

### **GO FOR EXPERIENCE**

## **We have been supplying quality components for more than half a century**

The huge installed base of our easy-to-use control components, is proof of our experience. Our control products with a display provide the clearest visibility and a perfect read-out. Omron, your single source for all your control components needs.

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## CELCIUX<sup>o</sup> – CONTROL AND CONNECTIVITY

### CelciuX<sup>o</sup> – Multi Loop Temperature Controller

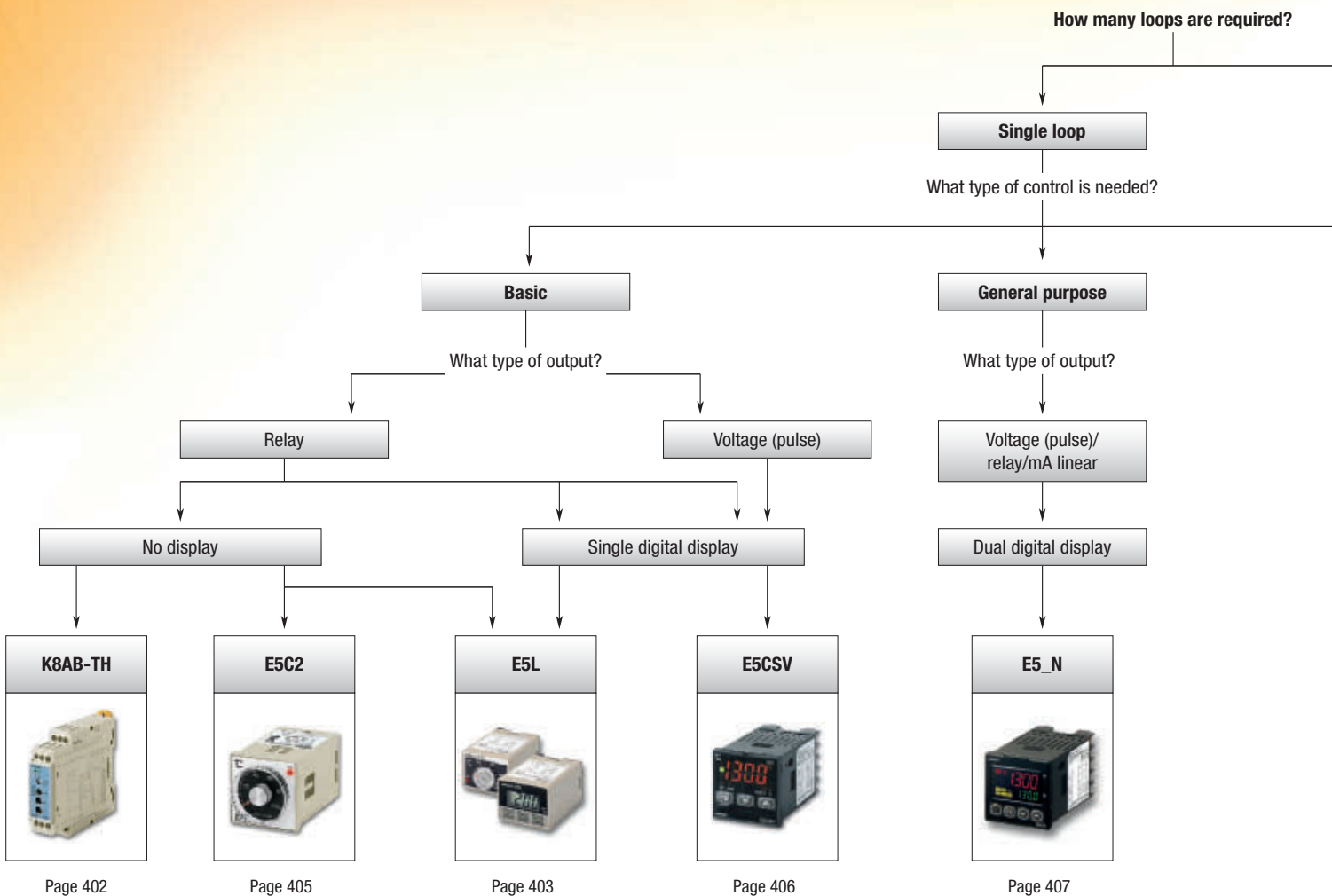
The CelciuX<sup>o</sup> is designed to handle complex temperature profiles thanks to Omron's unique Gradient Temperature Control (GTC) algorithm and to offer easy program-less communication with Omron and third-party PLCs and HMI. Above all, the CelciuX<sup>o</sup> incorporates all "simple to use" clever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

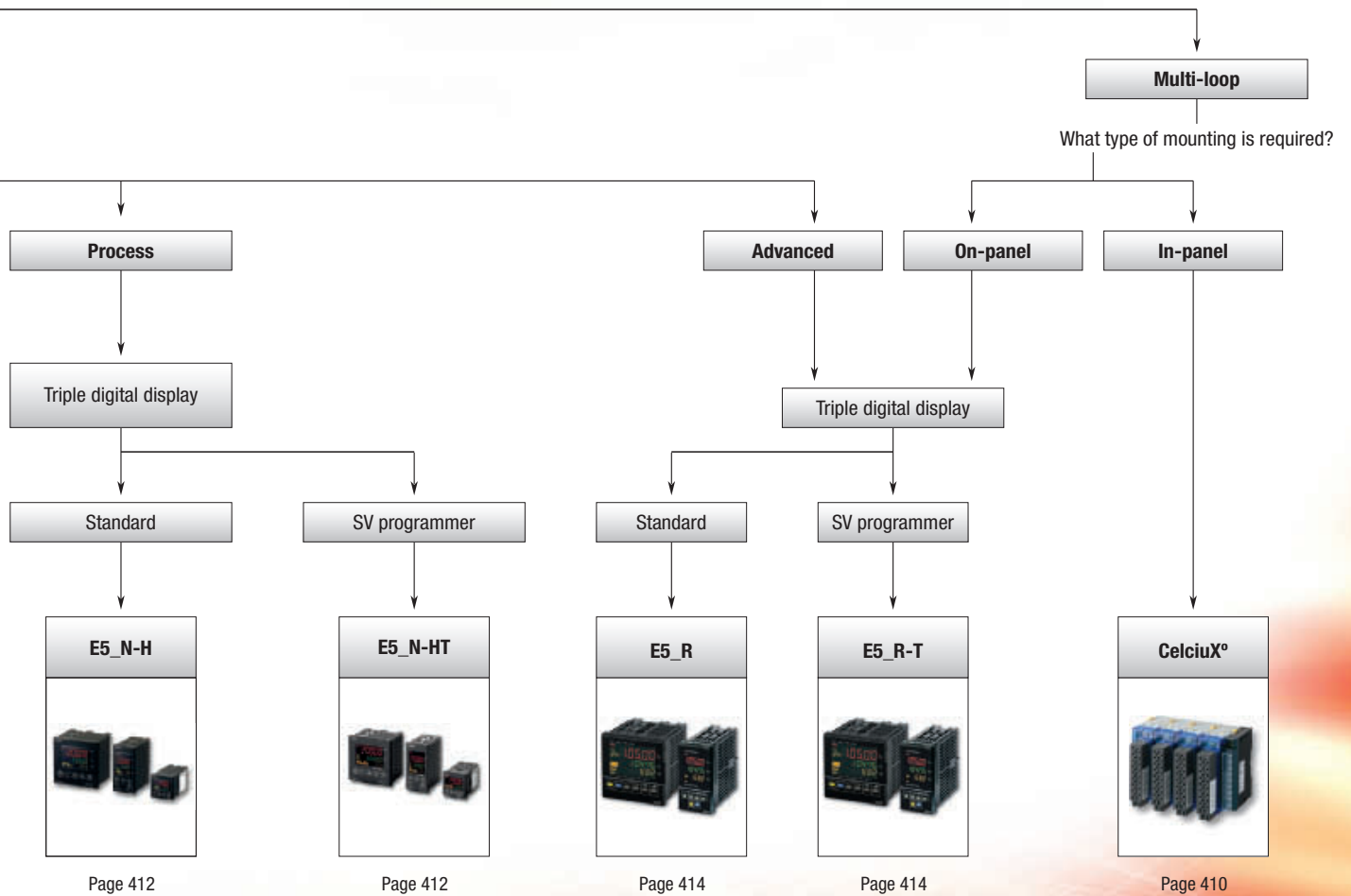
- Interfaces to a wide range of industrial networks
- Reduced engineering due to program-less communications, Smart Active Parts and Function Block Libraries
- One unit handling various types of input, such as Pt, Thermocouple, mA, and V input



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# 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					
Control mode	Size	22.5 mm wide	45x35 mm	1/16 DIN	1/16 DIN	1/4 DIN	1/8 DIN	1/16 DIN	
	ON/OFF	■	■	■	■	■	■	■	
	PID	-	-	■ *1	-	-	-	-	
	2-PID *2	-	-	-	■	■	■	■	
	Operation *3	-	H/C	H	H/C	H & C	H & C	H & C	
Features	Valve Control *4	-	-	-	-	-	-	-	
	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 <sup>®</sup>	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	Multi-loop		
1/32 DIN	31×96 mm	1/16 DIN	1/4, 1/8 DIN				1/4 DIN		1/8 DIN
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
-	-	-	-				-		-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
H & C	H & C	H & C	H & C				H & C		H & C
-	-	-	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
±0.3%	±0.5%	±0.1%	±0.1%				±0.1%		±0.1%
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				-		-
-	-	-	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
3	3	3	3				4		4
<input type="checkbox"/> <sup>*5</sup>	<input type="checkbox"/> <sup>*8</sup>	<input type="checkbox"/> <sup>*5</sup>	<input type="checkbox"/> <sup>*5</sup>				-		-
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
<input checked="" type="checkbox"/>	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input type="checkbox"/>		<input type="checkbox"/>
-	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>				-		-
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
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-	-	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				-		-
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
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<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>				
-	-	-	-	-	-				
407	410	412		375	414				

<sup>\*5</sup>. Heater alarm = heater burnout & SSR failure detection  
<sup>\*6</sup>. PROFIBUS-DP communication option via PRT1-SCU11 for E5\_N(-H), E5\_R, CelciuX<sup>®</sup>. More information on Page 416  
<sup>\*7</sup>. QLP: Quick Link Port to connected TC to PC using the smart USB cable E5B-CIFQ1  
<sup>\*8</sup>. 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 K8AB-TH12S	Thermocouple: K, J, T, E; platinum-resistance thermometer: Pt100 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 <sup>2</sup> or two ferrules of 1.5 mm <sup>2</sup> 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, $\cos\delta = 1$ (resistive load)	SPST-NO contacts, 250 VAC, 10 A, $\cos\delta = 1$ (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	–	$\pm(1^\circ\text{C} + 1 \text{ digit})$ max.*
Setting accuracy	–	$\pm(1^\circ\text{C} + 1 \text{ digit})$ 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	–	$\pm([1\% \text{ of PV or } 2^\circ\text{C, whichever is greater}] + 1 \text{ digit})$ 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 <sup>2</sup> , 3 times each in 6 directions	100 m/s <sup>2</sup> , 3 times each in 6 directions
Shock (destruction)	294 m/s <sup>2</sup> , 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	
<b>48x24 mm model (includes supply voltage indication)</b>						
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	–	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	
voltage (pulse)	Heater Alarm	E5GN-R2HT-C AC100-240	E5GN-R2HTD-C AC/DC24			
	–	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			
	–	E5GN-Q103L-FLK AC100-240	E5GN-Q103LD-FLK AC/DC24			
analogue (mA/V)	relay	RS-485 communication	1 relay	E5GN-Q103L-FLK AC100-240	E5GN-Q103LD-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				
<b>48x48 mm model (includes supply voltage indication)</b>									
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 not 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-CNH03N2
–	–	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
			heater alarm		E5EN-R3MTD-500-N AC/DC24	E5AN-R3MTD-500-N AC/DC24
			3-phase 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
			voltage (pulse)		E5EN-R3HHMT-500-N AC100-240	E5AN-R3HHMT-500-N AC100-240
			hybrid relay		E5EN-R3HHMTD-500-N AC/DC24	E5AN-R3HHMTD-500-N AC/DC24
		power supply	E5EN-R3QMT-500-N AC100-240		E5AN-R3QMT-500-N AC100-240	
			E5EN-R3QMTD-500-N AC/DC24		E5AN-R3QMTD-500-N AC/DC24	
		voltage (pulse)	E5EN-R3YMT-500-N AC100-240		E5AN-R3YMT-500-N AC100-240	
		hybrid relay	E5EN-R3YMTD-500-N AC/DC24		E5AN-R3YMTD-500-N AC/DC24	
		power supply	E5EN-R3PMT-500-N AC100-240		E5AN-R3PMT-500-N AC100-240	
			E5EN-R3PMTD-500-N AC/DC24		E5AN-R3PMTD-500-N AC/DC24	
	analogue (mA/V)	voltage (pulse)	–		E5EN-Q3MT-500-N AC100-240	E5AN-Q3MT-500-N AC100-240
			heater alarm		E5EN-Q3MTD-500-N AC/DC24	E5AN-Q3MTD-500-N AC/DC24
			3-phase 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
			voltage (pulse)		E5EN-Q3HHMT-500-N AC100-240	E5AN-Q3HHMT-500-N AC100-240
			hybrid relay		E5EN-Q3HHMTD-500-N AC/DC24	E5AN-Q3HHMTD-500-N AC/DC24
		power supply	E5EN-Q3QMT-500-N AC100-240		E5AN-Q3QMT-500-N AC100-240	
			E5EN-Q3QMTD-500-N AC/DC24		E5AN-Q3QMTD-500-N AC/DC24	
		linear current	E5EN-Q3YMT-500-N AC100-240		E5AN-Q3YMT-500-N AC100-240	
		hybrid relay	E5EN-Q3YMTD-500-N AC/DC24		E5AN-Q3YMTD-500-N AC/DC24	
		power supply	E5EN-Q3PMT-500-N AC100-240		E5AN-Q3PMT-500-N AC100-240	
			E5EN-Q3PMTD-500-N AC/DC24		E5AN-Q3PMTD-500-N 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)  
 - 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



