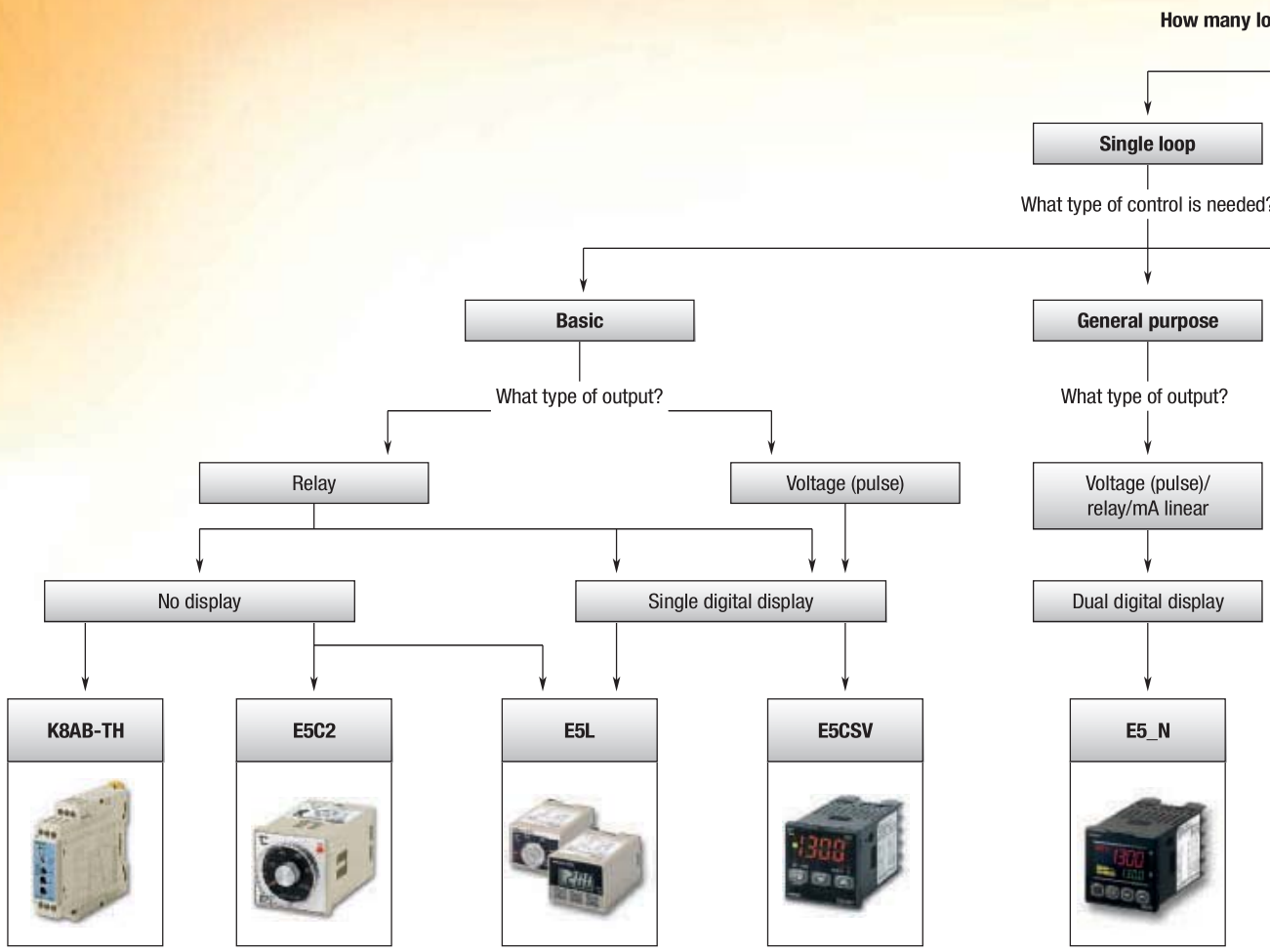
www.omron-industrial.com/celciux



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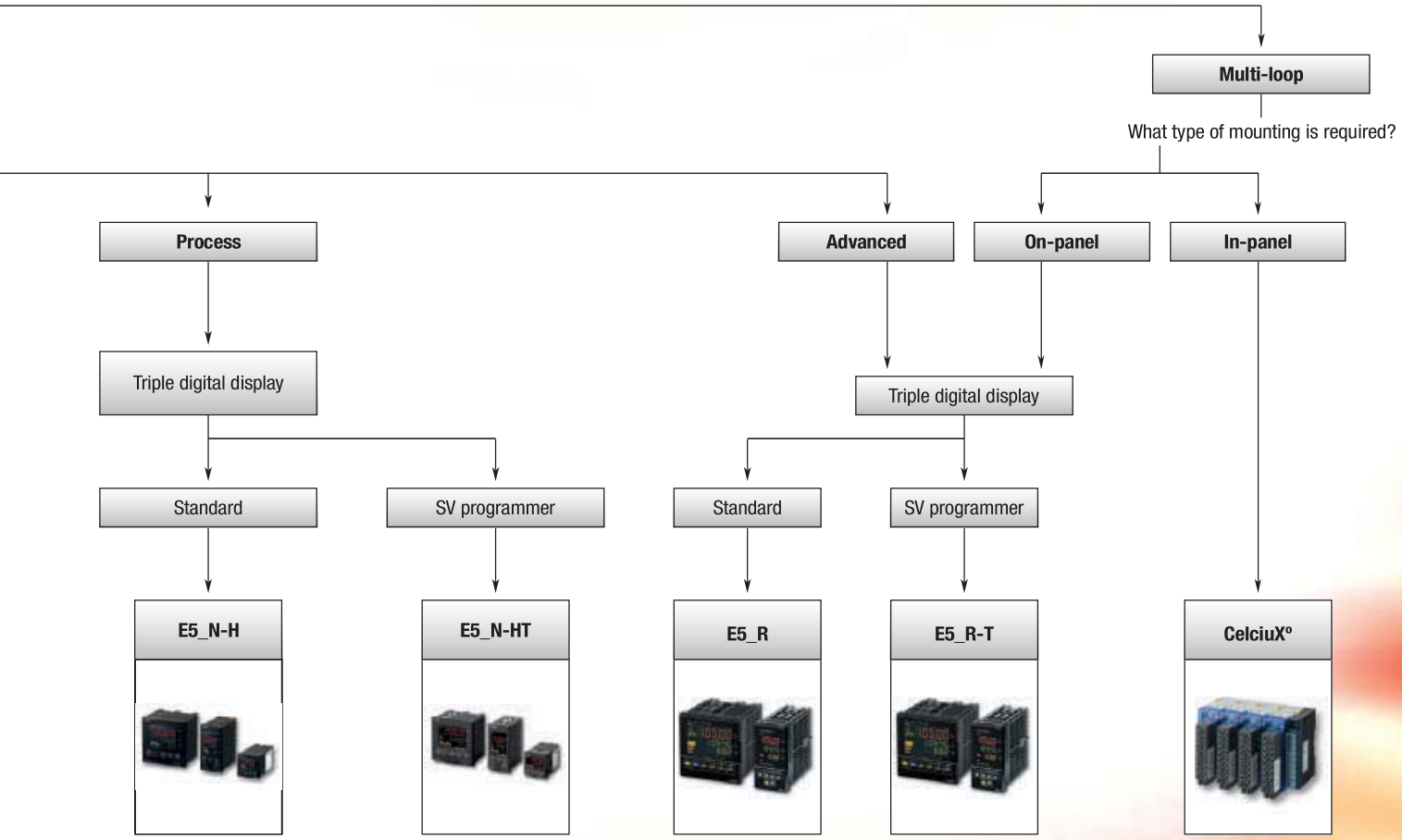
Multi-loop
What type of mounting is required?
Process
Advanced
On-panel
In-panel
Triple digital display
Triple digital display
Standard
SV programmer
Standard
SV programmer
E5_N-H
E5_N-HT
E5_R
E5_R-T
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Selection table