## CelciuX° - Multi-Loop temperature control – Control and Connectivity

CelciuX° 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, CelciuX° 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) <sup>*1</sup>		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	
					<b>48x48 mm model (includes supply voltage indication)</b>	
On-panel	Universal TC/Pt/mV mA/V	Relay output	SV programmer (8 programs of 32 segments)	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			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-CNQB2
Event inputs		Heater burnout/SSR failure/ Heater overcurrent detection	E53-CNHB2
Event inputs		Transfer output	E53-CNBF2
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-CN01N2
Communications RS-485			E53-CN03N2
Communications RS-485	Control output 2 Voltage (for driving SSR)		E53-CNQ03N2
Communications RS-485		Heater burnout/SSR failure/ Heater overcurrent detection	E53-CN03N2
Communications RS-485		3-phase heater burnout/SSR failure/ Heater overcurrent detection	E53-CN03N2
	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-CNQH2N2

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			
	3 alarm relays	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-HAA2HHBMD-500 AC/DC24	E5EN-HAA2HHBMD-500 AC/DC24			
		2 SSR output fitted			E5AN-HSS2HHBFM-500 AC100-240	E5EN-HSS2HHBFM-500 AC100-240			
		2 SSR output fitted			E5AN-HSS2HHBMD-500 AC/DC24	E5EN-HSS2HHBMD-500 AC/DC24			
		none fitted, 2 slots			E5AN-HAA3BFM-500 AC100-240	E5EN-HAA3BFM-500 AC100-240			
		2 SSR output fitted			E5AN-HSS3BFM-500 AC100-240	E5EN-HSS3BFM-500 AC100-240			
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 alarm relays		3-phase	4 to 20 mA output	E5AN-HTAA2HHBFM-500	E5EN-HTAA2HHBFM-500			
				E5AN-HTAA2HHBMD-500	E5EN-HTAA2HHBMD-500				
				E5AN-HTAA3BFM-500	E5EN-HTAA3BFM-500				
				E5AN-HTAA3BMD-500	E5EN-HTAA3BMD-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

<b>Supply voltage</b>	100 to 240 VAC 50/60 Hz or 24 VAC, 50/60Hz; 24 VDC
<b>Sensor input</b>	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
<b>Control mode</b>	ON/OFF, 2-PID and valve (PRR)
<b>Accuracy</b>	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.
<b>Auto-tuning</b>	yes, 40% and 100% MV output limit selection. When using Heat/Cool: automatic cool gain adjustment
<b>Self-tuning</b>	yes
<b>RS-232C/RS-422/RS-485</b>	optional, CompoWayF or Modbus selectable
<b>Event input</b>	Optional (Standard 2 event input in EN-H/AN-H)
<b>QLP port (USB connection PC)</b>	yes
<b>Ambient temperature</b>	-10 to 55°C
<b>IP Rating front panel</b>	IP66
<b>Sampling period</b>	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



## 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 CelciuX° (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

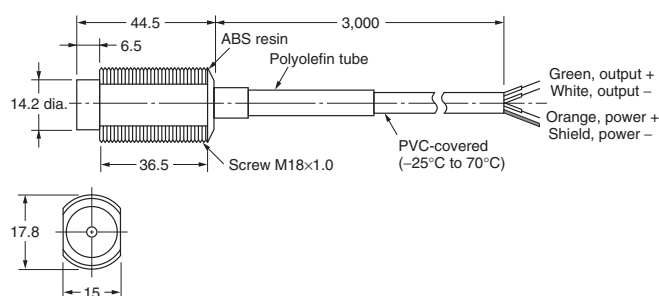
This infrared thermosensor provides an accurate, stable and cost-effective way to measure the temperature of objects. It behaves just like a standard K-type thermocouple, which enables it to operate with any temperature controller or alarm unit.

- 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

### Dimensions (unit: mm)



### 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. x 44.5 (screw M18x1.0), cable 3,000	



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

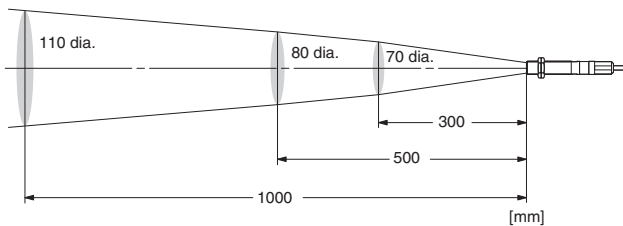
This gateway supports all CompoWay/F equipped products, including temperature controllers, digital panel indicators, etc. It can also be used for connecting MCW151-E and E5\_K series.

- 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

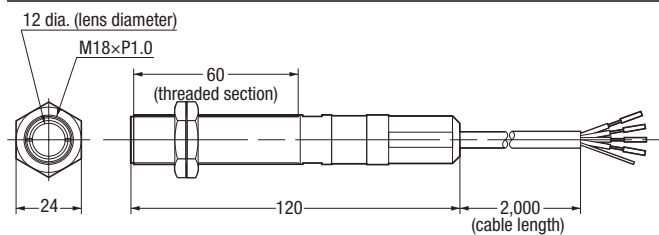


**Note:** The measurement range is the measurement diameter for an optical response of 90%. Make sure that the actual object to be measured is sufficiently larger than the measurement diameters in the above figure.

### 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)

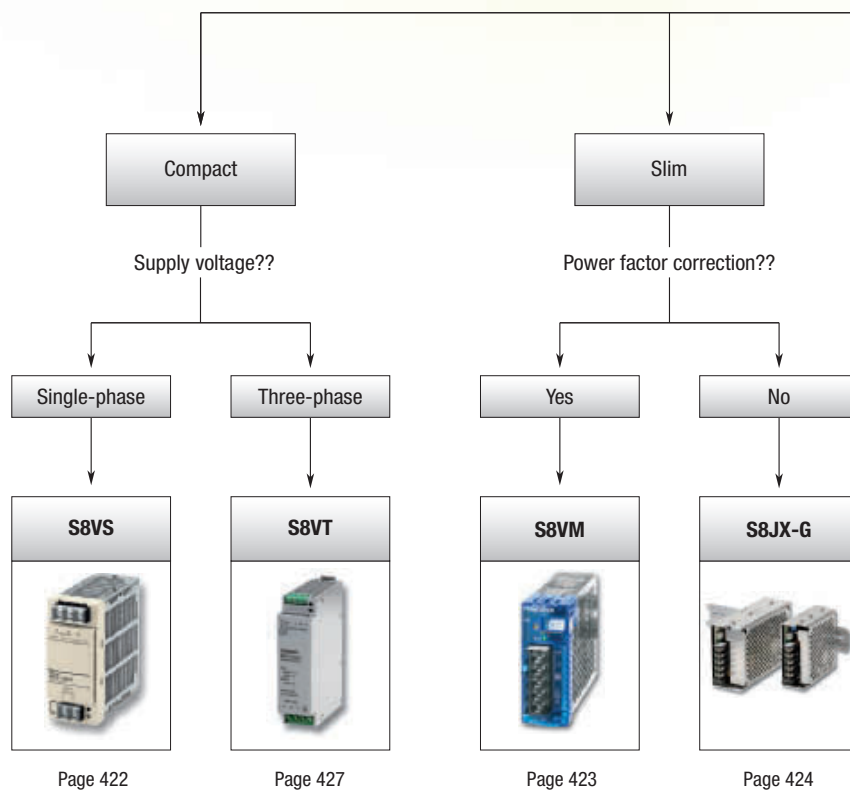


## PREVENT YOUR SYSTEM FROM STOPPING

### S8TS-DCBU-02 – Buffer block against momentary power failures

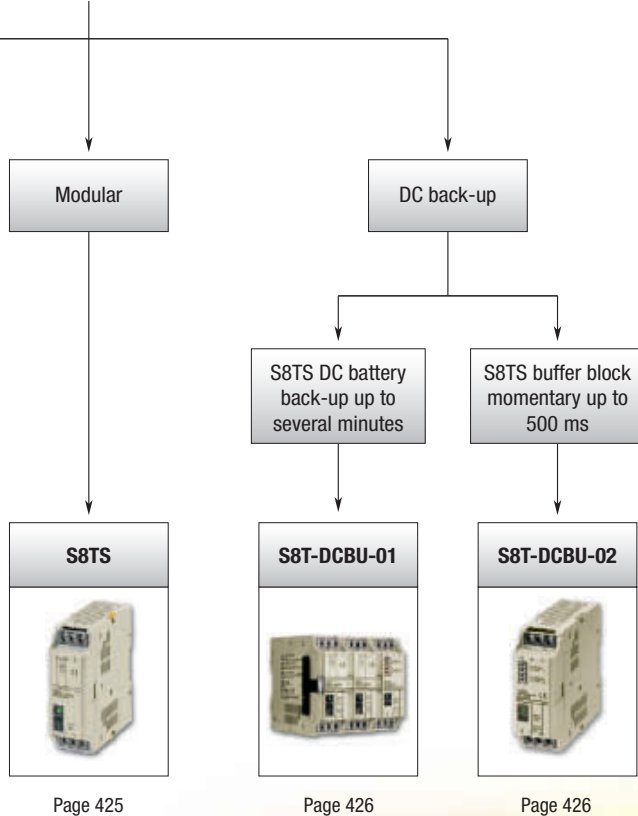
The buffer block prevents equipment stoppage, data loss and other problems resulting from momentary power failures. One S8TS-DCBU-02 buffer block provides a back-up time of 500 ms at an output current of 2.5 A. Can be wired to the 24 VDC output from any switch mode power supply

- Connects to both single-phase and three-phase 24 VDC power supplies
- Connects to an S8TS power supply via an S8T-BUS03 bus line connector
- Parallel connection up to 4 units to increase back-up time and capacity





Which type of power supply you are looking for?



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Category		Compact Power Supplies		Slim Power Supplies				Modular				
Selection criteria												
	Model	<b>S8VS</b>	<b>S8VT</b>	<b>S8VM</b>	<b>S8JX-G</b>		<b>S8TS</b>					
	Phases	Single-phase										
	Rated voltage	100 to 240 VAC										
Power	Voltage	24 V	24 V	12 V	24 V	5 V	12 V	15 V	24 V	5 V	12 V	24 V
	3 W	–	–	–	–	–	–	–	–	–	–	–
	7.5 W	–	–	–	–	–	–	–	–	–	–	–
	10 W	–	–	–	–	–	–	–	–	–	–	–
	15 W	0.65 A	–	■ 1.3 A	■ 0.65 A	■ 3 A	■ 1.3 A	■ 1 A	■ 0.65 A	–	–	–
	25 W	–	–	–	–	–	–	–	–	■ 5 A	–	–
	30 W	1.3 A	–	■ 2.5 A	■ 1.3 A	–	–	–	–	–	■ 2.5 A	–
	35 W	–	–	–	–	■ 7 A	■ 3 A	■ 2.4 A	■ 1.5 A	–	■ 2.5 A	–
	50 W	–	–	■ 4.3 A	■ 2.2 A	■ 10 A	■ 4.2 A	–	■ 2.1 A	–	–	–
	60 W	■ 2.5 A	–	–	–	–	–	–	–	–	■ 5 A	■ 2.5 A
	90 W	–	–	–	–	–	–	–	–	–	■ 7.5 A	–
	100 W	–	–	■ 8.5 A	■ 4.5 A	■ 20 A	■ 8.5 A	–	■ 4.5 A	–	–	–
	120 W	■ 5 A	■ 5 A	–	–	–	–	–	–	–	■ 10 A	■ 5 A
	150 W	–	–	■ 12.5 A	■ 6.5 A	–	–	–	■ 6.5 A	–	–	–
	180 W	–	–	–	–	–	–	–	–	–	–	■ 7.5 A
	240 W	■ 10 A	■ 10 A	–	–	–	–	–	–	–	–	■ 10 A
	300 W	–	–	■ 27 A	■ 14 A	–	–	–	■ 14 A	–	–	–
	480 W	■ 20 A	■ 20 A	–	–	–	–	–	–	–	–	–
	600 W	–	–	■ 53 A	■ 27 A	–	–	–	■ 27 A	–	–	–
	960 W	–	■ 40 A	–	–	–	–	–	–	–	–	–
1500 W	–	–	–	■ 70 A	–	–	–	–	–	–	–	
Features	Conforms to EN61000-3-2	■ with PFC	■	■	■	–	–	–	–	■ with PFC	■ with PFC	■ with PFC
	DC back-up	–	–	–	–	–	–	–	–	□	□	□
	Capacitor back-up	□	□	–	–	–	–	–	–	–	–	□
	Undervoltage alarm	■	–	–	■	–	–	–	–	■	■	■
	Overvoltage protection	■	■	■	■	■	■	■	■	■	■	■
	Overload protection	■	■	■	■	■	■	■	■	■	■	■
	DIN-rail mounting	■	■	■	■	■	■	■	■	■	■	■
	Screw mounting (with bracket)	–	□ only 40 A	■	■	■	■	■	■	–	–	–
	EMI Class B	–	–	■	■	–	–	–	–	■	■	■
	UL Class 2	■ only 60 W	–	–	–	–	–	–	–	■	■	■
	N+1 redundancy	–	–	–	–	–	–	–	–	■	■	■
	Parallel operation	–	■	–	–	–	–	–	–	■	■	■
Series operation	■	■	■	■	■	■	■	■	■	■	■	
Page	422	427	423	424				425				

■ Standard    □ Available    – No/not available



## Compact power supply

The S8VS is our standard industrial din-rail mounted power supply. It is built to last forever. Up to 60 W we provide them into a plastic housing, from 120 W the S8VS is built in strong metal case. The full ranges provide a very good dimension/output power ratio to optimize panel space uses. The range covers 6 models at 24 VDC with wattage of 15, 30, 60, 120, 240 and 480 W. The 15 and 30 W are also available in 5 or 12 VDC output voltage. The range withstands high vibration and shocks. The S8VS are fan-less power supplies.

- Wide AC input range from 85 to 264 VAC
- Micro S8VS output power range 15 and 30 W at 5, 12 and 24 VDC
- Micro can mounted, standard din-rail, horizontal or facing horizontal any direction is okay
- S8VS models available from 60 to 480 W at 24 VDC, 4 models

## Ordering information

Power	Output voltage	Output current	Under-voltage control	Size in mm (HxWxD)	Order code
15 W	5 VDC	2 A (10 W)	yes, red LED	85x22.5x96.4	S8VS-01505
	12 VDC	1.2 A			S8VS-01512
	24 VDC	0.65 A			S8VS-01524
30 W	5 VDC	4 A (20 W)	yes, red LED	85x22.5x96.4	S8VS-03005
	12 VDC	2.5 A			S8VS-03012
	24 VDC	1.3 A			S8VS-03024
60 W	24 VDC	2.5 A	no	95x40x108.3	S8VS-06024
120 W	24 VDC	5 A	no	115x50x121.3	S8VS-12024
240 W	24 VDC	10 A	no	115x100x125.3	S8VS-24024
480 W	24 VDC	20 A	no	115x150x127.2	S8VS-48024

## Specifications

Specification	15 W	30 W	60 W	120 W	240 W	480 W
Efficiency	77% min. (24 V)	80% min. (24 V)	78% min.	80% min.	80% min.	83% min.
Power factor	–	–	–	0.95 min.	0.95 min.	0.95 min.
Input voltage	100 to 240 VAC (85 to 264 VAC), single-phase					
Output voltage	Voltage adjustment	±10 to ±15% (with V. ADJ) min.				
	Ripple	2% p-p max. (at rated input/output voltage)				
	Input variation	0.5% max. (at 85 to 264 VAC input, 100% load)				
	Temperature influence	0.05%/°C max.				
Overload protection	105 to 160% of rated load current, voltage drop, automatic reset					
Overvoltage protection	yes	yes	yes	yes	yes	yes
Input current	100 V	0.45 A max.	0.9 A max.	1.7 A max.	1.9 A max.	3.8 A max.
	200 V	0.25 A max.	0.6 A max.	1.0 A max.	1.1 A max.	2.0 A max.
	230 V	0.19 A (5 V: 0.14 A)	0.37 A (5 V: 0.27 A)	0.7 A typ.	0.6 A typ.	1.2 A typ.
Output indicator	yes (green)	yes (green)	yes (green)	yes (green)	yes (green)	yes (green) LED
Weight	160 g	180 g	330 g	550 g	1,150 g	1,700 g max.
Operating temperature	-10 to 60°C					
Series operation	yes (24 V only)	yes	yes	yes	yes	yes

<sup>\*1</sup> For 30 W model 24 V: No derating, 12 & 5 V: Derating beyond 50°C.



### Slim size S8VM power supplies

All models have the same height of only 84.5 mm. These ranges cover up-to 1,500 W. The output voltages are 5, 12, 15 or 24 VDC. In this series we have standard types and versions with two alarms up-to 150 W models: one for short dip in the 24 VDC supply, second one when the voltage gradually drops in time. The models form 300 W/600 W/1,500 W are equipped with an overload alarm function.

- Widest range in DC-output voltage (5 V, 12 V, 15 V & 24 V) & wattage (15 up-to 1,500 W)
- LED indication power ON
- Transistor output & LED indication under-voltage alarm 1 & 2 or Power failure
- All models can be Din-rail mounted (except 1,500W)
- EMI Class B, UL Class 1 division 2, SEMI-F47 (200VAC input)

### Ordering information

Power ratings	Output voltage	Output current	Size in mm (HxWXD)	Order code		
				DIN-rail mounting	Undervoltage alarm type	
					Sinking (NPN)	Sourcing (PNP)
15 W	12 V	1.3 A	84.5x35.1x94.4	S8VM-01512CD	–	–
	24 V	0.65 A		S8VM-01524CD	S8VM-01524AD <sup>**1</sup>	–
30 W	12 V	2.5 A	84.5x35.1x109.4	S8VM-03012CD	–	–
	24 V	1.3 A		S8VM-03024CD	S8VM-03024AD <sup>**1</sup>	–
50 W	12 V	4.3 A	84.5x35.1x124.5	S8VM-05012CD	–	–
	24 V	2.2 A		S8VM-05024CD	S8VM-05024AD	S8VM-05024PD
100 W	12 V	8.5 A	84.5x36.6x164.5	S8VM-10012CD	–	–
	24 V	4.5 A		S8VM-10024CD	S8VM-10024AD	S8VM-10024PD
150 W	12 V	12.5 A	84.5x45.6x164.5	S8VM-15012CD	–	–
	24 V	6.5 A		S8VM-15024CD	S8VM-15024AD	S8VM-15024PD
Power ratings	Output voltage	Output current	Size in mm (HxWXD)	Bottom mounting	DIN-rail adaptor	Power failure output
300 W	12 V	27 A	84.5x62.5x188	S8VM-30012C	S82Y-VM30D	overload, overvoltage and overheat
	24 V	14 A		S8VM-30024C	–	
600 W	12 V	53 A	84.5x101.8x192	S8VM-60012C	S82Y-VM60D	–
	24 V	27 A		S8VM-60024C	–	–
1,500 W	24 V	70 A	84.5x126.5x327	S8VM-15224C	–	–

<sup>\*\*1</sup> No alarm output built-in.

### Specifications

Item		15 W	30 W	50 W	100 W	150 W	300 W	600 W	1,500 W	
Efficiency	12 V models	78% min.	79% min.	79% min.	81% min.	81% min.	78% min.	79% min.	–	
	24 V models	80% min.	81% min.	80% min.	82% min.	83% min.	81% min.	81% min.	82% min.	
Input voltage		100 to 240 VAC, (85 to 264 VAC), single phase								
Output	Voltage adjustment	-20% to 20% with V. ADJ min. (S8VM-___24A_/P_: -10% to 20%)								
	Ripple	12 V models	1.5% (p-p) max.			1.5% (p-p) max.		2.0% (p-p) max.		–
		24 V models	1.0% (p-p) max.		0.75% (p-p) max.			1.25% (p-p) max.		1.25% (p-p) max.
	Input variation	0.4% max.								
Temperature influence	0.02%/°C max.									
Overload protection		105% to 160% of rated load current, voltage drop, automatic reset								
Overvoltage protection		yes								
Output indicator		yes (green)								
Weight		180 g max.	220 g max.	290 g max.	460 g max.	530 g max.	1,100 g max.	1,700 g max.	3,800 g max.	
Series operation		yes								
Remote sensing function		no	no	no	yes					



## Slim & economic power supply

The S8JX-G is Omron's cost effective power supply delivering Omron's quality and reliability. The range of this Power Supply covers up to 600 W, the output voltages are 5, 12 or 24 VDC. The low profile and multiple mounting options help you reduce panel space. With a minimum life expectancy of 10 years and protection against over-voltage, over-current and short circuiting, the S8JX-G is as reliable as you may expect from Omron.

- Wide range in DC-output voltage (5 V, 12 V, 15 V & 24 V) & wattage (15 to 600 W)
- LED indication power ON
- Over-voltage, over-current, and short circuit protection
- Vibration resistance 4,5 g
- All models can be DIN-rail mounted
- Approvals: UL, cUL, UL508 Listed, CE, SEMI F47, VDE

## Ordering information

Power	Output voltage	Output current	Size in mm (HxWxD)	Order code
15 W	5 V	3 A	91x40x90	S8JX-G01505CD
	12 V	1.3 A		S8JX-G01512CD
	15 V	1 A		S8JX-G01515CD
	24 V	0.65 A		S8JX-G01524CD
35 W	5 V	7 A	91x40x90	S8JX-G03505CD
	12 V	3 A		S8JX-G03512CD
	15 V	2.4 A		S8JX-G03515CD
	24 V	1.5 A		S8JX-G03524CD
50 W	5 V	10 A	92x40x100	S8JX-G05005CD
	12 V	4.2 A		S8JX-G05012CD
	24 V	2.1 A		S8JX-G05024CD
100 W	5 V	20 A	92x50x150	S8JX-G10005CD
	12 V	8.5 A		S8JX-G10012CD
	24 V	4.5 A		S8JX-G10024CD
150 W	24 V	6.5 A	92x50x150	S8JX-G15024CD
300 W	24 V	14 A	92x110x167	S8JX-G30024CD
600 W	24 V	27 A	92x150x160	S8JX-G60024C <sup>*1</sup>

\*1 Additional accessory is required for DIN-rail mounting.

## Specifications

Item	15 W	35 W	50 W	100 W	150 W	300 W	600 W
Efficiency	100 to 240 V input	68% min.	73% min.	76% min.	76% min.	86% min.	–
	100/200 V (Selected)	–	–	–	–	82% min.	80% min.
Input voltage	100 to 240 VAC (85 to 264 VAC) 100 to 370 VDC Note: This range is not applicable for the safety standards.					100 to 120 VAC (85 to 132 VAC) 200 to 240 VAC (170 to 264 VAC) (Switchable)	
Output	Voltage adjustment	-10% to 15% (with V. ADJ)					
	Ripple	2% (p-p) max.					
	Input variation	0.4% max.					
	Temperature influence	0.05%/°C max. (at rated input and output)				0.05%/°C max.	
Overload protection	105% to 160% of rated load current, voltage drop, intermittent, automatic reset					105% of rated load current, voltage drop, intermittent, automatic reset	105% of rated load current, inverted L voltage drop, the circuit will be shut OFF when the overload exceeds 5 s.
Overvoltage protection	yes						
Output indicator	yes (green)						
Weight	250 g max.	250 g max.	300 g max.	550 g max.	600 g max.	1,600 g max.	2,500 g max.
Series operation	yes (For up to two Power Supplies; external diodes required.)						



## Industrial use, modular power supply for multiple configurations

The S8TS is an expandable power supply; standard units can easily be snapped together in parallel to provide you with ultimate flexibility. Expandable up to 4 units, it can deliver a total power of 240W at 24VDC or a multi-output configuration.

- Improves system reliability by building up N+1 redundancy
- Standard unit; 60 W at 24 VDC, 30 W at 12 VDC and 25 W at 5 VDC
- Battery back-up unit protects against power outage (see accessories)
- Buffer unit protects against power glitches and outage (see accessories)
- EMI Class B, UL Class 2, UL Class 1 division 2

### Ordering information

Basic block		Order code			
Output voltage	Output current	Screw terminal type		Connector terminal type	
		With bus line connectors <sup>*1</sup>	Without bus line connectors <sup>*2</sup>	With bus line connectors <sup>*1</sup>	Without bus line connectors <sup>*2</sup>
24 V	2.5 A	S8TS-06024-E1 <sup>*3</sup>	S8TS-06024	S8TS-06024F-E1	S8TS-06024F
12 V	2.5 A	S8TS-03012-E1	S8TS-03012	S8TS-03012F-E1	S8TS-03012F
5 V	5 A	–	S8TS-02505	–	S8TS-02505F

<sup>\*1</sup> One S8T-BUS01 connector and one S8T-BUS02 connector are included as accessories.

<sup>\*2</sup> Bus line connectors can be ordered separately if necessary.

<sup>\*3</sup> Conforms to EMI class B with DC minus terminal ground.

### Accessories

Bus line connector		
Type	Number of connectors	Order code
AC line + DC line bus (For parallel operation)	1 connector	S8T-BUS01
	10 connectors <sup>*1</sup>	S8T-BUS11
AC line bus (For series operation or isolated operation)	1 connector	S8T-BUS02
	10 connectors <sup>*2</sup>	S8T-BUS12

<sup>\*1</sup> One package contains 10 S8T-BUS01 connectors.

<sup>\*2</sup> One package contains 10 S8T-BUS02 connectors.

### Specifications

Item	5 V models		24/12 V models	
	Single operation		Single operation	Parallel operation
Efficiency	62% min.		24 V models: 75%, 12 V models: 70% min.	
Power factor	0.8 min.		24 V models: 0.9 min., 12 V models: 0.8 min.	
Input voltage	100 to 240 VAC, (85 to 264 VAC), single-phase			
Output voltage	Voltage adjustment	5 V ±10% min.		
	Ripple	2% (p-p) max.		2% (p-p) max.
	Input variation	0.5% max.		–
	Temperature influence	0.05%/°C max. (with rated input, 10 to 100% load)		
Overcurrent protection	105 to 125% of rated load current, inverted L drop, automatic reset			
Overvoltage protection	yes		yes	yes
Output indicator	yes (green)		yes (green)	yes (green)
Weight	450 g max.		450 g max.	450 g max.
Series operation	yes		yes	yes
Parallel operation	no		yes	yes
Size in mm (HxWxD)	120x43x120			

## S8T-DCBU-01



The S8T-DCBU-01 battery backup block supplies 24 VDC for a fixed period of time during AC input outages to considerably improve system reliability.

- Supplies 24 VDC for a long period of time during AC input outages
- For system reliability improvement
- Block power supply basic block is connected by the bus line connector
- Simple system configuration
- Alarms indicated on main unit and via alarm signal output

### Ordering information

Product	Input voltage	Output voltage	Output current			Order code
DC back-up block	24 to 28 VDC	24 V	3.7 A/8 A			S8T-DCBU-01
Battery holder	–	–	–			S82Y-TS01
Product	Input voltage	Output voltage	Output current	Type		Order code
Basic block (use together with the DC back-up block)	100 to 240 VAC	24 V	2.5 A	Screw terminal type	With bus line connectors	S8TS-06024-E1
					Without bus line connectors	S8TS-06024
				Connector terminal type	With bus line connectors	S8TS-06024F-E1
					Without bus line connectors	S8TS-06024F
Product	Back-up time	Overcurrent protection operating point selector				Order code
Battery	8 min./3.7 A	5.7 A (typ.)	–			LC-R122R2PG
	4 min./8.0 A	5.7 A (typ.)	11.7 A (typ.)			LC-R123R4PG

**Note:** The S8TS DC back-up block is for S8TS power supplies only.

### Specifications

Item	Size in mm (HxWxD)
S8T-DCBU-01	120x43x130
Battery holder	82x185.7x222.25

## S8T-DCBU-02



Prevents equipment stoppage, data loss and other problems resulting from momentary power failures. One S8T-DCBU-02 buffer block provides a back-up time of 500 ms at an output current of 2.5 A. Can be wired to the 24 VDC output from any switch mode power supply.

- Connects to all Omron power supplies: S8TS, S8VS, S82J, S82K, S8VM, S8PE
- Connects to both single-phase and three-phase power supplies
- Connects to an S8TS power supply via an S8T-BUS03 bus line connector
- Parallel connection up to 4 units to increase back-up time and capacity
- Complies with Semi F47-0200 standard

### Ordering information

Input voltage	Output voltage (during back-up operation)	Output current	Order code
24 VDC (24 to 28 VDC)	22.5 V	2.5 A	S8T-DCBU-02

### Accessories

Type	Number of connectors	Order code
DC bus line connector (for use with S8TS only)	1 connector	S8T-BUS03
	10 connectors	S8T-BUS13

### Specifications

Item	Size in mm(HxWxD)
S8T-DCBU-02	120x43x120



## Compact 3-phase input power supply

To make the compact power supply range complete we have our 3-phase S8VT series, which give you the best power to footprint ratio. The range exists of 4 models with wattage of 120, 240, 480 and 960 W all at 24 VDC. This version is constructed from a very robust metal housing and all models are din-rail mounting. The input range cover 3 phase voltage input from 340 to 576 VAC and single phase DC input from 480 to 810 VDC.