	Category	Alarm controller	Analogue/digital temperature controller	Analogue temperature controller	Compact digital temperature controller	Digital temperature controller		
Selection criteria								
	Model	K8AB-TH	E5L	E5C2	E5CSV	E5AN	E5EN	E5CN
	Type	Basic				General purpose		
	Panel	In-panel type		In- & on-panel type	On-panel type			
	Loops	–	Single loop					
	Size	22.5 mm wide	45x35 mm	1/16 DIN	1/16 DIN	1/4 DIN	1/8 DIN	1/16 DIN
Control mode	ON/OFF	■	■	■	■	■	■	■
	PID	–	–	■ *1	–	–	–	–
	2-PID *2	–	–	–	■	■	■	■
	Operation *3	–	H/C	H	H/C	H & C	H & C	H & C
	Valve Control *4	–	–	–	–	–	–	–
Features	Accuracy	±2%	±1°C	–	±0.5%	±0.3%	±0.3%	±0.3%
	Auto-tuning	–	–	–	■	■	■	■
	Self-tuning	–	–	–	■	■	■	■
	Transfer output	–	–	–	–	□	□	□
	Remote input	–	–	–	–	–	–	–
	Number of alarms	1	–	–	1	3	3	3
	Heater alarm	–	–	–	–	□ *5	□ *5	□ *5
	IP rating front panel	IP20	IP40	IP40	IP65	IP66	IP66	IP66
	Display	Rotary switch	SV dial 3 digit LCD	SV dial	Single 3.5 digit	Dual 4 digit (colour change)	Dual 4 digit (colour change)	Dual 4 digit (colour change)
Supply voltage	110/240 VAC	■	■	■	■	■	■	■
	24 VAC/VDC	□	–	–	□	□	□	□
Comms *6	RS-232	–	–	–	–	□	□	–
	RS-485	–	–	–	–	□	□	□
	Event IP	■	–	–	–	□	□	□
	QLP port *7	–	–	–	–	■	■	■
	DeviceNet	–	–	–	–	–	–	–
	Modbus	–	–	–	–	■	■	■
Control output	Relay	■	■	■	■	■	■	■
	SSR	–	–	–	–	–	–	–
	Voltage (pulse)	–	–	■	■	■	■	■
	Linear voltage	–	–	–	–	–	–	–
	Linear current	–	–	–	–	■	■	■
Input type – linear	mA	–	–	–	–	□	□	□
	mV	–	–	–	–	■	■	■
	V	–	–	–	–	□	□	□
Input type – thermocouple	K	■	–	■	■	■	■	■
	J	■	–	–	■	■	■	■
	T	■	–	–	■	■	■	■
	E	■	–	–	–	■	■	■
	L	–	–	■	■	■	■	■
	U	–	–	–	■	■	■	■
	N	–	–	–	■	■	■	■
	R	■	–	–	■	■	■	■
	S	■	–	–	–	■	■	■
	B	■	–	–	–	■	■	■
	W	–	–	–	–	■	■	■
	PLII	■	–	–	–	■	■	■
Input type – RTD	Pt100	■	–	■	■	■	■	■
	JPt100	–	–	–	■	■	■	■
	THE	–	sensor provided	■	□	–	–	–
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*1 P only
*2 2-PID is Omron´s easy to use high performance PID algorithm
*3 H = heat, H/C = heat or cool, H & C = heat and/or cool
*4 Valve control = relay up and down

Digital temperature controller		Digital process controller					
							
E5GN	**CelciuX°**	**E5CN-H**	**E5EN-H/AN-H**	**E5_N-HT**	**E5AR**	**E5ER**	**E5_R-T**
General purpose	Modular	Universal		SV Programmer	Advanced		SV Programmer
On-panel type	In-panel type	On-panel type		Same specification as corresponding E5_N-H	On-panel type		Same specifications as corresponding E5_R.
Single loop	Multi-loop	Single loop			Multi-loop		
1/32 DIN	31×96 mm	1/16 DIN	1/4, 1/8 DIN		1/4 DIN	1/8 DIN	
■	■	■	■		■	■	
–	–	–	–		–	–	
■	■	■	■		■	■	
H & C	H & C	H & C	H & C		H & C	H & C	
–	–	–	■		■	■	
±0.3%	±0.5%	±0.1%	±0.1%		±0.1%	±0.1%	
■	■	■	■		■	■	
■	■	■	■		–	–	
□	□	□	□		■	■	
–	–	–	■		■	■	
3	3	3	3		4	4	
□*5	□*8	□*5	□*5		–	–	
IP66	–	IP66	IP66		IP66	IP66	
Dual 4 digit (colour change)	LED	Dual 5 digit (colour change)	Triple 5 digit (colour change)		Triple 5 digit	Triple 5 digit	
■	–	■	■		■	■	
□	■	□	□		□	□	
–	■	–	□		–	–	
□	■	□	□		□	□	
□	■	□	■		■	■	
■	■	■	■		■	■	
–	□	–	–		□	□	
■	■	■	■		■	■	
■	–	■	■		■	■	
–	–	■	■		–	–	
■	■	■	■		■	■	
–	–	■	■		–	–	
■	■	■	■		■	■	
□	■	■	■		■	■	
■	■	■	■		–	–	
□	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		■	■	
■	■	■	■		–	–	
■	■	■	■		■	■	
■	■	■	■		–	–	
–	–	–	–		–	–	
407	410	412		375	414		

*5. Heater alarm = heater burnout & SSR failure detection
*6. PROFIBUS-DP communication option via PRT1-SCU11 for E5_N(-H), E5_R, CelciuX°. More information on Page 416
*7. QLP: Quick Link Port to connected TC to PC using the smart USB cable E58-CIFQ1
*8. 3 Alarms per loop, 2 and 4 loop models are available.

Protect your heating application

This temperature monitoring relay was designed specially for monitoring abnormal temperatures to prevent excessive temperature increase and to protect equipment. K8AB-TH provides temperature monitoring in slim design with a width of just 22.5 mm.

- Simple function settings using DIP switch
- Selectable alarm latch and SV setting protection
- Multi-input support for thermocouple or Pt100 sensor input
- Changeover relay: fail-safe selectable
- Alarm status identification with LED

Ordering information

Input type	Temperature setting range	Setting unit	Supply voltage	Size in mm (HxWxD)	Order code
Thermocouple/ Pt100	0 to 399°C/F	1°C/F	100 to 240 VAC	90x22.5x100	K8AB-TH11S AC100-240
			24 VAC/VDC		K8AB-TH11S AC/DC24
Thermocouple	0 to 1,800°C 0 to 3,200 °F *1	10°C/F	100 to 240 VAC		K8AB-TH12S AC100-240
			24 VAC/VDC		K8AB-TH12S AC/DC24

*1 Setting range depending on sensor type selected

Specifications

Item		100 to 240 VAC 50/60 Hz	24 VAC 50/60 Hz or 24 VDC
Allowable voltage range		85 to 110% of power supply voltage	
Power consumption		5 VA max.	2 W max. (24 VDC), 4 VA max. (24 VAC)
Sensor inputs	K8AB-TH11S	Thermocouple: K, J, T, E; platinum-resistance thermometer: Pt100	
	K8AB-TH12S	Thermocouple: K, J, T, E, B, R, S, PLII	
Output relay		One SPDT relay (3 A at 250 VAC, resistive load)	
External inputs (for latch setting)	Contact input	ON: 1 kΩ 2 max., OFF: 100 kΩ 2 min.	
	Non-contact input	ON residual voltage: 1.5 V max., OFF leakage current: 0.1 mA max.	
		Leakage current: Approx. 10 mA	
Setting method		Rotary switch setting (set of three switches)	
Indicators		Power (PWR): Green LED, relay output (ALM): Red LED	
Other functions		Alarm mode (upper limit/lower limit), output normally ON/OFF selection, output latch, setting protection, fail-safe operation selectable, temperature unit°C/°F	
Ambient operating temperature		-10 to 55°C (with no condensation or icing); for 3-year guarantee: -10 to 50°C	
Storage temperature		-25 to 65°C (with no condensation or icing)	
Setting accuracy		±2% of full scale	
Hysteresis width		2°C	
Output relay	Resistive load	3 A at 250 VAC (cosϕ = 1), 3 A at 30 VDC (L/R = 0 ms)	
	Inductive load	1 A at 250 VAC (cosϕ= 0.4), 1 A at 30 VDC (L/R = 7 ms)	
	Minimum load	10 mA at 5 VDC	
	Maximum contact voltage	250 VAC	
	Maximum contact current	3 A AC	
	Maximum switching capacity	1,500 VA	
	Mechanical life	10,000,000 operations	
	Electrical life	Make: 50,000 times, break: 30,000 times	
Sampling cycle		500 ms	
Weight		130 g	
Degree of protection		IP20	
Memory protection		Non-volatile memory (number or writes: 200,000)	
Safety standards	Approved standards	EN 61010-1	
	Application standards	EN 61326 and EN 61010-1 (pollution level 2, overvoltage category II)	
Crimp terminals		Two solid wires of 2.5 mm^2 or two ferrules of 1.5 mm^2 with insulation sleeves can be tightened together	
Case colour		Munsell 5Y8/1 (ivory)	
Case material		ABS resin (self-extinguishing resin)	
Mounting		Mounted to DIN-rail or with M4 screws	
Size in mm (HxWxD)		90x22.5x100	

Ideal for simple built-in control

This compact but powerful ON/OFF controller is provided with a sensor and is available in an analogue or digital version. Mounting is in-panel with a standard PTF14A-E socket.

- Available in 4 application specific ranges.
- Sensor provided to enable immediate usage.
- High capacity output of 10 A at 250 VAC for direct load switching.
- Simple operation and setting. Even simpler with digital model.