- 5, 10, 20 and 40A; 24VDC output
- 3-phase input (340-576VAC) or 1-phase 480 to 810 VDC
- Compact design with best footprint on the market
- UL60950 (CSA22.2-60950), UL508 listing (CSA22.2-14) and CE
- Parallel & serial operation possible (all models)

### Ordering information

Power ratings	Output voltage	Output current	Size in mm (HxWxD)	Order code
120 W	24 V	5 A	125x45x130	S8VT-F12024E
240 W	24 V	10 A	170x45x130	S8VT-F24024E
480 W	24 V	20 A	170x100x130	S8VT-F48024E
960 W	24 V	40 A	170x195x130	S8VT-F96024E

### Specifications

Item	5 A	10 A	20 A	40 A
Efficiency	88%	90%	91%	91%
Voltage range	340 to 576 VAC 3 AC resp, 480 to 810 VDC (1 phase)			
Output voltage	Voltage adjustment	22.5 to 26.4 VDC min.		
	Ripple	100 mV max.		
	Input variation	±0.5% max.		
	Temperature influence	Less than 0.05%/°C		
Overload protection	yes			
Overvoltage protection	yes			
Output indicator	yes (green)			
Weight	750 g	1.0 kg	1.8 kg	3.3 kg
Series operation	yes (for 2 units)			
Parallel operation	yes (for 2 units)			

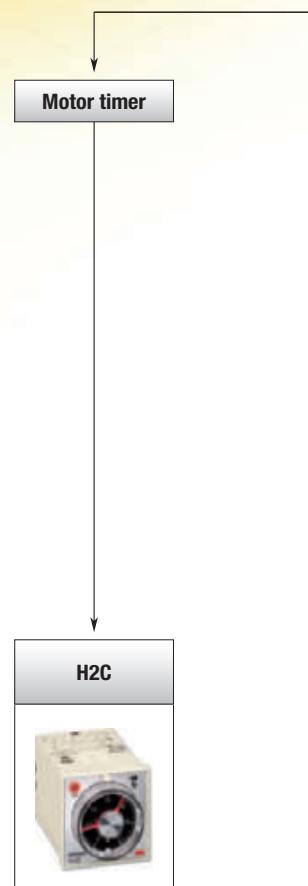


## WHEN TIMING ACCURACY MATTERS!

### H5CX – The most complete digital timer

The H5CX series offers multiple-functions and -timing ranges for precise timing control, as well as real twin-timing and memory function. These and other added-value features ensure that the H5CX covers almost every possible user requirement in timers.

- 15 different time functions
- Three colour display value, red, orange or green
- Models with instantaneous contact outputs
- 0.001 s to 9999 h, 10 ranges





Which type of timer is needed?

Analogue

Digital

Which mounting method is required?

DIN-rail

Plug/front

Which size is required?

Which size is required?

17.5 mm

22.5 mm

48x24 mm

48x48 mm

H3DS

H3DK

H3YN

H3CR

H8GN  
timer/counter

H5CX



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# Selection table

Category		Analogue solid state timer											
Selection criteria													
	Model	H3DS-M	H3DS-S	H3DS-A	H3DS-F	H3DS-G	H3DS-X	H3DK-M	H3DK-S	H3DK-F	H3DK-G	H3DK-H	
	Mounting	DIN-rail											
	Size	17.5 mm						22.5 mm					
Type	Multi-functional			Twin timer	Star-delta	Two-wired	Multi-functional			Twin timer	Star-delta	Power OFF-delay	
	Time limit	■	■	■	■	■	■	■	■	■	■	■	
Instantaneous	-	-	-	-	-	-	■	■	-	-	-	-	
Programmable contacts	-	-	-	-	-	-	■	■	-	-	-	-	
14 pins	-	-	-	-	-	-	-	-	-	-	-	-	
11 pins	-	-	-	-	-	-	-	-	-	-	-	-	
8 pins	-	-	-	-	-	-	-	-	-	-	-	-	
Screw terminals	■	■	■	■	■	■	■	■	■	■	■	■	
Screw-less clamp terminals	□	□	□	□	□	□	-	-	-	-	-	-	
Screw-less clamp sockets	-	-	-	-	-	-	-	-	-	-	-	-	
Inputs	Voltage input	□	□	□	-	-	-	□	□	-	-	-	
	Transistor	-	-	-	-	-	-	-	-	-	-	-	
Outputs	Relay	■	■	■	■	■	-	■	■	■	■	■	
	SCR	-	-	-	-	-	■	-	-	-	-	-	
	Relay output type	SPDT	■	■	■	■	-	□	■	■	■ (2x)	■	■
		SPST-NO	-	-	-	-	■ (2x)	-	-	-	-	-	-
		DPDT	-	-	-	-	-	-	□	■	-	-	-
4PDT	-	-	-	-	-	-	-	-	-	-	-		
Features	Time range	Total time range	0.1 s to 120 h	1 s to 120 h	2 s to 120 h	0.1 s to 12 h	1 s to 120 s	0.1 s to 120 h	0.1 s to 1,200 h	0.1 s to 1,200 h	0.1 s to 1,200 h	1 s to 120 s	0.1 s to 120 s
		Number of sub ranges	7	7	7	6	2	7	12	12	8	2	2 (model dependent)
	Supply voltage	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 230 VAC or 24 to 48 VDC	24 to 240 VAC/DC or 12 VDC	24 to 240 VAC/DC or 12 VDC	24 to 240 VAC/DC or 12 VDC	24 to 240 VAC/DC, 240 to 440VAC, 12 VDC	100 to 120 VAC, 200 to 240 VAC, 24 to 48 VAC/DC
	Number of operating modes	8	4	1	2	1	1	8	4	1	1	1	1
Functions	ON-delay	■	■	-	-	-	■	■	■	-	-	-	-
	Flicker OFF start	■	-	-	■	-	-	■	-	■	-	-	-
	Flicker ON start	■	■	-	■	-	-	■	■	■	-	-	-
	Signal ON-/OFF-delay	■	-	-	-	-	-	■	-	-	-	-	-
	Signal OFF-delay	■	-	-	-	-	-	■	-	-	-	-	■
	Interval (signal or power start)	■	■	-	-	-	-	■	■	-	-	-	-
	One-shot output (ON-delay)	■	■	-	-	-	-	■	■	-	-	-	-
	ON-delay (fixed)	-	-	■	-	-	-	-	-	-	-	■	-
	Independent ON/OFF time setting	-	-	-	-	-	-	-	-	-	-	-	-
Re-marks	Star-delta	-	-	-	-	■	-	-	-	-	-	-	-
	Transistor	-	-	-	-	-	■	-	-	-	-	-	-
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Category		Analogue solid state timer					Digital timer		Motor timer	
Selection criteria										
	Model	H3YN	H3CR-A	H3CR-F	H3CR-G	H3CR-H	H5CX	H8GN	H2C	
	Mounting	Socket/on panel								
	Size	21.5 mm	1/16 DIN					1/32 DIN	1/16 DIN	
Type	Miniature	Multi-functional	Twin timer	Star-delta	Power OFF-delay	Multi-functional	Preset counter/timer	Motor timer		
Contact configuration	Time limit	■	■	■	■	■	■	■	■	
	Instantaneous	-	■	-	■	■	■	-	■	
	Programmable contacts	-	-	-	-	-	■	■	-	
	14 pins	■	-	-	-	-	-	-	-	
	11 pins	-	□	□	□	□	□	-	□	
	8 pins	■	□	□	□	□	□	-	□	
	Screw terminals	-	-	-	-	-	□	■	□	
	Screw-less clamp terminals	-	-	-	-	-	-	-	-	
Screw-less clamp sockets	□	-	-	-	-	-	-	-		
Inputs	Voltage input	-	□	-	-	-	-	-	-	
	Transistor	-	□	-	-	-	□	-	-	
Outputs	Relay	■	□	■	■	■	□	■	■	
	SCR	-	-	-	-	-	-	-	-	
	Relay output type	SPDT	-	□	-	-	□	□	■	■
		SPST-NO	-	-	-	■ (2x)	-	-	-	-
		DPDT	□	□	■	-	□	-	-	-
		4PDT	□	-	-	-	-	-	-	-
Features	Time range	Total time range	0.1 s to 10 h (model dependent)	0.05 s to 300 h, 0.1 s to 600 h (model dependent)	0.05 s to 30 h or 1.2 s to 300 h (model dependent)	0.5 s to 120 s	0.05 s to 12 s, 1.2 s to 12 min	0.001 s to 9999 h (configurable)	0.000 s to 9999 h (configurable)	0.2 s to 30 h
		Number of sub ranges	2	9	14	4	4	10	9	15
	Supply voltage	24, 100 to 120, 200 to 230 VAC, 12, 24, 48, 100 to 110, 125 VDC	100 to 240 VAC, 100 to 125 VDC, 24 to 48 VAC, 12 to 48 VDC	100 to 240 VAC, 12 VDC, 24 VAC/DC, 48 to 125 VDC	100 to 120 VAC, 200 to 240 VAC	100 to 120 VAC, 200 to 240 VAC, 24 VAC/DC, 48 VDC, 100 to 125 VDC	100 to 240 VAC, 24 VAC, 12 to 24 VDC	24 VDC	24, 48, 100, 110, 115, 120, 200, 220, 240 VAC	
	Number of operating modes	4	6 (model dependent)	-	1	1	15	6	2	
Functions	ON-delay	■	□	-	-	-	■	■	■	
	Flicker OFF start	■	□	■	-	-	■	■	-	
	Flicker ON start	■	□	■	-	-	■	-	-	
	Signal ON-/OFF-delay	-	□	-	-	-	■	-	-	
	Signal OFF-delay	-	□	-	-	■	■	■	■	
	Interval (signal or power start)	■	□	-	-	-	■	■	-	
	One-shot output (ON-delay)	-	□	-	-	-	■	-	-	
	ON-delay (fixed)	-	-	-	-	-	■	-	-	
	Independent ON/OFF time setting	-	-	-	-	-	■	■	-	
Re-remarks	Star-delta	-	-	-	■	-	-	-	-	
	Transistor	-	□	-	-	-	■	-	-	
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■ Standard □ Available - No/not available



## DIN-rail mounted, standard 17.5 mm wide solid state timer range

This broad range of timers includes many functionalities and has a wide AC/DC power supply range. Models with screwless clamp connection available.

- 17.5 mm width, modular 45 mm
- DIN-rail mounting
- 24-48 VDC and 24-230 VAC
- 0.1 s to 120 h, 7 ranges

### Ordering information

Type	Supply voltage	Control output	Time setting range	Operating modes	Order code	
					Screw terminal type	Screw-less clamp type
Multi-functional timer	24 to 230 VAC (50/60 Hz)/ 24 to 48 VDC	SPDT	0.1 s to 120 h	ON-delay, flicker OFF start, flicker ON start, signal ON/OFF-delay, signal OFF-delay, interval, one-shot	H3DS-ML	H3DS-MLC
Standard timer				ON-delay, flicker ON start, interval, one-shot	H3DS-SL	H3DS-SLC
Single function timer				ON-delay	H3DS-AL	H3DS-ALC
Twin timer		Relay SPDT	0.1 s to 12 h	Flicker OFF start, flicker ON start	H3DS-FL	H3DS-FLC
Star-delta timer	24 to 230 VAC/VDC (50/60 Hz)	2x Relay SPST-NO	1 s to 120 s	Star-delta	H3DS-GL	H3DS-GLC
Two-wired timer		SCR output	0.1 s to 120 h	ON-delay	H3DS-XL	H3DS-XLC

### Specifications

<b>Terminal block</b>	Screw terminal type: Clamps two 2.5 mm <sup>2</sup> max. bar terminals without sleeves Screw-less clamp type: Clamps two 1.5 mm <sup>2</sup> max. bar terminals without sleeves
<b>Mounting method</b>	DIN-rail mounting
<b>Operating voltage range</b>	85 to 110% of rated supply voltage
<b>Power reset</b>	Minimum power-off time: 0.1 s, 0.5 s for H3DS-G
<b>Reset voltage</b>	2.4 VAC/VDC max., 1.0 VAC/VDC max. for H3DS-X
<b>Voltage input</b>	Max. permissible capacitance between input lines (terminals B1 and A2): 2,000 pF Load connectable in parallel with inputs (terminals B1 and A1) H-level: 20.4 to 253 VAC/20.4 to 52.8 VDC L-level: 0 to 2.4 VAC/VDC
<b>Control output</b>	Contact output: 5 A at 250 VAC with resistive load (cosφ = 1) 5 A at 30 VDC with resistive load (cosφ = 1)
<b>Ambient temperature</b>	Operating: -10 to 55°C (with no icing) Storage: -25 to 65°C (with no icing)
<b>Accuracy of operating time</b>	±1% max. of FS (±1% ±10 ms max. at 1.2 s range)
<b>Setting error</b>	±10% ±50 ms max. of FS
<b>Influence of voltage</b>	±0.7% max. of FS (±0.7% ±10 ms max. at 1.2 s range)
<b>Influence of temperature</b>	±5% max. of FS (±5% ±10 ms max. at 1.2 s range)
<b>Life expectancy (not H3DS-X)</b>	Mechanical: 10 million operations min. (under no load at 1,800 operations/h) Electrical: 100,000 operations min. (5 A at 250 VAC, resistive load at 360 operations/h)
<b>Size in mm(HxWxD)</b>	80x17.5x73



## DIN-rail mounted, standard 22.5 mm wide solid state timer range

The H3DK series of timers provides a wide AC/DC power supply and time range to reduce the number of items.

- Size in mm (HxWxD): 79x22.5x100
- DIN-rail mounting
- 12 VDC and 24-240 VAC/VDC (except -H). 240-440 VAC for -G
- Wide time setting range: 0.10 s - 1,200 h (except -H and -G), 12 ranges (for -M and -S)

### Ordering information

Type	Supply voltage	Control output	Time setting range	Operating modes	Order code
Multi-functional standard timers	12 VDC	SPDT	0.1 s to 1200 h	ON-delay, flicker OFF start, flicker ON start, signal ON/OFF-delay, signal OFF-delay, interval, one-shot	H3DK-M1A DC12
		DPDT		H3DK-M2A DC12 <sup>*1</sup>	
		SPDT		ON-delay, flicker ON start, interval, one-shot	H3DK-S1A DC12
		DPDT		H3DK-S2A DC12 <sup>*1</sup>	
	24 to 240 VAC/VDC	SPDT		ON-delay, flicker OFF start, flicker ON start, signal ON/OFF-delay, signal OFF-delay, interval, one-shot	H3DK-M1 AC/DC24-240
		DPDT		H3DK-M2 AC/DC24-240 <sup>*1</sup>	
		SPDT		ON-delay, flicker ON start, interval, one-shot	H3DK-S1 AC/DC24-240
		DPDT		H3DK-S2 AC/DC24-240 <sup>*1</sup>	
Twin timer	12 VDC	SPDT	0.1 s to 12 h	Flicker OFF start, flicker ON start	H3DK-FA DC12
	24 to 240 VAC/VDC				H3DK-F AC/DC24-240
Star-delta timer	12 VDC	2x SPDT	1 to 120 s	Star-delta	H3DK-GA DC12
	24 to 240 VAC/VDC				H3DK-G AC/DC24-240
	240 to 440 VAC				H3DK-GE AC/DC240-440
Power OFF-delay timer	24 to 48 VAC/VDC	SPDT	1 to 120 s	Signal OFF-delay	H3DK-HBL AC/DC24-48
			0.1 to 12 s	H3DK-HBS AC/DC24-48	
	100 to 120 VAC		1 to 120 s	H3DK-HCL AC100-120V	
	0.1 to 12 s		H3DK-HCS AC100-120V		
	200 to 240 VAC		1 to 120 s	H3DK-HDL AC200-240V	
			0.1 to 12 s	H3DK-HDS AC200-240V	

<sup>\*1</sup> One output can be set to instantaneous.

### Specifications

<b>Operating voltage range</b>	85 to 110% of rated supply voltage (90 to 110% for the 12 VDC models).
<b>Power reset</b>	Minimum power-off time: H3DK-M/S, H3DK-F: 0.1 s, H3DK-G: 0.5 s. (Not for H3DK-H)
<b>Reset voltage</b>	10% of rated voltage. (Not for H3DK-H)
<b>Voltage input (H3DK-M/-S)</b>	24 to 240 VAC/DC: H-level 20.4 to 264 VAC/VDC, L-level 0 to 2.4 VAC/VDC. 12 VDC: H-level 10.8 to 13.2 VDC, L-level 0 to 1.2 VDC.
<b>Control output</b>	Contact output: 5 A at 250 VAC with resistive load ( $\cos\phi = 1$ ), 5 A at 24 VDC (30 VDC for -M/-S) with resistive load (not for H3DK-GE)
<b>Ambient temperature</b>	Operating: -20 to 55°C (with no icing), storage: -40 to 70°C (with no icing)
<b>Accuracy of operating time</b>	$\pm 1\%$ of FS max. ( $\pm 1\% \pm 10$ ms max. at 1.2 s range)
<b>Setting error</b>	$\pm 10\%$ of FS $\pm 0.05$ s max.
<b>Minimum input signal width</b>	50 ms (start input) (Only for H3DK-M/S)
<b>Influence of voltage</b>	$\pm 0.5\%$ of FS max. ( $\pm 0.5\% \pm 10$ ms max. at 1.2 s range). For H3DK-G: $\pm 0.5\%$ of FS max.
<b>Influence of temperature</b>	$\pm 2\%$ of FS max. ( $\pm 2\% \pm 10$ ms max. at 1.2s range). For H3DK-G: $\pm 2\%$ of FS max.
<b>Life expectancy</b>	Mechanical: 10 million operations min. (under no load at 1,800 operations/h) Electrical: 100,000 operations min. (5 A at 250 VAC, resistive load at 360 operations/h)
<b>Degree of protection</b>	IP30 (terminal block: IP20)
<b>Terminal block</b>	Clamps two 2.5 mm <sup>2</sup> max. bar terminals without sleeves
<b>Size in mm (HxWxD)</b>	79x22.5x100



## Miniature timer with multiple time ranges and multiple operating modes

H3YN features 4 multi-operating modes: ON-delay, interval, flicker ON start and flicker OFF start.

- Size in mm (HxWxD): 28x21.5x52.6
- Plug-in
- All supply voltages available
- 0.1 s to 10 h
- DPDT (5A) or 4PDT (3A)

### Ordering information

Supply voltage	Functions	Time-limit contact	Order code	
			Short-time range model (0.1 s to 10 min)	Long-time range model (0.1 min to 10 h)
12 VDC	ON-delay Interval Flicker ON Flicker OFF	DPDT	H3YN-2 12DC	H3YN-21 12DC
24 VAC			H3YN-2 24AC	H3YN-21 24AC
24 VDC			H3YN-2 24DC	H3YN-21 24DC
100 to 120 VAC			H3YN-2 100-120AC	H3YN-21 100-120AC
200 to 230 VAC			H3YN-2 200-230AC	H3YN-21 200-230AC
12 VDC			4PDT	H3YN-4 12DC
24 VAC		H3YN-4 24AC		H3YN-41 24AC
24 VDC		H3YN-4 24DC		H3YN-41 24DC
100 to 120 VAC		H3YN-4 100-120AC		H3YN-41 100-120AC
200 to 230 VAC		H3YN-4 200-230AC		H3YN-41 200-230AC

### Accessories

#### Connecting socket

Timer	DIN-rail mounting/ front-connecting socket	Back-connecting socket PCB terminal
H3YN-2/-21	PYF08A, PYF08A-N, PYF08A-E	PY08-02
H3YN-4/-41	PYF14A, PYF14A-N, PYF14A-E	PY14-02

#### Hold-down clips

Applicable socket	Order code
PYF08A, PYF08A-N, PYF08A-E, PYF14A, PYF14A-N, PYF14A-E	Y92H-3 (pair)
PY08, PY08-02, PY14-02	Y92H-4

### Specifications

Item	H3YN-2/-4	H3YN-21/-41
Time ranges	0.1 s to 10 min (1 s, 10 s, 1 min, or 10 min max. selectable)	0.1 min to 10 h (1 min, 10 min, 1 h, or 10 h max. selectable)
Rated supply voltage	24, 100 to 120, 200 to 230 VAC (50/60 Hz) 12, 24, 48, 100 to 110, 125 VDC	
Pin type	Plug-in	
Operating mode	ON-delay, interval, flicker OFF start, or flicker ON start (selectable with DIP switch)	
Operating voltage range	85 to 110% of rated supply voltage (12 VDC: 90 to 110% of rated supply voltage)	
Reset voltage	10% min. of rated supply voltage	
Control outputs	DPDT: 5 A at 250 VAC, resistive load ( $\cos\phi = 1$ ), 4PDT: 3 A at 250 VAC, resistive load ( $\cos\phi = 1$ )	
Accuracy of operating time	$\pm 1\%$ FS max. (1 s range: $\pm 1\% \pm 10$ ms max.)	
Setting error	$\pm 10\% \pm 50$ ms FS max.	
Reset time	Min. power-opening time: 0.1 s max. (including halfway reset)	
Influence of voltage	$\pm 2\%$ FS max.	
Influence of temperature	$\pm 2\%$ FS max.	
Ambient temperature	Operating: -10 to 50°C (with no icing), storage: -25 to 65°C (with no icing)	
Degree of protection	IP40	
Size in mm (HxWxD)	28x21.5x52.6	



## DIN 48x48 mm multi-functional timer series

This elaborate range of solid state timers provides you with a multi-functional timer, twin timer, star-delta timer and a power OFF-delay timer.

- 48x48 mm front-panel/plug-in
- High-/low-voltage models (except -H and -G)
- 0.05 s to 300 h (except -H and -G)
- DPDT, 5A at 250VAC
- Transistor 100mA at 30VDC

### Ordering information

Output	Number of pins	Supply voltage	Time range	Operating mode	Order code
Relay DPDT	11	100 to 240 VAC/100 to 125 VDC	0.05 s to 300 h	ON-delay, flicker OFF start, flicker ON start, signal ON/OFF-delay, signal OFF-delay, interval	H3CR-A 100-240AC/100-125DC
Transistor		24 to 48 VAC/12 to 48 VDC			H3CR-A 24-48AC/12-48DC
Relay DPDT	8	100 to 240 VAC/100 to 125 VDC	0.05 s to 300 h	ON-delay, flicker ON start, interval, one-shot	H3CR-A8 100-240AC/100-125DC
Transistor		24 to 48 VAC/12 to 48 VDC			H3CR-A8 24-48AC/12-48DC
Relay SPDT		100 to 240 VAC/100 to 125 VDC	H3CR-A8S 24-48AC/12-48DC		
		24 to 48 VAC/VDC	H3CR-A8E 100-240AC/100-125DC		
Relay DPDT	11	100 to 240 VAC	0.05 s to 30 h	Flicker OFF start	H3CR-F 100-240AC
		24 VAC/VDC			H3CR-F 24AC/DC
	8	100 to 240 VAC	0.05 s to 30 h	Flicker ON start	H3CR-F8 100-240AC
		24 VAC/VDC			H3CR-F8 24AC/DC
	11	100 to 240 VAC	0.05 s to 30 h	Star-delta	H3CR-FN 100-240AC
		24 VAC/VDC			H3CR-FN 24AC/DC
	8	100 to 240 VAC	0.05 s to 30 h	Star-delta	H3CR-F8N 100-240AC
		24 VAC/VDC			H3CR-F8N 24AC/DC
Time-limit contact and instantaneous contact	8	100 to 120 VAC	0.05 to 12 s	Power OFF-delay	H3CR-G8EL 100-120AC
		200 to 240 VAC			H3CR-G8EL 200-240AC
DPDT	8	100 to 120 VAC	0.05 to 12 s	Power OFF-delay	H3CR-H8LS 100-120AC
		200 to 240 VAC			H3CR-H8LS 200-240AC
		24 VAC/VDC	0.05 to 12 m		H3CR-H8LS 24AC/DC
		100 to 120 VAC	0.05 to 12 m		H3CR-H8LM 100-120AC
		200 to 240 VAC			H3CR-H8LM 200-240AC
		24 VAC/VDC			H3CR-H8LM 24AC/DC

### Accessories

Name/specifications	Order code	
Flush-mounting adapter	Y92F-30	
Protective cover	Y92A-48B	
Front connecting socket	8-pin, finger-safe type, DIN-rail	P2CF-08-E
Front connecting socket	11-pin, finger-safe type, DIN-rail	P2CF-11-E
Back connecting socket	8-pin	P3G-08
	11-pin	P3GA-11

Name/specifications	Order code	
Time setting ring	Setting a specific time	Y92S-27
	Limiting the setting range	Y92S-28
Panel cover	Light grey (5Y7/1)	Y92P-48GL
	Black (N1.5)	Y92P-48GB

### Specifications

Accuracy of operating time	±0.2% FS max. (±0.2% ±10 ms max. in a range of 1.2 s)	
Influence of voltage	±0.2% FS max. (±0.2% ±10 ms max. in a range of 1.2 s)	
Influence of temperature	±1% FS max. (±1% ±10 ms max. in a range of 1.2 s)	
Ambient temperature	Operating: -10 to 55°C (with no icing), storage: -25 to 65°C (with no icing)	
Life expectancy	Mechanical:	20,000,000 operations min. (under no load at 1,800 operations/h)
	Electrical:	100,000 operations min. (5 A at 250 VAC, resistive load at 1,800 operations/h)
Size in mm (HxWxD)	48x48x66.6 (H3CR-A, -F), 48x48x78 (H3CR-G, -H)	
Setting error	±5% FS ±50 ms	
Degree of protection	IP40 (panel surface)	
Weight	Approx. 90 g	





## The most complete digital standard timer on the market

H5CX offers you the most complete series of products on the market today. Based on extensive customer research, these new timers have been designed with value added features that users both need and appreciate.

- Size in mm (HxWxD): 48x48x59 to 78 mm
- Three colour display value, red, green or orange
- Models with Instantaneous Contact Outputs
- 0.001 s to 9999 h, 10 ranges
- Input NPN, PNP and contact

### Ordering information

Output type	Supply voltage	Functions	External connection	Size in mm (HxWxD)	Inputs	Order code
Contact output	100 to 240 VAC	A: Signal ON-delay	Screw terminals	48x48x84	Signal, Reset, Gate (NPN/PNP inputs)	H5CX-A-N
	12 to 24 VDC/24 VAC	A-1: Signal ON-delay 2 A-2: Power ON-delay 1		48x48x65		H5CX-AD-N
Transistor output	100 to 240 VAC	A-3: Power ON-delay 2	Screw terminals	48x48x84	Signal, Reset, Gate (NPN/PNP inputs)	H5CX-AS-N
	12 to 24 VDC/24 VAC	b: Repeat cycle 1		48x48x65		H5CX-ASD-N
Contact output	100 to 240 VAC	b-1: Repeat cycle 2	11-pin socket	48x48x69.7	Signal, Reset, Gate (NPN/PNP inputs)	H5CX-A11-N
	12 to 24 VDC/24 VAC	d: Signal OFF-delay E: Interval				H5CX-A11D-N
Transistor output	100 to 240 VAC	F: Cumulative	11-pin socket	48x48x69.7	Signal, Reset, Gate (NPN/PNP inputs)	H5CX-A11S-N
	12 to 24 VDC/24 VAC	Z: ON/OFF-duty adjustable flicker				H5CX-A11SD-N
Contact output	100 to 240 VAC	toff: Twin timer OFF start	8-pin socket	48x48x69.7	Signal, Reset (NPN inputs)	H5CX-L8-N
	12 to 24 VDC/24 VAC	ton: Twin timer ON start				H5CX-L8D-N
Transistor output	100 to 240 VAC	A-2: Power ON-delay 1 b: Repeat cycle 1 E: Interval Z: ON/OFF-duty adjustable flicker	8-pin socket	48x48x69.7	Signal, Reset (NPN inputs)	H5CX-L8S-N
	12 to 24 VDC/24 VAC					toff: Twin timer OFF start 1 ton: Twin timer ON start 1
Contact output Models with instantaneous contact outputs	100 to 240 VAC	A-2: Power ON-delay 1 b: Repeat cycle 1 E: Interval Z: ON/OFF-duty adjustable flicker	8-pin socket	48x48x69.7	Signal, Reset (NPN inputs)	H5CX-L8E-N
	12 to 24 VDC/24 VAC					toff: Twin timer OFF start 1 ton: Twin timer ON start 1
Transistor output	12 to 24 VDC	A: Signal ON-delay 1 F: Cumulative	Screw terminals	48x48x65	Signal, Reset, Gate (NPN/PNP inputs)	H5CX-BWSD-N

### Accessories

Name	Order code	
Flush-mounting adapter	Y92F-30	
Waterproof packing	Y92S-29	
Front-connecting socket	8-pin, finger safe type 11-pin, finger safe type	P2CF-08-E P2CF-11-E
Back-connecting socket	8-pin	P3G-08
	11-pin	P3GA-11
Hard cover	Y92A-48	
Soft cover	Y92A-48F1	
Front panels (4-digit models)	Light gray	Y92P-CXT4G
	White	Y92P-CXT4S

### Specifications

Item	H5CX-A_	H5CX-A11_	H5CX-L8_
Display	7-segment, negative transmissive LCD		
	Present value: 12 mm high characters red, orange or green (programmable)		
	Set value: 6 mm high characters, green		
Digits	4 digits		
Total time range	0.001 s to 9,999 h (configurable)		
Timer mode	Elapsed time (Up), remaining time (Down) (selectable)		
Input signals	Signal, reset, gate		Signal, reset
Key protection	Yes		
Memory backup	EEPROM (overwrites: 100,000 times min.) that can store data for 10 years min.		
Ambient temperature	Operating: -10 to 55°C (no icing or condensation), side-by-side mounting: -10 to 50°C		
Case colour	Black (N1.5)		



### DIN-sized (48x48) motor timer with variable time ranges

This motor timer series provides you with many features, such as ON-delay, time indicator, moving pointer and synchronous motor. Moreover, the LED indicator shows the time operation, time range and the rated voltage.