Ordering information

Model	Size	Type	Control Method	Control Output	Order code
E5L-A_	45×35 mm	Plug-in	ON/OFF operation	Relay	E5L-A-30-20
					E5L-A-0-50
					E5L-A-0-100
					E5L-A-100-200
E5L-C_	45×35 mm	Plug-in	ON/OFF operation	Relay	E5L-C-30-20
					E5L-C-0-100
					E5L-C-100-200

Options (Order separately)

Sockets	
Type	**Order code**
Front-connecting Socket	PTF14A
	PTF14A-E

Specifications

Ratings		
Item	**Model**	
	E5L-A_	**E5L-C_**
Power supply voltage	100 to 240 VAC, 50/60 Hz	
Operating voltage range	85% to 110% of the rated supply voltage	
Power consumption	Approx. 3 VA	
Inputs	Element-interchangeable thermistor	
Control method	ON/OFF control	
Control output	SPDT contacts, 250 VAC, 10 A, cosδ = 1 (resistive load)	SPST-NO contacts, 250 VAC, 10 A, cosδ = 1 (resistive load)
Setting method	Analogue setting	Digital settings using keys on front panel
Indication method	No display	LCD digital display (character height: 12 mm)
Other functions		Setting protection (key protection) Input shift Direct/reverse operation
Indication accuracy	–	±(1°C + 1 digit) max.*
Setting accuracy	–	±(1°C + 1 digit) max.*
Hysteresis	-30 to 20°C models: Approx. 0.5 to 2.5°C (variable) 0 to 50°C models: Approx. 0.5 to 4°C (variable) 0 to 100°C models: Approx. 0.5 to 4°C (variable) 100 to 200°C models: Approx. 0.7 to 4°C (variable)	1 to 9°C (in increments of 1°C)
Repeat accuracy	1% FS max	–
Minimum scale (standard scale)	-30 to 20°C models and 0 to 50°C models: 5°C 0 to 100°C models and 100 to 200°C models: 10°C	–
Influence of temperature	–	±([1% of PV or 2°C, whichever is greater]+ 1 digit) max.
Influence of voltage	–	
Sampling period	–	2 s
Insulation resistance	100 MW max. (at 500 VDC)	
Dielectric strength	2,300 VAC, 50/60 Hz for 1 min (between charged terminals and uncharged metallic parts, between power supply terminals and input terminals, between power supply terminals and output terminals, and between input terminals and output terminals)	
Vibration (malfunction)	Frequency of 10 to 55 Hz, 0.5-mm double amplitude for 10 min each in X, Y, and Z directions	
Vibration (destruction)	Frequency of 10 to 55 Hz, 0.75-mm double amplitude for 2 h each in X, Y, and Z directions	
Shock (malfunction)	147 m/s^2, 3 times each in 6 directions	100 m/s^2, 3 times each in 6 directions
Shock (destruction)	294 m/s^2, 3 times each in 6 directions	
Electrical life expectancy (control output relay)	100,000 operations min (at maximum applicable load)	
Memory protection	–	Non-volatile memory (100,000 write operations)
Weight (Thermostat)	Approx. 80 g (Thermostat only)	
Degree of protection	Front panel: IP40, Terminals: IP00	
Approved standards	–	
Conformed standards	EN 61010-1 (IEC 61010-1), Pollution Degree 2, Overvoltage Category II	
EMC Directives	EMI: EN61326-1 Radiated EMI: EN55011 Group 1 Class A Conducted EMI: EN55011 Group 1 Class A EMS: EN61326-1 Electrostatic discharge immunity: EN61000-4-2 Electromagnetic field strength immunity: EN61000-4-3 Burst noise immunity: EN61000-4-4 Conducted disturbance immunity: EN61000-4-6 Surge immunity: EN61000-4-5 Voltage dip and power interruption immunity: EN61000-4-11	

* The accuracy of the accessory thermistor is not included.

Easy-to-use, basic temperature controller with analogue dial setting

Omron's basic ON/OFF or PD controller features an analogue setting dial. This compact, low-cost controller has a setting accuracy of 2% of full scale. It incorporates a plug-in socket allowing for DIN-rail or flush mounting.

- Compact, cost-effective controller
- Control mode: ON/OFF or PD
- Control output: relay
- Power supply: 100-120 / 200-240VAC
- Thermocouple K: 0 to 1200°C, L: 0 to 400°C, Pt100: -50 to 200°C

Ordering information

Setting method	Indication method	Control mode	Output	Order code			
				Thermocouple		Platinum resistance thermometer Pt100	Thermistor THE
				K (CA) chromel vs. alumel	L (IC) iron vs. constantan		
Analogue setting	No indication	ON/OFF	Relay	E5C2-R20K	E5C2-R20L-D	E5C2-R20P-D	E5C2-R20G
		P	Relay	E5C2-R40K	E5C2-R40L-D	E5C2-R40P-D	

Note: Specify either 100/110/120 VAC or 200/220/240 VAC when ordering.

Input ranges	Thermocouple *1		Platinum resistance thermometer	Thermistor *2
	K (CA) chromel vs. alumel	L (IC) iron vs. constantan	Pt100	THE
°C	0 to 200 (5), 0 to 300 (10), 0 to 400 (10), 0 to 600 (20), 0 to 800 (20), 0 to 1,000 (25), 0 to 1,200 (25)	0 to 200 (5), 0 to 300 (10), 0 to 400 (10) 5 to 450 (10)	-50 to 50 (2), -20 to 80 (2), 0 to 50 (1), 0 to 100 (2), 0 to 200 (5), 0 to 300 (10), 0 to 400 (10)	-50 to 50 (2) (6 kΩ at 0°C), 0 to 100 (2) (6 kΩ at 0°C), 50 to 150 (2) (30 kΩ at 0°C)

*1 Values in ( ) are the minimum unit.
*2 Values in ( ) are the thermistor resistive value.

Accessories

Functions	Order code
Front connecting socket with finger protection	P2CF-08-E
Back connecting socket (for flush mounting)	P3G-08
Finger protection cover (for P3G-08)	Y92A-48G
Protective front cover (IP66)	Y92A-48B

Specifications

Supply voltage	100/110/120 VAC or 200/220/240 VAC, 50/60 Hz
Thermocouple input type	K, L (with sensor break detection)
RTD input type	Pt100, THE
Control mode	ON/OFF or P control
Setting method	analogue setting
Output	Relay, SPDT, 3 A at 250 VAC
Life expectancy	Electrical: 100,000 operations min.
Setting accuracy	±2% FS max.
Hysteresis	Approx. 0.5% FS (fixed)
Proportional band	3% FS (fixed)
Reset range	5 ±1% FS min.
Control period	20 s
IP Rating front panel	IP40 (IP66 cover available)
IP rating terminals	IP00
Ambient temperature	-10 to 55°C
Size in mm (HxWxD)	48x48x96

The easy way to perfect temperature control

This multi-range 1/16 DIN controller with alarm function offers field-selectable PID control or ON/OFF control. The large, single display shows process value, direction of deviation from set point, output and alarm status.

- All setting field configurable with switches
- Multi-input (Thermocouple/Pt100)
- Clearly visible 3.5 digit display with character height of 13.5 mm
- Control output: relay, voltage (for driving SSR)
- ON/OFF or 2-PID control with auto-tuning and self-tuning

Ordering information

Size in mm	Supply voltage	Number of alarm points	Control output	Order code
1/16 DIN 48Hx48Wx78D	100 to 240 VAC	1	Relay	E5CSV-R1T-500
			Voltage (for driving SSR)	E5CSV-Q1T-500
	24 VAC/VDC	1	Relay	E5CSV-R1TD-500
			Voltage (for driving SSR)	E5CSV-Q1TD-500

Note: Other models are available on request.

Accessories

Type	Order code
Hard protective cover	Y92A-48B

Specifications

Supply voltage		100 to 240 VAC, 50/60 Hz or 24 VAC/VDC (depending on model)
Operating voltage range		85 to 110% of rated supply voltage
Power consumption		5 VA
Sensor input		Multi-input (thermocouple/platinum resistance thermometer): K, J, L, T, U, N, R, Pt100, JPt100
Control output	**Relay output**	SPST-NO, 250 VAC, 3 A (resistive load)
	Voltage output (for driving SSR)	12 VDC, 21 mA (with short-circuit protection circuit)
Control method		ON/OFF or 2-PID (with auto-tune and self-tune)
Alarm output		SPST-NO, 250 VAC, 1 A (resistive load)
Setting method		Digital setting using front panel keys (functionality set-up with DIP switch)
Indication		7-segment digital display (character height: 13.5 mm) and deviation indicators
Ambient temperature		-10 to 55°C (with no condensation or icing)
Setting/indication accuracy		±0.5% of indication value or ±1 °C, whichever is greater ±1 digit max.
Hysteresis (for ON/OFF control)		0.2% FS (0.1% FS for multi-input (thermocouple/platinum resistance thermometer) models)
Proportional band (P)		1 to 999°C (automatic adjustment using AT/ST)
Integral time (I)		0 to 1,999 s (automatic adjustment using AT/ST)
Derivative time (D)		0 to 1,999 s (automatic adjustment using AT/ST)
Control period		2/20 s
Sampling period		500 ms
Electrical life expectancy		100,000 operations min. (relay output models)
Weight		Approx. 120 g (controller only)
Degree of protection		Front panel: Equivalent to IP66; rear case: IP20; terminals: IP00
Memory protection		EEPROM (non-volatile memory) (number of writes: 1,000,000)
Size in mm (HxWxD)		48x48x78

Compact and intelligent general purpose controllers

The E5_N general purpose line of temperature controllers is available in 4 standard DIN formats. They all feature a high intensity dual LCD display with a wide viewing angle. The whole series features 3 colour PV change for easy status recognition.

- Control mode: ON/OFF or 2-PID
- Control output: relay, hybrid relay, voltage (pulse) or linear current
- Power supply: 100/240 VAC or 24 VDC/VAC
- Easy PC connection for parameter cloning, setting and tuning
- Clear and intuitive set-up and operation

Ordering information

Type	Input	Output	Fixed option	Alarms	Order code	
					48x24 mm model (includes supply voltage indication)	
On-panel	temperature (TC/Pt/mV)	relay	–	1 relay	E5GN-R1T-C AC100-240	E5GN-R1TD-C AC/DC24
			RS-485 communication		E5GN-R103T-C-FLK AC100-240	E5GN-R103TD-C-FLK AC/DC24
			2 Event inputs		E5GN-R1BT-C AC100-240	E5GN-R1BTD-C AC/DC24
		voltage (pulse)	–		E5GN-Q1T-C AC100-240	E5GN-Q1TD-C AC/DC24
			RS-485 communication		E5GN-Q103T-C-FLK AC100-240	E5GN-Q103TD-C-FLK AC/DC24
			2 Event inputs		E5GN-Q1BT-C AC100-240	E5GN-Q1BTD-C AC/DC24
		current (linear)	–		E5GN-C1T-C AC100-240	E5GN-C1TD-C AC/DC24
			RS-485 communication		E5GN-C103T-C-FLK AC100-240	E5GN-C103TD-C-FLK AC100-240
			2 Event inputs		E5GN-C1BT-C AC100-240	E5GN-C1BTD-C AC/DC24
		relay	–	2 relay	E5GN-R2T-C AC100-240	E5GN-R2TD-C AC/DC24
			RS-485 communication		E5GN-R203T-C-FLK AC100-240	E5GN-R203TD-C-FLK AC100-240
			2 Event inputs		E5GN-R2BT-C AC100-240	E5GN-R2BTD-C AC/DC24
			Heater Alarm		E5GN-R2HT-C AC100-240	E5GN-R2HTD-C AC/DC24
		voltage (pulse)	–		E5GN-Q2T-C AC100-240	E5GN-Q2TD-C AC/DC24
			RS-485 communication		E5GN-Q203T-C-FLK AC100-240	E5GN-Q203TD-C-FLK AC/DC24
			2 Event inputs		E5GN-Q2BT-C AC100-240	E5GN-Q2BTD-C AC/DC24
			Heater Alarm		E5GN-Q2HT-C AC100-240	E5GN-Q2HTD-C AC/DC24
	analogue (mA/V)	relay	RS-485 communication	1 relay	E5GN-R103L-FLK AC100-240	E5GN-R103LD-FLK AC/DC24
		voltage (pulse)	RS-485 communication		E5GN-Q103L-FLK AC100-240	E5GN-Q103LD-FLK AC/DC24
		current (linear)	–		E5GN-C1L-C AC100-240	E5GN-C1LD-C AC/DC24

Type	Input	Output	Fixed option	Alarms	Order code	
					48x48 mm model (includes supply voltage indication)	
On-panel	temperature (TC/Pt/mV)	relay	–	2 relays	E5CN-R2MT-500 AC100-240	E5CN-R2MTD-500 AC/DC24
		voltage (pulse)			E5CN-Q2MT-500 AC100-240	E5CN-Q2MTD-500 AC/DC24
		linear current			E5CN-C2MT-500 AC100-240	E5CN-C2MTD-500 AC/DC24
		hybrid relay			E5CN-Y2MT-500 AC100-240	–
	analogue (mA/V)	relay			E5CN-R2ML-500 AC100-240	E5CN-R2MLD-500 AC/DC24
		voltage (pulse)			E5CN-Q2ML-500 AC100-240	E5CN-Q2MLD-500 AC/DC24
		linear current			E5CN-C2ML-500 AC100-240	E5CN-C2MLD-500 AC/DC24
		hybrid relay			E5CN-Y2ML-500 AC100-240	n/a
In-panel	temperature (TC/Pt/mV)	relay		2 relays	E5CN-R2TU AC100-240	E5CN-R2TDU AC/DC24
		voltage (pulse)			E5CN-Q2TU AC100-240	E5CN-Q2TDU AC/DC24
		linear current			E5CN-C2TU AC100-240	E5CN-C2TDU AC/DC24
	analogue (mA/V)	relay			E5CN-R2LU AC100-240	–
		voltage (pulse)			E5CN-Q2LU AC100-240	–
		linear current			E5CN-C2LU AC100-240	–

Note: - Output and Alarm Relays: 3 A/250 VAC, electrical life: 100,000 operations
- Output voltage (pulse): 12 V, 21 mA (ie. to drive solid state relays)
- Hybrid relay (long life relay) electrical life 1,000,000 operations
- Linear current: 0(4) to 20 mA
- Heater alarm / HA = heater burnout + SSR short detection + SSR overcurrent
- Voltage: Specify the power supply specifications (voltage) when ordering E5GN

Accessories

E5CN option boards

(One slot available in each instrument; do no fit in E5CN-U types)

Option			Order code
2 Event inputs	–	–	E53-CNBN2
	–	voltage (pulse)	E53-CNQBN2
	heater alarm	–	E53-CNHBN2
	–	power supply (12 VDC/20 mA)	E53-CNPBN2
RS-485 serial communications (CompowayF/ Modbus RTU)	–	–	E53-CN03N2
	–	voltage (pulse)	E53-CNQ03N2
	heater alarm	–	E53-CNH03N2
	3-phase HA	–	E53-CNHH03N2
	–	power supply (12 VDC/20 mA)	E53-CNP03N2
–	heater alarm	voltage (pulse)	E53-CNQHN2
	3-phase HA	voltage (pulse)	E53-CNQHHN2
	heater alarm	power supply (12 VDC/20 mA)	E53-CNPHN2

Note: Options with "N2" in the code, only fit in E5CN produced after January 2008 (marked N6 on the box)

E5CN series optional tools

Option		Order code
USB PC based configuration cable		E58-CIFQ1
PC based configuration and tuning software		CX-Thermo
PC based parameter cloning software (free)		ThermoMini
Standard 11 pin socket for E5CN-_ _ _ U type		P2CF-11-E

Type	Input	Output	Fixed option	Alarms	Order code (includes supply voltage indication)	
					48x96 mm model	96x96 mm model
On-panel	temperature (TC/Pt/mV)	relay	–	3 relays	E5EN-R3MT-500-N AC100-240	E5AN-R3MT-500-N AC100-240
					E5EN-R3MTD-500-N AC/DC24	E5AN-R3MTD-500-N AC/DC24
			heater alarm		E5EN-R3HMT-500-N AC100-240	E5AN-R3HMT-500-N AC100-240
					E5EN-R3HMTD-500-N AC/DC24	E5AN-R3HMTD-500-N AC/DC24
			3-phase heater alarm		E5EN-R3HHMT-500-N AC100-240	E5AN-R3HHMT-500-N AC100-240
					E5EN-R3HHMTD-500-N AC/DC24	E5AN-R3HHMTD-500-N AC/DC24
			voltage (pulse)		E5EN-R3QMT-500-N AC100-240	E5AN-R3QMT-500-N AC100-240
			hybrid relay		E5EN-R3YMT-500-N AC100-240	E5AN-R3YMT-500-N AC100-240
			power supply		E5EN-R3PMT-500-N AC100-240	E5AN-R3PMT-500-N AC100-240
		voltage (pulse)	–		E5EN-Q3MT-500-N AC100-240	E5AN-Q3MT-500-N AC100-240
					E5EN-Q3MTD-500-N AC/DC24	E5AN-Q3MTD-500-N AC/DC24
			heater alarm		E5EN-Q3HMT-500-N AC100-240	E5AN-Q3HMT-500-N AC100-240
					E5EN-Q3HMTD-500-N AC/DC24	E5AN-Q3HMTD-500-N AC/DC24
			3-phase heater alarm		E5EN-Q3HHMT-500-N AC100-240	E5AN-Q3HHMT-500-N AC100-240
					E5EN-Q3HHMTD-500-N AC/DC24	E5AN-Q3HHMTD-500-N AC/DC24
			voltage (pulse)		E5EN-Q3QMT-500-N AC100-240	E5AN-Q3QMT-500-N AC100-240
			hybrid relay		E5EN-Q3YMT-500-N AC100-240	E5AN-Q3YMT-500-N AC100-240
			power supply		E5EN-Q3PMT-500-N AC100-240	E5AN-Q3PMT-500-N AC100-240
		linear current	–		E5EN-C3MT-500-N AC100-240	E5AN-C3MT-500-N AC100-240
					E5EN-C3MTD-500-N AC/DC24	E5AN-C3MTD-500-N AC/DC24
			voltage (pulse)		E5EN-C3QMT-500-N AC100-240	E5AN-C3QMT-500-N AC100-240
			hybrid relay		E5EN-C3YMT-500-N AC100-240	E5AN-C3YMT-500-N AC100-240
	analogue (mA/V)	relay	–		E5EN-R3ML-500-N AC100-240	E5AN-R3ML-500-N AC100-240
			heater alarm		E5EN-R3HML-500-N AC100-240	E5AN-R3HML-500-N AC100-240
		voltage (pulse)	–		E5EN-Q3ML-500-N AC100-240	E5AN-Q3ML-500-N AC100-240
			heater alarm		E5EN-Q3HML-500-N AC100-240	E5AN-Q3HML-500-N AC100-240
			hybrid relay		E5EN-Q3YML-500-N AC100-240	E5AN-Q3YML-500-N AC100-240
		linear current	–		E5EN-C3ML-500-N AC100-240	E5AN-C3ML-500-N AC100-240