- DIN-sized 48x48mm
- Front-panel/plug-in/DIN-rail
- All supply voltages available
- 0.2 s to 30 h
- SPDT, 6A at 250VAC

#### Ordering information

Operation/resetting system	Internal connection	Terminal	Time-limit contact	Instantaneous contact	Time range code	Order code
Time-limit operation/ electric resetting	Separate motor and clutch connection	11-pin socket	SPDT	SPDT	1.25 s to 30 h in 5 ranges	H2C-RSA 110AC
						H2C-RSA 220AC
						H2C-RSA 24AC
					0.2 s to 6 h in 5 ranges	H2C-RSB 110AC
						H2C-RSB 220AC
						H2C-RSB 24AC
					0.5 s to 12 h in 5 ranges	H2C-RSC 110AC
						H2C-RSC 220AC
						H2C-RSC 24AC
Time-limit operation/ self-resetting	Separate motor and clutch connection	11-pin socket	SPDT	SPDT	1.25 s to 30 h in 5 ranges	H2C-SA 110AC
						H2C-SA 220AC
						H2C-SA 24AC
					0.2 s to 6 h in 5 ranges	H2C-SB 110AC
						H2C-SB 220AC
						H2C-SB 24AC
					0.5 s to 12 h in 5 ranges	H2C-SC 110AC
						H2C-SC 220AC
						H2C-SC 24AC

Note: Other voltages available on request

#### Accessories

Name/specifications	Order code	Name/specifications	Order code
DIN-rail mounting/ front-connecting socket	8-pin, finger safe type	Hold-down clip (pair)	For PL08 and PL11 sockets
	11-pin, finger safe type		For PF085A socket
Back-connecting socket	8-pin, screw terminal	Flush mounting adapter	Y92F-30
	11-pin	Time setting ring	Y92A-Y1

#### Specifications

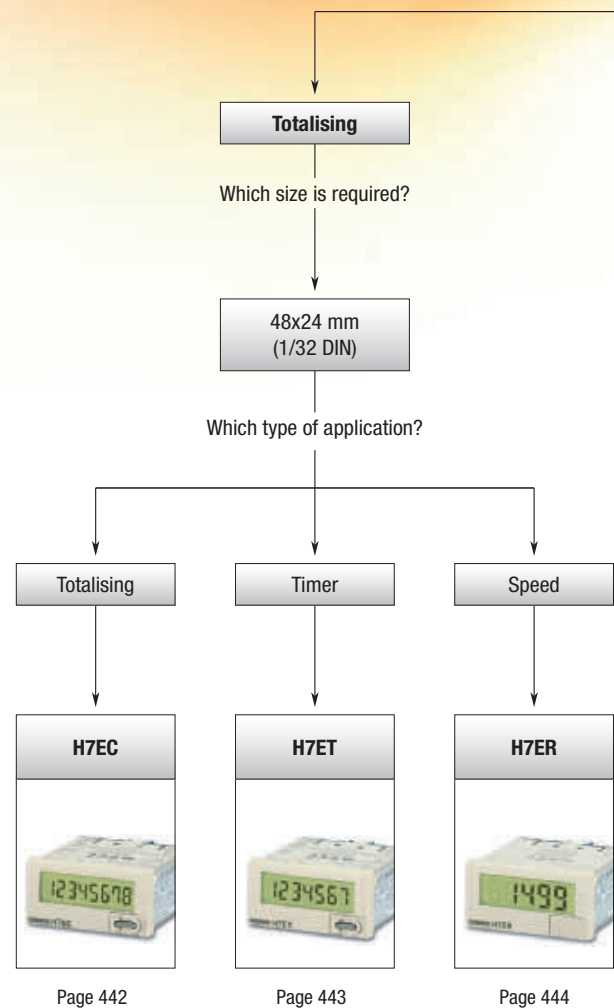
<b>Operating voltage range</b>	85 to 110% of rated supply voltage
<b>Reset voltage</b>	10% max. of rated supply voltage
<b>Reset time</b>	Min. power-opening time: 0.5 s, min. pulse width: 0.5 s
<b>Control outputs</b>	6 A at 250 VAC, resistive load (cosφ = 1)
<b>Mounting method</b>	Flush mounting (except for H2C-F/-FR models), surface-mounting, DIN-rail mounting
<b>Life expectancy</b>	Mechanical: 10,000,000 operations min.
	Electrical: 500,000 operations min.
<b>Motor life expectancy</b>	20,000 h
<b>Accuracy of operating time</b>	±0.5% FS max. (±1% max. at 0.2 to 6 s for the time range code B or at 0.5 to 12 s for the time range code C)
<b>Setting error</b>	±2% FS max.
<b>Reset time</b>	0.5 s max.
<b>Influence of voltage</b>	±1% FS max.
<b>Influence of temperature</b>	±2% FS max.
<b>Ambient temperature</b>	Operating: -10 to 50°C
<b>Case colour</b>	Light grey (Munsell 5Y7/1)
<b>Degree of protection</b>	IP40 (panel surface)
<b>Size in mm (HxWxD)</b>	48x48x77.5

## MULTI-FUNCTIONAL PRESET COUNTER

### H7CX – Designed with value added features

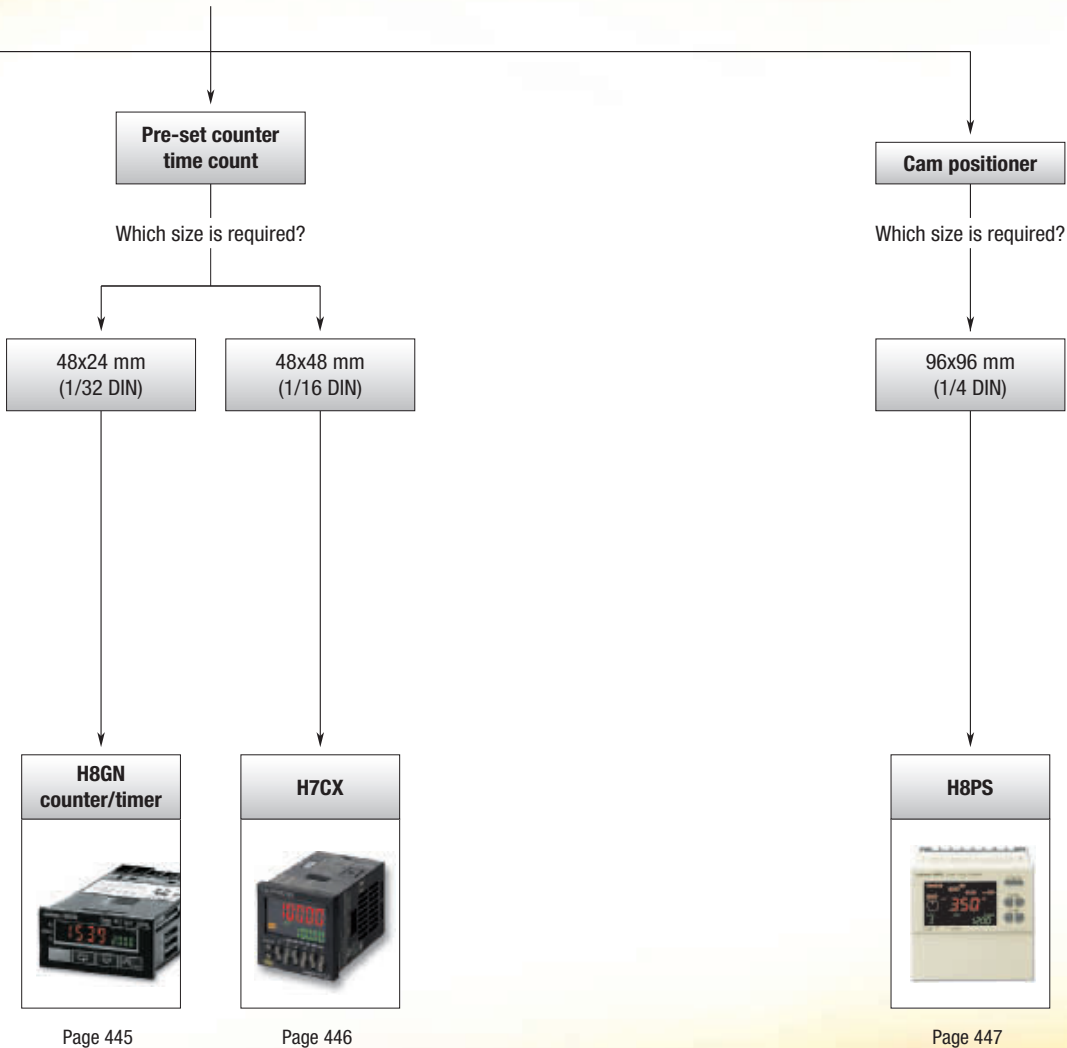
The H7CX series offers the ultimate in versatility and intuitive programming.

- 7 basic functions in one
- Switching colour on threshold, green, orange & red
- Twin counter mode
- 12 different outputs modes
- Display 6 digits from -100 K +1 up to 1 M -1





What is the type of counting application?









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# Selection table

Category		Self-powered total	Self-powered timer	Self-powered tachometer
Selection criteria				
	Model	H7EC	H7ET	H7ER
	Display	LCD		
	Size	1/32 DIN		
Outputs	Control outputs	–	–	–
	5 stage	–	–	–
	Total	■	■	–
	Time	–	■	–
	Preset	–	–	–
	Batch	–	–	–
	Dual	–	–	–
	Tachometer	■	–	■
Inputs	Control inputs	No-voltage, PNP/NPN, DC-voltage, AC/DC multi-voltage	No-voltage, PNP/NPN, DC-voltage, AC/DC multi-voltage	No-voltage, PNP/NPN
	Dual operation	–	–	–
Features	Number of digits	8	7	4 or 5
	NPN/PNP switch	■	■	■
	Back-lit	□	□	□
	External reset	■	■	–
	Manual reset	■	■	–
	Number of banks	–	–	–
	Built-in sensor power supply	–	–	–
	IP rating	IP66	IP66	IP66
Terminals	Screw terminals	■	■	■
	PCB terminals	–	–	–
	11-pin socket	–	–	–
Supply voltage	100 to 240 VAC	–	–	–
	12 to 24 VDC	–	–	–
	24 VDC	□	□	□
Functions	Comms	–	–	–
	Up	■	■	–
	Down	–	–	–
	Up/down	–	–	–
	Reversible	–	–	–
	Speed	0 to 30 Hz or 0 to 1 kHz	–	1 or 10 kHz
	Counting range	0 to 99999999	0.0 h to 999999.9 h <--> 0.0 h to 3999 d 23.9 h or 0 s to 999 h 59 min 59 s <--> 0.0 min to 9999 h 59.9 min	1000 s <sup>-1</sup> or 1000 min <sup>-1</sup> ; 1000 s <sup>-1</sup> or 1000 min <sup>-1</sup> <--> 10000 min <sup>-1</sup>
	Colour	Beige	■	■
Black		■	■	■
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Counter type		Pre-set counter/timer	Pre-set counter	Cam positioner
Selection criteria				
	Model	<b>H8GN</b>	<b>H7CX</b>	<b>H8PS</b>
	Display	LCD negative transmissive		LCD negative transmissive
	Size	1/32 DIN	1/16 DIN	1/4 DIN
Outputs	Control outputs	1 relay (SPDT)	1 relay (SPDT), transistor	NPN or PNP, cam outputs 8/16/32, run out, tachometer
	5 stage	■	□	–
	Total	■	□	–
	Time	■	–	–
	Preset	■	□	–
	Batch	■	□	–
	Dual	■	□	–
Inputs	Tachometer	–	□	–
	Control inputs	No-voltage	No-voltage, PNP/NPN	Encoder
Features	Dual operation	■	■	□
	Number of digits	PV: 4, SV: 4	PV: 4, SV: 4 or PV: 6, SV: 6	7
	NPN/PNP switch	–	■	–
	Back-lit	–	■	■
	External reset	■	■	–
	Manual reset	■	■	8 (16- and 32-output models only)
	Number of banks	4	–	–
	Built-in sensor power supply	–	■	–
Terminals	IP rating	IP66	IP66	IP40
	Screw terminals	■	■	■
	PCB terminals	–	–	■
Supply voltage	11-pin socket	–	□	–
	100 to 240 VAC	–	■	–
	12 to 24 VDC	–	■	–
	24 VDC	■	–	■
Functions	Comms	□	–	–
	Up	■	■	–
	Down	■	■	–
	Up/down	–	■	–
	Reversible	■	■	–
	Speed	0 to 30 Hz or 0 to 5 kHz	0 to 30 Hz or 0 to 5 kHz	–
	Counting range	-999 to 9999	-99999 to 999999	–
Colour	Beige	–	–	■
	Black	■	■	–
	Page	445	446	447

■ Standard

□ Available

– No/not available

### Self-powered LCD totaliser



The H7E series is available with large display with 8.6 mm character height. It includes models with backlight for improved visibility in dimly lit places. The H7E family includes total counters, time counters, tachometers and PCB mounted counters.