Note: - Output and Alarm Relays: 3 A/250 VAC, electrical life: 100,000 operations
- Output voltage (pulse): 12 V, 21 mA (ie. to drive solid state relays)
- Hybrid relay (long life relay) electrical life 1,000,000 operations
- Linear current: 0(4) to 20 mA
- Heater alarm / HA = heater burnout + SSR short detection + SSR overcurrent

E5AN/-EN option boards

(one slot available in each instrument)

Option	Order code
RS-232C communications (CompoWay/F/Modbus)	E53-EN01
RS-485 communications (CompoWay/F/Modbus)	E53-EN03
event input	E53-AKB

E5AN/-EN series optional tools

Option		Order code
USB PC based configuration cable		E58-CIFQ1
PC based configuration and tuning software		CX-Thermo
PC based parameter cloning software (free)		ThermoMini

Specifications

Supply voltage	100 to 240 VAC 50/60 Hz or 24 VAC, 50/60Hz; 24 VDC
Heater alarm	yes, optional, choice of 1 or 3 phase
Thermocouple input type	K, J, T, E, L, U, N, R, S, B, W or PL II
RTD input type	Pt100, JPt100
Linear input type	mV or "T" models mA and V on "L" models
Control mode	ON/OFF, 2-PID (heat or heat/cool)
Accuracy	Thermocouple ± 0.3% (E5CN-U ± 1%) Platinum resistance ± 0.2% Analogue input ± 0.2% FS
Auto-tuning	yes, 40% and 100% MV output limit selection. When using Heat/Cool: automatic cool gain adjustment
Self-tuning	yes
RS-232C	Only for AN/-EN: Optional, Protocol CompowayF or Modbus freely selectable
RS-485	optional, CompowayF or Modbus selectable
Event input	optional
QLP port (USB connection PC)	yes
Ambient temperature	-10 to 55°C
IP Rating front panel	IP66
Sampling period	250 ms

CelciuXº - Multi-Loop temperature control – Control and Connectivity

CelciuXº is designed to handle complex temperature profiles thanks to Omron's unique Gradient temperature Control (GTC) algorithm and to offer easy program-less communication with Omron and third-party PLCs and HMI. Above all, CelciuXº incorporates all "simple to use" clever temperature control technology, like 2-PID, disturbance control and various ways of tuning.

- Interfaces to a wide range of industrial networks
- Reduced engineering due to Program-less communications, Smart Active Parts and Function Block Libraries
- Available with screw terminals and screw-less clamp terminals
- One unit handling various types of input, such as Pt, Thermocouple, mA, and V input
- Gradient Temperature Control (GTC)

Ordering information

Type	Control points	Control outputs	Auxiliary outputs	Other functions	Terminal	Order code
Basic unit	2	2 voltage (puls)	2 transistor (NPN) *1	2 CT input *2 + 2 event input	M3 screws	EJ1N-TC2A-QNHB
Basic unit	2	2 voltage (puls)	2 transistor (NPN) *1	2 CT input *2 + 2 event input	Screw-less clamp	EJ1N-TC2B-QNHB
Basic unit	2	2 current	2 transistor (NPN) *1	2 event input	M3 screws	EJ1N-TC2A-CNB
Basic unit	2	2 current	2 transistor (NPN) *1	2 event input	Screw-less clamp	EJ1N-TC2B-CNB
Basic unit	4	4 voltage (puls)	–	–	M3 screws	EJ1N-TC4A-QQ
Basic unit	4	4 voltage (puls)	–	–	Screw-less clamp	EJ1N-TC4B-QQ
High function unit	–	–	4 transistor (NPN)	4 event input	M3 screws	EJ1N-HFUA-NFLK
High function unit	–	–	4 transistor (NPN)	4 event input	Screw-less clamp	EJ1N-HFUB-NFLK
DeviceNet unit	–	–	–	–	Screw connector	EJ1N-HFUB-DRT
End unit *3	–	–	2 transistor (NPN)	–	M3 screws	EJ1C-EDUA-NFLK
End unit *3	–	–	2 transistor (NPN)	–	Removable Connector	EJ1C-EDUC-NFLK

*1 For heating/cooling control applications, the auxiliary outputs on the 2-point models are used for cooling control. On the 4-point models, heating/cooling control can be performed for two input points only.
*2 When using the heater burnout alarm, purchase a Current Transformer (E54-CT1 or E54-CT3) separately.
*3 An End unit is always required for connection to a Basic unit or an HFU. An HFU cannot operate without a Basic unit.

Type	Control points	Control outputs	Auxiliary outputs	Other functions	Terminal	Order code
Basic unit	2 (GTC)	2 voltage (puls) *1	2 transistor (NPN)	2 CT input *2	M3 screws	EJ1G-TC2A-QNH
Basic unit	2 (GTC)	2 voltage (puls) *1	2 transistor (NPN)	2 CT input *2	Screw-less clamp	EJ1G-TC2B-QNH
Basic unit	4 (GTC)	4 voltage (puls) *1	–	–	M3 screws	EJ1G-TC4A-QQ
Basic unit	4 (GTC)	4 voltage (puls) *1	–	–	Screw-less clamp	EJ1G-TC4B-QQ
High function unit	– (GTC)	–	4 transistor (NPN)	–	M3 screws	EJ1G-HFUA-NFLK
High function unit	– (GTC)	–	4 transistor (NPN)	–	Screw-less clamp	EJ1G-HFUB-NFLK
End unit *3	–	–	2 transistor (NPN)	–	M3 screws	EJ1C-EDUA-NFLK
End unit *3	–	–	2 transistor (NPN)	–	Removable Connector	EJ1C-EDUC-NFLK

*1 Heating/cooling control is not supported for gradient temperature control.
*2 When using the heater burnout alarm, use a Current Transformer (E54-CT1 or E54-CT3) (sold separately).
*3 An End-unit (EDU) is always required to connect an HFU and or a Basic TC unit for Communications and Power supply. A GTC (Gradient Temperature Control) basic TC unit always requires a GTC HFU unit.

Accessories

Current transformer

Diameter	Order code
5.8 dia.	E54-CT1
12.0 dia.	E54-CT3

Communications and cables

Description	Order code
G3ZA connecting cable 5 meter	EJ1C-CBLA050
USB programming cable	E58-CIFQ1
PC based configuration and tuning software CX-Thermo	EST2-2C-MV4
PROFIBUS Gateway	PRT1-SCU11

Specifications

Item	Type	EJ1_-TC2	EJ1_-TC4
Power supply voltage		24 VDC	
Operating voltage range		85% to 110% of rated voltage	
Power consumption		4 W max. (at maximum load)	5 W max. (at maximum load)
Input (see note)*1		Thermocouple: K, J, T, E, L, U, N, R, S, B, W, PLII ES1B Infrared Thermosensor: 10 to 70°C, 60 to 120°C, 115 to 165°C, 140 to 260°C. Analogue input: 4 to 20 mA, 0 to 20 mA, 1 to 5 V, 0 to 5 V, 0 to 10 V Platinum resistance thermometer: Pt100, JPt100	
Input impedance		Current input: 150Ω max., voltage input: 1 MΩ min.	
Control outputs	Voltage output	Output voltage: 12 VDC ±15%, max. load current: 21 mA (PNP models with short-circuit protection circuit)	
	Transistor output	Max. operating voltage: 30 V, max. load current: 100 mA	–
	Current output	Current output range: 4 to 20 mA or 0 to 20 mA DC Load: 500 Ω max. (including transfer output) (Resolution: Approx: 2,800 for 4 to 20 mA DC, approx. 3,500 for 0 to 20 mA DC)	–
Event inputs	Input points	2	–
	Contact input	ON: 1 kΩ max., OFF. 100 kΩ min.	–
	Non-contact input	ON: Residual voltage: 1.5 V max., OFF: Leakage current: 0.1 mA max.	–
		Outflow current: approx. 4 mA per point	–
Number of input and control points		Input points: 2, control points: 2	Input points: 4, control points: 4
Setting method		Via communications	
Control method		ON/OFF control or 2-PID (with autotuning, selftuning, Heat & Cool autotuning and non-linear cool output selection)	
Other functions		Two-point input shift, digital input filter, remote SP, SP ramp, manual manipulated variable, manipulated variable limiter, interference overshoot adjustment, loop burnout alarm, RUN/STOP, banks, I/O allocations, etc.	
Alarm output		2 points via End unit	
Communication		RS-485, PROFIBUS, Modbus, DeviceNet	RS-485, PROFIBUS, Modbus, DeviceNet
Size in mm (WxHxD)		31x96x109	
Weight		180 g	
Ambient temperature range		Operating -10°C to 55°C, Storage -25°C to 65°C (with no icing or condensation)	
Ambient humidity range		Operating. 25% to 85% (with no condensation)	

*1 Inputs are fully multi-input. Therefore, platinum resistance thermometer, thermocouple, infrared thermosensor, and analogue input can be selected.

Universal compact digital process controllers

The E5_N-H series of process controllers take the proven concept of the general purpose E5_N series to a process level. Main features of the E5_N-H series are universal inputs, process outputs and options such as transfer output, remote set-point and setvalue programmer.

- Control mode: ON/OFF or 2-PID, Valve control on EN-H/AN-H
- Control output: relay, voltage (pulse), SSR, linear current and voltage
- Power supply: 100/240 VAC or 24 VDC/VAC
- Easy PC connection for parameter cloning, setting and tuning
- Clear and intuitive set-up and operation

Ordering information

Type	Input	Output	Fixed option	Alarms	Order code	
					48x48 mm model (includes supply voltage indication)	
On-panel	Universal TC/Pt/mV mA/V	Relay output	–	3 software alarms 2 SUB outputs	E5CN-HR2M-500 AC100-240	E5CN-HR2MD-500 AC/DC24
		Voltage (pulse)			E5CN-HQ2M-500 AC100-240	E5CN-HQ2MD-500 AC/DC24
		Current output			E5CN-HC2M-500 AC100-240	E5CN-HC2MD-500 AC/DC24
		Linear voltage output			E5CN-HV2M-500 AC100-240	E5CN-HV2MD-500 AC/DC24
		Relay output	SV programmer (8 programs of 32 segments		E5CN-HTR2M-500 AC100-240	E5CN-HTR2MD-500 AC/DC24
		Voltage (pulse)			E5CN-HTQ2M-500 AC100-240	E5CN-HTQ2MD-500 AC/DC24
		Current output			E5CN-HTC2M-500 AC100-240	E5CN-HTC2MD-500 AC/DC24
		Linear voltage output			E5CN-HTV2M-500 AC100-240	E5CN-HTV2MD-500 AC/DC24

Note:
- Output and Alarm Relays: 3 A/250 VAC, electrical life: 100,000 operations
- Output voltage (pulse): 12 V, 21 mA (ie. to drive solid state relays)
- Linear current: 0(4) to 20 mA
- Linear voltage output: 0 to 10 V

Accessories

E5CN-H option boards

(One slot available in each instrument)

Option				Order code
Event inputs				E53-CNBN2
Event inputs	Control output 2 Voltage (for driving SSR)			E53-CNQBN2
Event inputs			Heater burnout/SSR failure/ Heater overcurrent detection	E53-CNHBN2
Event inputs		Transfer output		E53-CNBFN2
Communications RS-232C	Control output 2 Voltage (for driving SSR)			E53-CN01N2
Communications RS-232C				E53-CNQ01N2
Communications RS-232C			Heater burnout/SSR failure/ Heater overcurrent detection	E53-CNH01N2
Communications RS-485				E53-CN03N2
Communications RS-485	Control output 2 Voltage (for driving SSR)			E53-CNQO3N2
Communications RS-485			Heater burnout/SSR failure/ Heater overcurrent detection	E53-CNH03N2
Communications RS-485			3-phase heater burnout/SSR failure/ Heater overcurrent detection	E53-CNHH03N2
	Control output 2 Voltage (for driving SSR)	Transfer output		E53-CNQFN2
	Control output 2 Voltage (for driving SSR)		Heater burnout/SSR failure/ Heater overcurrent detection	E53-CNQHN2
	Control output 2 Voltage (for driving SSR)		3-phase heater burnout/SSR failure/ Heater overcurrent detection	E53-CNQHHN2

Control method	Auxiliary output	Control output 1/2	Heater burnout	Transfer output	Order code (includes supply voltage indication)	
					96x96 mm model	48x96 mm model
Basic	2 alarm relays	none fitted, 2 slots	1-phase		E5AN-HAA2HBM-500 AC100-240	E5EN-HAA2HBM-500 AC100-240
		none fitted, 2 slots			E5AN-HAA2HBMD-500 AC/DC24	E5EN-HAA2HBMD-500 AC/DC24
		2 SSR output fitted			E5AN-HSS2HBM-500 AC100-240	E5EN-HSS2HBM-500 AC100-240
		2 SSR output fitted			E5AN-HSS2HBMD-500 AC/DC24	E5EN-HSS2HBMD-500 AC/DC24
		none fitted, 2 slots	3-phase	4 to 20 mA output	E5AN-HAA2HHBFM-500 AC100-240	E5EN-HAA2HHBFM-500 AC100-240
		none fitted, 2 slots			E5AN-HAA2HHBFMD-500 AC/DC24	E5EN-HAA2HHBFMD-500 AC/DC24
		2 SSR output fitted			E5AN-HSS2HHBFM-500 AC100-240	E5EN-HSS2HHBFM-500 AC100-240
		2 SSR output fitted			E5AN-HSS2HHBFMD-500 AC/DC24	E5EN-HSS2HHBFMD-500 AC/DC24
	3 alarm relays	none fitted, 2 slots			E5AN-HAA3BFM-500 AC100-240	E5EN-HAA3BFM-500 AC100-240
		none fitted, 2 slots			E5AN-HAA3BFMD-500 AC/DC24	E5EN-HAA3BFMD-500 AC/DC24
		2 SSR output fitted			E5AN-HSS3BFM-500 AC100-240	E5EN-HSS3BFM-500 AC100-240
		2 SSR output fitted			E5AN-HSS3BFMD-500 AC/DC24	E5EN-HSS3BFMD-500 AC/DC24
Valve controller	2 alarm relays	2 relay output fitted			E5AN-HPRR2BM-500 AC100-240	E5EN-HPRR2BM-500 AC100-240
					E5AN-HPRR2BMD-500 AC/DC24	E5EN-HPRR2BMD-500 AC/DC24
				4 to 20 mA output	E5AN-HPRR2BFM-500 AC100-240	E5EN-HPRR2BFM-500 AC100-240
					E5AN-HPRR2BFMD-500 AC/DC24	E5EN-HPRR2BFMD-500 AC/DC24
SV programmer (8 programs of 32 segments	2 alarm relays	none fitted, 2 slots	1-phase		E5AN-HTAA2HBM-500	E5EN-HTAA2HBM-500 AC100-240
					E5AN-HTAA2HBMD-500	E5EN-HTAA2HBMD-500 AC/DC24
			3-phase	4 to 20 mA output	E5AN-HTAA2HHBFM-500	E5EN-HTAA2HHBFM-500
					E5AN-HTAA2HHBFMD-500	E5EN-HTAA2HHBFMD-500
	3 alarm relays				E5AN-HTAA3BFM-500	E5EN-HTAA3BFM-500
					E5AN-HTAA3BFMD-500	E5EN-HTAA3BFMD-500
SV programmer and valve controller	2 alarm relays	2 relay output fitted			E5AN-HTPRR2BM-500	E5EN-HTPRR2BM-500
					E5AN-HTPRR2BMD-500	E5EN-HTPRR2BMD-500
				4 to 20 mA output	E5AN-HTPRR2BFM-500	E5EN-HTPRR2BFM-500
					E5AN-HTPRR2BFMD-500	E5EN-HTPRR2BFMD-500

Note: - All E5EN-H/AN-H have 2 event inputs
- All E5EN-H/AN-H have Remote Setpoint 4 to 20 mA input

Specifications E5CN-H/EN-H/AN-H

Supply voltage	100 to 240 VAC 50/60 Hz or 24 VAC, 50/60Hz; 24 VDC
Sensor input	Thermocouple: K, J, T, E, L, U, N, R, S, B, W or PL II
	Platinum resistance thermometer: Pt100 or JPt100
	Current input: 4 to 20 mA or 0 to 20 mA
	Voltage input: 1 to 5 V, 0 to 5 V or 0 to 10 V
Control mode	ON/OFF, 2-PID and valve (PRR)
Accuracy	Thermocouple: (± 0.1% of indicated value or ±1°C, whichever is greater) ± digit max. *1 Platinum resistance thermometer: (± 0.1% of indicated value or ± 0.5°C, whichever is greater) ± 1 digit max. Analogue input: ± 0.1% FS ± 1 digit max.
Auto-tuning	yes, 40% and 100% MV output limit selection. When using Heat/Cool: automatic cool gain adjustment
Self-tuning	yes
RS-232C/RS-422/RS-485	optional, CompowayF or Modbus selectable
Event input	Optional (Standard 2 event input in EN-H/AN-H)
QLP port (USB connection PC)	yes
Ambient temperature	-10 to 55°C
IP Rating front panel	IP66
Sampling period	60 ms