- Size in mm (HxWxD): 24x48x55.5, 1/32 DIN size housing
- 8 digits, 8.6 mm character height
- Black or light-grey housing
- Dual input speed: 30 Hz <-> 1 kHz
- Short body: all models have a depth of 48.5 mm

### Ordering information

Count input	Max. counting speed	Display	Order code	
			Light grey body	Black body
No-voltage	30 Hz <-> 1 kHz (switchable)	7-segment LCD	H7EC-N	H7EC-N-B
PNP/NPN universal DC voltage input	30 Hz <-> 1 kHz (switchable)	7-segment LCD	H7EC-NV	H7EC-NV-B
		7-segment LCD with backlight	H7EC-NV-H	H7EC-NV-BH
AC/DC multi-voltage input	20 Hz	7-segment LCD	H7EC-NFV	H7EC-NFV-B

### Specifications

Item	H7EC-NV- /H7EC-NV- _H	H7EC-NFV- _	H7EC-N- _
Operating mode	Up type		
Mounting method	Flush mounting		
External connections	Screw terminals, optional wire-wrap terminals		
Number of digits	8		
Display	7-segment LCD with or without backlight, zero suppression (character height: 8.6 mm)		
Max. counting speed	30 Hz/1 kHz	20 Hz	30 Hz/1 kHz
Case colour	Light grey or black (-B models)		
Attachment	Waterproof packing, flush mounting bracket		
Supply voltage	Backlight model: 24 VDC (0.3 W max.) (only for backlight) No-backlight model: Not required (powered by built-in battery)	Not required (powered by built-in battery)	
Count input	High (logic) level: 4.5 to 30 VDC Low (logic) level: 0 to 2 VDC (input impedance: Approx. 4.7 kΩ)	High (logic) level: 24 to 240 VAC/VDC, 50/60 Hz Low (logic) level: 0 to 2.4 VAC/VDC, 50/60 Hz	No voltage input Maximum short-circuit impedance: 10 kΩ max. Short-circuit residual voltage: 0.5 V max. Minimum open impedance: 750 kΩ min.
Reset input		No voltage input Maximum short-circuit impedance: 10 kΩ max. Short-circuit residual voltage: 0.5 V max. Minimum open impedance: 750 kΩ min.	
Minimum signal width	20 Hz: 25 ms, 30 Hz: 16.7 ms, 1 KHz: 0.5 ms		
Reset system	External reset and manual reset: Minimum signal width of 20 ms		
Ambient temperature	Operating: -10 to 55°C (with no condensation or icing), storage: -25 to 65°C (with no condensation or icing)		
Degree of protection	Front-panel: IP66, NEMA4, terminal block: IP20		
Battery life (reference)	7 years min. with continuous input at 25°C (lithium battery)		
Size in mm (HxWxD)	24x48x55.5		

### Self-powered time counter



The H7E series is available with large display with 8.6mm character height. It includes models with backlight for improved visibility in dimly lit places. The H7E family includes total counters, time counters, tachometers and PCB mounted counters.

- Size in mm (HxWxD) 24x48x55.5, 1/32 DIN size housing
- 7 digits, 8.6mm character height
- Black or light-grey housing
- Dual time range 999999.9h <-> 3999d23.9h or 999h59m59s <-> 9999h59.9m

### Ordering information

Timer input	Display	Order code			
		Time range 999999.9h <-> 3999d23.9h (switchable)		Time range 999h59m59s <-> 9999h59.9m	
		Light grey body	Black body	Light grey body	Black body
No-voltage input	7-segment LCD	H7ET-N	H7ET-N-B	H7ET-N1	H7ET-N1-B
PNP/NPN universal DC voltage input	7-segment LCD	H7ET-NV	H7ET-NV-B	H7ET-NV1	H7ET-NV1-B
DC voltage input	7-segment LCD with backlight	H7ET-NV-H	H7ET-NV-BH	H7ET-NV1-H	H7ET-NV1-BH
AC/DC multi-voltage input	7-segment LCD	H7ET-NFV	H7ET-NFV-B	H7ET-NFV1	H7ET-NFV1-B

### Specifications

Item	H7ET-NV - /H7ET-NV - H	H7ET-NFV -	H7ET-N -
Operating mode	Accumulating		
Mounting method	Flush mounting		
External connections	Screw terminals		
Display	7-segment LCD with or without backlight, zero suppression (character height: 8.6 mm)		
Number of digits	7		
Case colour	Light grey or black (-B models)		
Attachment	Waterproof packing, flush mounting bracket, time unit labels		
Supply voltage	Backlight model: 24 VDC (0.3 W max.) (for backlight) No-backlight model: Not required (powered by built-in battery)	Not required (powered by built-in battery)	
Timer input	High (logic) level: 4.5 to 30 VDC Low (logic) level: 0 to 2 VDC (Input impedance: Approx. 4.7 kΩ)	High (logic) level: 24 to 240 VAC/VDC, 50/60 Hz Low (logic) level: 0 to 2.4 VAC/VDC, 50/60 Hz	No voltage input Maximum short-circuit impedance: 10 kΩ max. Short-circuit residual voltage: 0.5 V max. Minimum open impedance: 750 kΩ min.
Reset input		No voltage input Maximum short-circuit impedance: 10 kΩ max. Short-circuit residual voltage: 0.5 V max. Minimum open impedance: 750 kΩ min.	
Minimum pulse width	1 s		
Reset system	External reset and manual reset: Minimum signal width of 20 ms		
Ambient temperature	Operating: -10 to 55°C (with no condensation or icing), storage: -25 to 65°C (with no condensation or icing)		
Time accuracy	±100 ppm (25°C)		
Degree of protection	Front-panel: IP66, NEMA4 with waterproof packing, terminal block: IP20		
Battery life (reference)	10 years min. with continuous input at 25°C (lithium battery)		
Size in mm (HxWxD)	24x48x55.5		



### Self-powered tachometer



The H7E series is available with large display with 8.6mm character height. It includes models with backlight for improved visibility in dimly lit places. The H7E family includes total counters, time counters, tachometers and PCB mounted counters.

- Size in mm (HxWxD) 24x48x53.5, 1/32 DIN size housing
- 5 digits, 8.6mm character height
- Black or light-grey housing
- Dual revolution display

### Ordering information

Count input	Display	Order code			
		Max. revolutions displayed (applicable encoder resolution)			
		1,000 s <sup>-1</sup> (1 pulse/rev.) 1,000 min <sup>-1</sup> (60 pulse/rev.)		1,000.0 s <sup>-1</sup> (10 pulse/rev) 1,000.0 min <sup>-1</sup> (600 pulse/rev) <-> 10,000 min <sup>-1</sup> (60 pulse/rev) (switchable)	
		Light grey body	Black body	Light grey body	Black body
No-voltage input	7-segment LCD	H7ER-N	H7ER-N-B		
PNP/NPN universal	7-segment LCD	H7ER-NV	H7ER-NV-B	H7ER-NV1	H7ER-NV1-B
DC voltage input	7-segment LCD with backlight	H7ER-NV-H	H7ER-NV-BH	H7ER-NV1-H	H7ER-NV1-BH

### Specifications

Item	H7ER-NV1-_/H7ER-NV1-_H	H7ER-NV-_/H7ER-NV-_H	H7ER-N-_
Operating mode	Up type		
Mounting method	Flush mounting		
External connections	Screw terminals, wire-wrap terminals		
Display	7-segment LCD with or without backlight, zero suppression (character height: 8.6 mm)		
Number of digits	5	4	
Max. revolutions displayed	1,000.0 s <sup>-1</sup> (when encoder resolution of 10 pulse/rev is used) 1,000.0 min <sup>-1</sup> (when encoder resolution of 600 pulse/rev is used) <-> 10,000 min <sup>-1</sup> (when encoder resolution of 60 pulse/rev is used) (switchable with switch)	1,000 s <sup>-1</sup> (when encoder resolution of 1 pulse/rev is used) 1,000 min <sup>-1</sup> (when encoder resolution of 60 pulse/rev is used)	
Attachment	Waterproof packing, flush mounting bracket, revolution unit labels		
Supply voltage	Backlight model: 24 VDC (0.3 W max.) (for backlight lit) No-backlight model: Not required (powered by built-in battery)		Not required (powered by built-in battery)
Count input	High (logic) level: 4.5 to 30 VDC Low (logic) level: 0 to 2 VDC (Input impedance: Approx. 4.7 kΩ)		No voltage input Maximum short-circuit impedance: 10 kΩ max. Short-circuit residual voltage: 0.5 V max. Minimum open impedance: 750 kΩ min.
Max. counting speed	10 kHz	1 kHz	
Minimum signal width	10 kHz: 0.05 ms, 1 kHz: 0.5 ms		
Ambient temperature	Operating: -10 to 55°C (with no condensation or icing), storage: -25 to 65°C (with no condensation or icing)		
Degree of protection	Front-panel: IP66, NEMA4 with waterproof packing, terminal block: IP20		
Battery life (reference)	7 years min. with continuous input at 25°C (lithium battery)		
Size in mm (HxWxD)	24x48x53.5		



## World's smallest compact preset counter/timer

The H8GN is a 1/32 DIN timer and counter in one. It is simple to switch between the timer and counter functions. During operation it is also possible to switch the display to monitor the totalising count value in 8 digits. Many sophisticated functions come as standard with H8GN.

- Size in mm (HxWxD) 24x48x83, 1/32 DIN size housing
- 8 digit display, 4 value and 4 set value
- Front mounting
- -999 to 9999
- 24 VDC

### Ordering information

Functions		Supply voltage	Output	Order code	
Counter	Timer			Communications	
				No communications	RS-485
Counter: Up/down/reversible, 4 digits, N, F, C or K output modes Total counter: 8 digits	A: ON-delay B: Flicker D: Signal OFF-delay E: Interval F: Accumulative Z: ON/OFF-duty adjustable flicker	24 VDC	Contact output (SPDT)	H8GN-AD	H8GN-AD-FLK

### Specifications

<b>Rated supply voltage</b>		24 VDC
<b>Operating voltage range</b>		85 to 110% of rated supply voltage
<b>Power consumption</b>		1.5 W max. (for max. DC load) (inrush current: 15 A max.)
<b>Mounting method</b>		Flush-mounting
<b>External connections</b>		Screw terminals (M3 screws)
<b>Terminal screw tightening torque</b>		0.5 Nm max.
<b>Attachment</b>		Waterproof packing, flush-mounting bracket
<b>Display</b>		7-segment, negative transmissive LCD; time display (h, min, s); CMW, OUT, RST, TOTAL Present value (red, 7 mm high characters); set value (green, 3.4 mm high characters)
<b>Digits</b>		PV: 4 digits, SV: 4 digits, when total count value is displayed: 8 digits (zeros suppressed)
<b>Memory backup</b>		EEPROM (non-volatile memory) (number of writes: 100,000 times)
<b>Counter</b>	<b>Maximum counting speed</b>	30 Hz or 5 kHz
	<b>Counting range</b>	-999 to 9,999
	<b>Input modes</b>	Increment, decrement, individual, quadrature inputs
<b>Timer</b>	<b>Timer modes</b>	Elapsed time (up), remaining time (down)
<b>Inputs</b>	<b>Input signals</b>	For counter: CP1, CP2, and reset For timer: Start, gate, and reset
	<b>Input method</b>	No-voltage input (contact short-circuit and open input) Short-circuit (ON) impedance: 1 kΩ max. (approx. 2 mA runoff current at 0 Ω) Short-circuit (ON) residual voltage: 2 VDC max. Open (OFF) impedance: 100 kΩ min. Applied voltage: 30 VDC max.
	<b>Start, reset, gate</b>	Minimum input signal width: 1 or 20 ms (selectable)
	<b>Power reset</b>	Minimum power-opening time: 0.5 s
<b>Control output</b>		SPDT contact output: 3 A at 250 VAC/30 VDC, resistive load (cosφ = 1)
<b>Minimum applied load</b>		10 mA at 5 VDC (failure level: P, reference value)
<b>Reset system</b>		External, manual, and power supply resets (for timer in A, B, D, E, or Z modes)
<b>Sensor waiting time</b>		260 ms max. (inputs cannot be received during sensor wait time if control outputs are turned OFF)
<b>Timer function</b>	<b>Accuracy of operating time and setting error (including temperature and voltage effects)</b>	Signal start: ±0.03% ±30 ms max. Power-ON start: ±0.03% ±50 ms max.
<b>Ambient temperature</b>	<b>Operating storage</b>	-10 to 55°C (with no icing or condensation) -25 to 65°C (with no icing or condensation)
	<b>Case colour</b>	Rear section: Grey smoke; front section: N1.5 (black)
<b>Degree of protection</b>		Panel surface: IP66 and NEMA Type 4X (indoors); rear case: IP20, terminal block: IP20
<b>Size in mm (HxWxD)</b>		24x48x83



## The most complete digital standard counter on the market

H7CX offers you the most complete series of products on the market today. Based on extensive customer research, these new counters have been designed with value added features that users both need and appreciate.