E5AN-H/EN-H output option boards

(2 slots available in E5_N-HAA__-500 models:
SS models have 2 fixed SSR output modules)

Option	Order code
Relay	E53-RN
Voltage (pulse) PNP 12VDC	E53-QN
Voltage (pulse) NPN 12VDC	E53-Q3
Voltage (pulse) NPN 24VDC	E53-Q4
Linear 4 to 20 mA	E53-C3N
Linear 0 to 20 mA	E53-C3DN
Linear 0 to 10 V	E53-V34N
Linear 0 to 5 V	E53-V35N

E5AN-H/EN-H option boards

(one slot available in each instrument)

Option	Order code
RS-232C communications (CompoWay/F/Modbus)	E53-EN01
RS-422 communications (CompoWay/F/Modbus)	E53-EN02
RS-485 communications (CompoWay/F/Modbus)	E53-EN03
event input	E53-AKB

E5AN-H/EN-H series optional tools

Option		Order code
USB PC based configuration cable		E58-CIFQ1
PC based configuration and tuning software	CX-Thermo	EST2-2C-MV4

Fast, accurate and equipped for application specific needs

The E5_R series provides you with high accuracy inputs (0.01°C for Pt100) and a 50 ms sample and control cycle for all four loops. Its unique Disturbance Overshoot Reduction Adjustment ensures solid, robust control.

- Easy and clear read-out thanks to bright Liquid Crystal Display
- Exceptional versatility – multi-loop control, cascade control, and valve control
- Easy integration with DeviceNet, PROFIBUS or Modbus
- SV programmer optional, 32 programs with up to 256 segments

Ordering information

Functions	Loops	Input		Output		Comms	Order code		
		analogue	Event	Control	Alarm		96x96 mm	Supply voltage	
standard	1	1	2	2 QC+Q	4R	–	E5AR-Q4B	AC100-240	or DC/AC 24
standard	1	1	2	2 QC+Q	4R	RS-485	E5AR-Q43B-FLK	AC100-240	–
standard	1	1	6	2 QC+Q	4R	RS-485	E5AR-Q43DB-FLK	AC100-240	–
standard	1	1	6	4 QC+Q+C+C	4R	RS-485	E5AR-QC43DB-FLK	AC100-240	or DC/AC 24
standard	max 2	2	4	2 QC+Q	4R	RS-485	E5AR-Q43DW-FLK	AC100-240	–
standard	max 2	2	4	4 QC+Q+QC+Q	4R	RS-485	E5AR-QQ43DW-FLK	AC100-240	or DC/AC 24
standard	max 4	4	4	4 QC+Q+QC+Q	4R	RS-485	E5AR-QQ43DWW-FLK	AC100-240	–
standard	1	1	2	2 C+C	4R	–	E5AR-C4B	AC100-240	or DC/AC 24
standard	1	1	2	2 C+C	4R	RS-485	E5AR-C43B-FLK	AC100-240	–
standard	1	1	6	2 C+C	4R	RS-485	E5AR-C43DB-FLK	AC100-240	–
standard	max 2	2	4	2 C+C	4R	RS-485	E5AR-C43DW-FLK	AC100-240	–
standard	max 4	4	4	4 C+C+C+C	4R	RS-485	E5AR-CC43DWW-FLK	AC100-240	or DC/AC 24
valve	1	1 + pot	4	2 R+R	4R	–	E5AR-PR4DF	AC100-240	or DC/AC 24
valve	1	1 + pot	4	4 R+R+QC+Q	4R	RS-485	E5AR-PRQ43DF-FLK	AC100-240	or DC/AC 24
standard	1	1	2	2 QC+Q	4R	DeviceNet	E5AR-Q4B-DRT	AC100-240	or DC/AC 24
standard	1	1	2	4 QC+Q+C+C	4R	DeviceNet	E5AR-QC4B-DRT	AC100-240	or DC/AC 24
standard	max 2	2	–	4 QC+Q+QC+Q	4R	DeviceNet	E5AR-QQ4W-DRT	AC100-240	or DC/AC 24
standard	1	1	2	2 C+C	4R	DeviceNet	E5AR-C4B-DRT	AC100-240	or DC/AC 24
standard	max 4	4	–	4 C+C+C+C	4R	DeviceNet	E5AR-CC4WW-DRT	AC100-240	or DC/AC 24
valve	1	1 + pot	–	2 R+R	4R	DeviceNet	E5AR-PR4F-DRT	AC100-240	or DC/AC 24
valve	1	1 + pot	–	4 R+R+QC+Q	4R	DeviceNet	E5AR-PRQ4F-DRT	AC100-240	or DC/AC 24
SV programmer	1	1	2	2 QC+Q	4R	–	E5AR-TQ4B	AC100-240	or DC/AC 24
SV programmer	1	1	2	2 C+C	4R	–	E5AR-TC4B	AC100-240	or DC/AC 24
SV programmer	1	1	2	2 QC+Q	4R	RS-485	E5AR-TQ43B-FLK	AC100-240	–
SV programmer	1	1	2	2 C+C	4R	RS-485	E5AR-TC43B-FLK	AC100-240	–
SV programmer	1	1	10	2 QC+Q	10T	RS-485	E5AR-TQE3MB-FLK	AC100-240	–
SV programmer	1	1	10	2 C+C	10T	RS-485	E5AR-TCE3MB-FLK	AC100-240	–
SV programmer	1	1	10	4 QC+Q+C+C	10T	RS-485	E5AR-TQCE3MB-FLK	AC100-240	or DC/AC 24
SV programmer	max 2	2	4	2 QC+Q	4R	RS-485	E5AR-TQ43DW-FLK	AC100-240	–
SV programmer	max 2	2	4	2 C+C	4R	RS-485	E5AR-TC43DW-FLK	AC100-240	–
SV programmer	max 2	2	8	4 QC+Q+QC+Q	10T	RS-485	E5AR-TQQE3MW-FLK	AC100-240	or DC/AC 24
SV programmer	max 4	4	8	4 C+C+C+C	10T	RS-485	E5AR-TCCE3MWW-FLK	AC100-240	or DC/AC 24
SV programmer	max 4	4	8	4 QC+Q+QC+Q	10T	RS-485	E5AR-TQQE3MWW-FLK	AC100-240	–
SV programmer + valve	1	1 + pot	4	2 R+R	4R	–	E5AR-TPR4DF	AC100-240	or DC/AC 24
SV programmer + valve	1	1 + pot	8	4 R+R+QC+Q	10T	RS-485	E5AR-TPRQE3MF-FLK	AC100-240	or DC/AC 24

Note:- Voltage: Specify the power supply specifications (voltage) when ordering.

- Standard = heat and/or cool PID control, valve = valve positioning (relay up/down) (PRR)
- max 2 = 2 loops heat and/or cool or 1 loop cascade, ratio or remote SP
- max 4 = 4 loops heat and/or cool
- 1, 2 or 4 = number of analogue universal input 1 + pot = 1 universal and 1 slide wire feedback from valve
- QC = voltage (pulse) or current (switch), Q = voltage (pulse), C = current, 4R = 4 two pole relay, 2T = two transistor output NPN

Functions	Loops	Input		Output		Comms	Order code		
		analogue	Event	Control	Alarm		48x96 mm	Supply voltage	
standard	1	1	2	2 QC+Q	4R	–	E5ER-Q4B	AC100-240	or DC/AC 24
standard	1	1	2	2 QC+Q	4R	RS-485	E5ER-Q43B-FLK	AC100-240	–
standard	1	1	2	4 QC+Q+C+C	4R	RS-485	E5ER-QC43B-FLK	AC100-240	or DC/AC 24
standard	1	1	6	2 QC+Q	2T	RS-485	E5ER-QT3DB-FLK	AC100-240	–
standard	max 2	2	4	2 QC+Q	2T	RS-485	E5ER-QT3DW-FLK	AC100-240	or DC/AC 24
standard	1	1	2	2 C+C	4R	–	E5ER-C4B	AC100-240	or DC/AC 24
standard	1	1	2	2 C+C	4R	RS-485	E5ER-C43B-FLK	AC100-240	–
standard	1	1	6	2 C+C	2T	RS-485	E5ER-CT3DB-FLK	AC100-240	–
standard	max 2	2	4	2 C+C	2T	RS-485	E5ER-CT3DW-FLK	AC100-240	or DC/AC 24
valve	1	1 + pot	4	2 R+R	2T	–	E5ER-PRTDF	AC100-240	or DC/AC 24
valve	1	1 + pot	–	4 R+R+QC+Q	4R	RS-485	E5ER-PRQ43F-FLK	AC100-240	or DC/AC 24
standard	1	1	2	2 QC+Q	2T	DeviceNet	E5ER-QTB-DRT	AC100-240	or DC/AC 24
standard	max 2	2	–	2 QC+Q	2T	DeviceNet	E5ER-QTW-DRT	AC100-240	or DC/AC 24
standard	1	1	2	2 C+C	2T	DeviceNet	E5ER-CTB-DRT	AC100-240	or DC/AC 24
standard	max 2	2	–	2 C+C	2T	DeviceNet	E5ER-CTW-DRT	AC100-240	or DC/AC 24
valve	1	1 + pot	–	2 R+R	2T	DeviceNet	E5ER-PRTF-DRT	AC100-240	or DC/AC 24
SV programmer	1	1	2	2 QC+Q	4R	–	E5ER-TQ4B	AC100-240	or DC/AC 24
SV programmer	1	1	2	2 C+C	4R	–	E5ER-TC4B	AC100-240	or DC/AC 24
SV programmer	1	1	2	2 QC+Q	4R	RS-485	E5ER-TQC43B-FLK	AC100-240	or DC/AC 24
SV programmer	max 2	2	4	2 QC+Q	2T	RS-485	E5ER-TQT3DW-FLK	AC100-240	or DC/AC 24
SV programmer	max 2	2	4	2 C+C	2T	RS-485	E5ER-TCT3DW-FLK	AC100-240	or DC/AC 24
SV programmer + valve	1	1 + pot	4	2 R+R	2T	–	E5ER-TPRTDF	AC100-240	or DC/AC 24
SV programmer + valve	1	1 + pot	–	3 R+R + QC	4R	RS-485	E5ER-TPRQ43F-FLK	AC100-240	or DC/AC 24

Note:- Voltage: Specify the power supply specifications (voltage) when ordering.

- **Standard = heat and/or cool PID control, valve = valve positioning (relay up/down) (PRR)**
- max 2 = 2 loops heat and/or cool or 1 loop cascade, ratio or remote SP
- max 4 = 4 loops heat and/or cool
- 1, 2 or 4 = number of analogue universal input 1 + pot = 1 universal and 1 slide wire feedback from valve
- QC = voltage (pulse) or current (switch), Q = voltage (pulse), C = current, 4R = 4 two pole relay, 2T = two transistor output NPN

Accessories

Terminal covers	Order code
Terminal cover for E5AR	E53-COV14
Terminal cover for E5ER	E53-COV15

E5_R/E5_R-T optional tools

Option	Order code
PC based configuration and tuning software CX-Thermo	EST2-2C-MV4

Specifications

Thermocouple input type	K, J, T, E, L, U, N, R, S, B, W
RTD input type	Pt100
Linear input type	mA, V
Control mode	2-PID or ON/OFF control
Accuracy	±0.1% FS
Auto-tuning	yes
RS-485	optional
Event input	optional
Ambient temperature	-10 to 55°C
IP rating front panel	IP66
Sampling period	50 ms
Size in mm (HxWxD)	E5ER: 96x48x110 E5AR: 96x96x110

PRT1-SCU11

Omron's intelligent PROFIBUS and CompoWay/F gateway

This gateway supports all CompoWay/F equipped products, including temperature controllers, digital panel indicators, etc. It can also be used for connecting MCW151-E and E5_K series.

- Cost-effectively integrates basic instruments into a PROFIBUS network
- Requires no complex protocol conversion writing
- Has function blocks for drag-and-drop configuration
- Connects up to 15 instruments to a single PROFIBUS point

Ordering information

Name	Order code
PROFIBUS remote terminal serial communications unit	PRT1-SCU11

Supports all CompoWay/F equipped units, but has "drag-and-drop" function blocks for

- E5AN/E5EN/E5CN/E5GN
- E5ZN and CelciuXº (EJ1)
- E5AR/E5ER
- E5AK/E5EK

Specifications

Storage temperature	-20 to +75°C
Ambient temperature	0 to 55°C
Ambient humidity	10 to 90% (non-condensing)
EMC compliance	EN 50081-2, EN 61131-2
Power supply	+24 VDC (+10%/-15%) Current consumption 80 mA (typical)
Weight	125 g (typical)
Communication interface	RS-485 based PROFIBUS-DP RS-422A Host link RS-485 CompoWay/F RS-232C Peripheral Port supporting connection to thermotools
Size in mm (HxWxD)	90x40x65

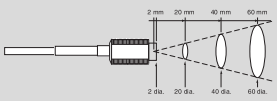
ES1B

Achieve low-cost measurements with an infrared thermosensor

This infrared thermosensor provides an accurate, stable and cost-effective way to measure the temperature of objects. It behaves just like a standard K-type thermocouple, which enables it to operate with any temperature controller or alarm unit.

- Cost-effective infrared thermosensor
- Contactless, meaning no deterioration, unlike thermocouples
- 4 temperature ranges available: 10-70°C, 60-120°C, 115-165°C and 140-260°C
- Response speed 300 ms

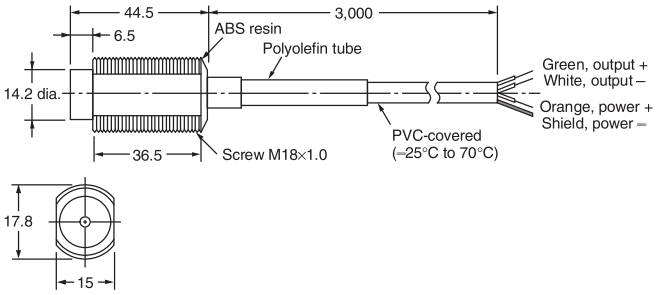
Ordering information

Appearance and sensing characteristics	Specification	Order code
	10 to 70°C	ES1B 10-70C
	60 to 120°C	ES1B 60-120C
	115 to 165°C	ES1B 115-165C
	140 to 260°C	ES1B 140-260C

Specifications

Power supply voltage		12/24 VDC
Current consumption		20 mA max.
Accuracy	±5°C	±2% PV or ±2°C, whichever is larger
	±10°C	±4% PV or ±4°C, whichever is larger
	±30°C	±6% PV or ±6°C, whichever is larger
	±40°C	±8% PV or ±8°C, whichever is larger
Reproducibility		±1% PV or ±1°C, whichever is larger
Temperature drift		0.4°C/°C max.
Receiver element		Thermopile
Response speed		Approximately 300 ms at response rate of 63%
Operating temperature		-25 to 70°C (with no icing or condensation)
Allowable ambient humidity		35 to 85%
Degree of protection		IP65
Size in mm		head: 17.8 dia.×44.5 (screw M18×1.0), cable 3,000

Dimensions (unit: mm)



Achieve Superior Environmental Resistance and a Wide Measurement Range of 0 to 400°C.

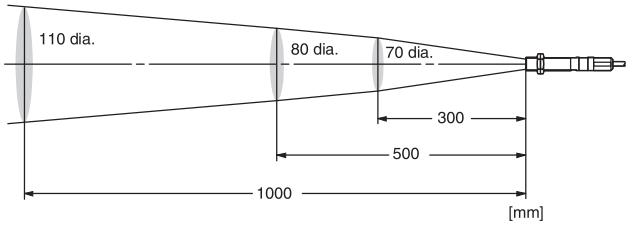
This gateway supports all CompoWay/F equipped products, including temperature controllers, digital panel indicators, etc. It can also be used for connecting MCW151-E and E5_K series.

- Flexible placement with slim cylindrical shape and long focus with a distance of 500 mm and area diameter of 80 mm.
- The SUS body and silicon lens resist ambient operating temperatures of up to 70×C and resist dust and water to the equivalent of IP67.
- Fast measurement with high-speed response of 100 ms/90%.
- Strong resistance to noise with output of 4 to 20 mA.

Ordering information

Specification (measuring temperature range)	Order code
0 to 400°C	ES1C-A40

Measurement Range



Note: The measurement range is the measurement diameter for an optical response of 90%. Make sure that the actual object to be measured is sufficiently larger than the measurement diameters in the above figure.

Ratings and Characteristics

Item / Model	ES1C
Power supply voltage	12 to 24 VDC
Operating voltage range	90% to 110% of rated voltage
Current consumption	70 mA max.
Measuring temperature range	0 to 400°C
Measurement accuracy	0 to 200°C: ±2°C, 201 to 400°C: ±1% (emissivity: 0.95)
Response time	100 ms/90%
Reproducibility	±1°C of reading value
Measurement wavelength	8 to 14 μm
Light-receiving element	Thermopile
Emissivity	0.95 fixed
Current output	4 to 20 mA DC, Load: 250 Ω max.
Ambient temperature range	Operating: 0 to 70°C, Storage: –20 to 70°C (with no icing or condensation)
Ambient humidity range	Operating and storage: 35% to 85%
Vibration resistance (destruction)	1.5-mm amplitude at 10 to 55 Hz for 2 hours each in the X, Y, and Z directions
Weight	180 g
Degree of protection	Equivalent to IP67

Dimensions (unit: mm)