- Size in mm (HxWxD) 48x48x59 to 78mm 1/16 DIN size housing
- Three colour display value, red, green or orange
- Twin counter mode
- 6 digit model -99,999 to 999,999, set value -99,999 to 999,999 or 0 to 999,999
- Input contact, NPN or PNP

### Ordering information

Type	External connection	Sensor power supply	Supply voltage	Output type	Digits	Size in mm (HxWxD)	Order code
1-stage counter 1-stage counter with total counter 2-stage counter 1-stage counter with batch counter Dual counter (addition/subtraction) Tachometer Twin counter	Screw terminal	12 VDC	100 to 240 VAC	Contact and transistor output	6	48x48x84	H7CX-AU-N
			12 to 24 VDC/24 VAC	Transistor output (2x)			H7CX-AUD1-N
			100 to 240 VAC	Contact output (2x)			H7CX-AUSD1-N
			12 to 24 VDC/24 VAC				H7CX-AW-N
1-stage counter 1-stage counter with total counter	11-pin socket	12 VDC	100 to 240 VAC	Contact output	6	48x48x69.7	H7CX-A11-N
			12 to 24 VDC/24 VAC	Transistor output			H7CX-A11D1-N
	100 to 240 VAC		Transistor output	H7CX-A11S-N			
	12 to 24 VDC/24 VAC			H7CX-A11SD1-N			
	Screw terminal		100 to 240 VAC	Contact output	6	48x48x84	H7CX-A-N
			100 to 240 VAC	Transistor output			H7CX-AS-N

### Accessories

Name	Order code
Flush-mounting adapter	Y92F-30
Waterproof packing	Y92S-29
DIN-rail mounting/front-connecting socket	11-pin, finger safe type P2CF-11-E
Back-connecting socket	11-pin P3GA-11
	Finger safe terminal cover for P3GA-11 Y92A-48G
Hard cover	Y92A-48
Soft cover	Y92A-48F1
Front panels (4-digit models)	Light gray Y92P-CXC4G
	White Y92P-CXC4S
Front panels (6-digit models)	Light gray Y92P-CXC6G
	White Y92P-CXC6S

### Specifications

<b>Display</b>	7-segment, negative transmissive LCD
<b>Digits</b>	6-digits: -99,999 to 999,999, SV range: -99999 to 999999 or 0 to 999999
<b>Max. counting speed</b>	30 Hz or 5 kHz (selectable, ON/OFF ratio 1:1)
<b>Input modes</b>	Increment, decrement, increment/decrement (UP/DOWN A (command input), UP/DOWN B (individual inputs), or UP/DOWN C (quadrature inputs))
<b>Control output</b>	Contact output: 3 A at 250 VAC/30 VDC, resistive load (cosφ = 1) Minimum applied load: 10 mA at 5 VDC Transistor output:NPN open collector, 100 mA at 30 VDC Residual voltage: 1.5 VDC max. (approx. 1V) Leakage current: 0.1 mA max.
<b>Key protection</b>	Yes
<b>Decimal point adjustment</b>	Yes (rightmost 3 digits)
<b>Sensor waiting time</b>	290 ms max.
<b>Memory backup</b>	EEPROM (overwrites: 100,000 times min.) stores data 10 years min.
<b>Ambient temperature</b>	Operating: -10 to 55°C (-10 to 50°C when mounted side by side)
<b>Case colour</b>	Black (N1.5) (Optional Front Panels are available to change the Front Panel colour to light gray or white.)
<b>Life expectancy</b>	Mechanical: 10,000,000 operations min. Electrical: 100,000 operations min. (3 A at 250 VAC, resistive load)
<b>Degree of protection</b>	Panel surface: IP66, NEMA 4 (indoors), and UL Type 4X (indoors)



## Compact, easy-to-use cam positioner

The H8PS provides high speed operation at 1,600 r/min and high-precision settings to 0.5° ensuring widespread application. H8PS features a highly visible display with back-lit negative transmissive LCD. Advance angle compensation function compensates for output delays.

- 96 to 121.2Hx96Wx60.6 to 67.5D mm
- Front-panel / DIN-rail
- 24 VDC
- 8-, 16- and 32-outputs
- NPN/PNP 100 mA at 30 VDC

### Ordering information

Number of outputs	Mounting method	Output configuration	Bank function	Size in mm (HxWxD)	Order code
8-outputs	Flush-mounting	NPN transistor output	No	96x96x67.5	H8PS-8B
		PNP transistor output			H8PS-8BP
	Front-mounting/DIN-rail mounting	NPN transistor output		96x96x60.6	H8PS-8BF
		PNP transistor output			H8PS-8BFP
16-outputs	Flush-mounting	NPN transistor output	Yes	96x96x67.5	H8PS-16B
		PNP transistor output			H8PS-16BP
	Front-mounting/DIN-rail mounting	NPN transistor output		121.2x96x60.6	H8PS-16BF
		PNP transistor output			H8PS-16BFP
32-outputs	Flush-mounting	NPN transistor output	Yes	96x96x67.5	H8PS-32B
		PNP transistor output			H8PS-32BP
	Front-mounting/DIN-rail mounting	NPN transistor output		121.2x96x60.6	H8PS-32BF
		PNP transistor output			H8PS-32BFP

### Encoders

Type	Resolution	Cable length	Order code
Economy	256	2 m	E6CP-AG5C-C 256 2M
Standard	256	1 m	E6C3-AG5C-C 256 1M
		2 m	E6C3-AG5C-C 256 2M
	360		E6C3-AG5C-C 360 2M
	720		E6C3-AG5C-C 720 2M
Rigid	256	2 m	E6F-AG5C-C 256 2M
	360		E6F-AG5C-C 360 2M
	720		E6F-AG5C-C 720 2M

### Accessories

Name	Specification	Order code
<b>Discrete wire output cable</b>	2 m	Y92S-41-200
<b>Connector-type output cable</b>	2 m	E5ZE-CBL200
<b>Support software</b>	CD-ROM	H8PS-SOFT-V1
<b>USB cable</b>	A miniB, 2 m	Y92S-40
<b>Parallel input adapter</b>	Two units can operate in parallel	Y92C-30
<b>Protective cover</b>		Y92A-96B
<b>Watertight cover</b>		Y92A-96N
<b>DIN-rail mounting base</b>		Y92F-91

### Encoder accessories

Name	Specification	Order code
<b>Shaft coupling for the E6CP</b>	Axis: 6 mm dia.	E69-C06B
<b>Shaft coupling for the E6C3</b>	Axis: 8 mm dia.	E69-C08B
<b>Shaft coupling for the E6F</b>	Axis: 10 mm dia.	E69-C10B
<b>Extension cable</b>	5 m (same for E6CP, E6C3, and E6F)	E69-DF5

### Specifications

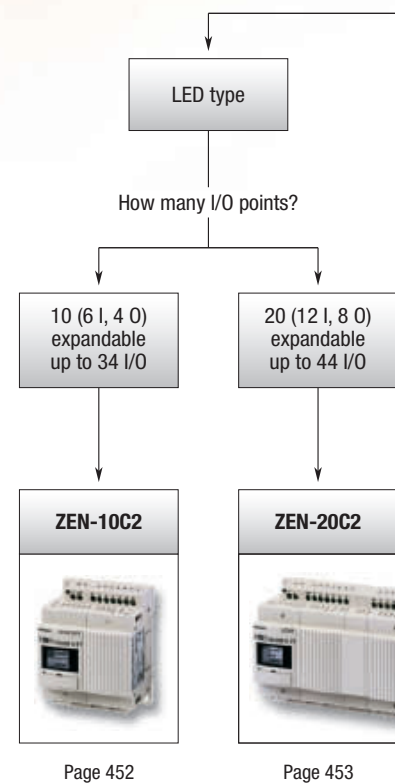
<b>Rated supply voltage</b>	24 VDC		
<b>Inputs</b>	<b>Encoder input</b>	8-output models: None; 16-/32-output models: Bank inputs 1/2/4, origin input, start input	
	<b>External inputs</b>	<b>Input signals</b>	8-output models: None; 16-/32-output models: Bank inputs 1/2/4, origin input, start input
		<b>Input type</b>	No voltage inputs: ON impedance: 1 kΩ max. (leakage current: Approx. 2 mA at 0 Ω) ON residual voltage: 2 V max., OFF impedance: 100 kΩ min., applied voltage: 30 VDC max. Minimum input signal width: 20 ms
<b>Number of banks</b>	8 banks (for 16-/32-output models only)		
<b>Display method</b>	7-segment, negative transmissive LCD (main display: 11 mm (red), sub-display: 5.5 mm (green))		
<b>Memory backup method</b>	EEPROM (overwrites: 100,000 times min.) that can store data for 10 years min.		
<b>Ambient operating temperature</b>	-10 to 55°C (with no icing or condensation)		
<b>Storage temperature</b>	-25 to 65°C (with no icing or condensation)		
<b>Ambient humidity</b>	25 to 85%		
<b>Degree of protection</b>	Panel surface: IP40, rear case: IP20		
<b>Case colour</b>	Light grey (Munsell 5Y7/1)		

## FLEXIBLE AUTOMATION EXPANDED

### ZEN-C4 – More flexibility with RS-485 communication

Our range is extended with a communication model. Now you have the possibility to connect several ZEN in a network environment. This will enhance the ZEN series to solve even more applications.

- RS-485 communication
- To connect up to 32 units
- Easy CompoWayF protocol





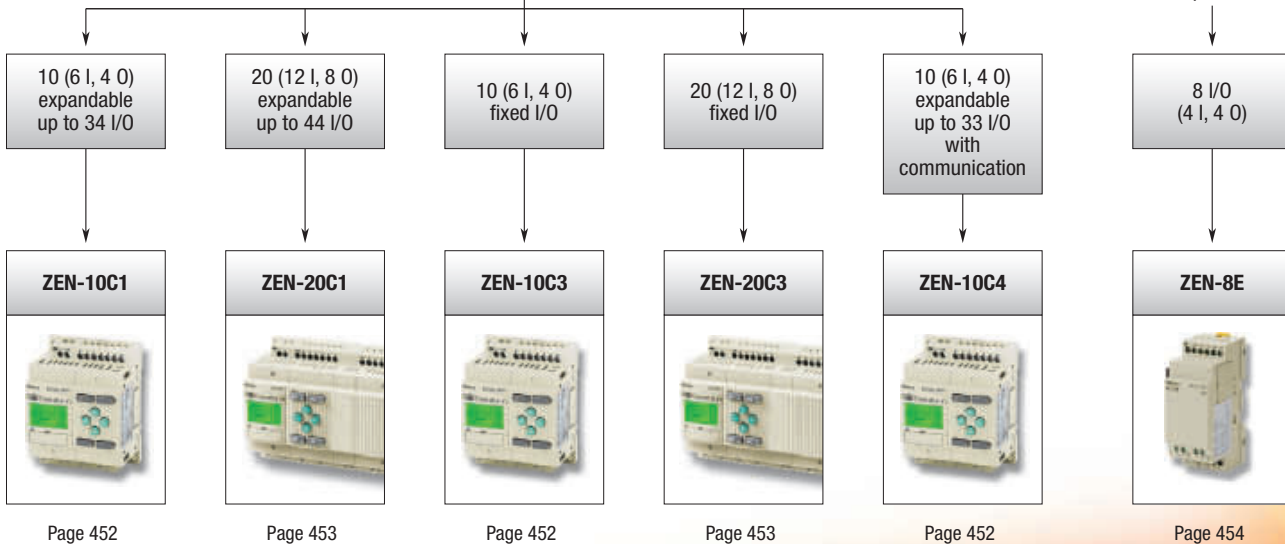
What functionality is required?

Display type with buttons, calendar and clock

Expansion unit

How many I/O points?

How many extra I/O points?



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Model	ZEN-10C	ZEN-20C		
Type	CPU unit	CPU unit		
Features C1	With LCD Display, program/control buttons, calendar and real-time clock	With LCD display, program/control buttons, calendar and real-time clock		
Features C2	With LED indication Logic control Programming by software	With LED indication Logic control Programming by software		
Features C3	Same as C1 but not expandable.	Same as C1 but not expandable.		
Features C4	Same as C1 but instead of one output relay you get RS-485 communication.	–		
Features Starter kits	Complete set with C1 CPU including software, cable and manual	–		
Number of I / O points	10 expandable up to 34 I/O (C4 up to 33 I/O)	20 expandable up to 44 I/O		
Inputs	6	12		
Inputs/power supply	100 to 240 VAC or 12 to 24 VDC	100 to 240 VAC or 12 to 24 VDC		
Outputs	4 relays (C4 = 3 relays) or 4 transistors	8 relays or 8 transistors		
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– No/not available





## Flexible automation

The ZEN-10C offers simple logic control in a choice of four CPU units. Expansion is possible on three of these CPU's of up to 34 I/O whereas the fourth (C3 Units) is fixed at 10 I/O. All DC models have analogue input and a high-speed counter input up to 150 Hz.

- DC input/supply units have analogue input + high speed counter
- The ZEN-10C4 has RS-485 communication
- Expansion available with relay output or transistor output
- ZEN-Kits the best choice to start!

## Ordering information

Name	Number of I/O points	Inputs (I)/ power supply	Outputs (Q)	Type	LCD, buttons (B), calendar and clock	Analogue input/ comparators (A)	8-digit counter (F)/ comparators (G)	No. of bits 16	No. of bits 8	Size in mm (HxWxD)	Order code	
CPU units	10 Expandable up to 34 I/O	6 100 to 240 VAC	4 Relays	LCD	yes	–	–	Work bits (M) Holding bits (H) Timers (T) Counters (C) Weekly timers (@) LCD display (D) Timer/counter comparator (P)	Holding timers (#) Button input (B)	90x70x56	ZEN-10C1AR-A-V2	
					LED	–	–				ZEN-10C2AR-A-V2	
		12 to 24 VDC		LCD	yes	yes / 4	yes / 4				ZEN-10C1DR-D-V2	
				LED	–	yes / 4	yes / 4				ZEN-10C2DR-D-V2	
		Transistors		LCD	yes	yes / 4	yes / 4				ZEN-10C1DT-D-V2	
				LED	–	yes / 4	yes / 4				ZEN-10C2DT-D-V2	
	Fixed I/O	100 to 240 VAC	3 Relays	LCD	yes	–	yes / 4				ZEN-10C3AR-A-V2	
				LCD	yes	yes / 4	yes / 4				ZEN-10C3DR-D-V2	
		12 to 24 VDC	LCD/ Comm.	yes	–	yes / 4	ZEN-10C4AR-A-V2					
			yes	yes / 4	yes / 4	ZEN-10C4DR-D-V2						
		10 Expandable up to 33 I/O	100 to 240 VAC	3	LCD/ Comm.	yes	–				yes / 4	ZEN-10C4AR-A-V2
					yes	yes / 4	yes / 4				ZEN-10C4DR-D-V2	
ZEN kit	Set containing CPU unit (ZEN-10C1AR-A-V2), connecting cable, ZEN support software and manual.										ZEN-KIT01-EV4	
	Set containing CPU unit (ZEN-10C1DR-D-V2), connecting cable, ZEN support software and manual.										ZEN-KIT02-EV4	

## Specifications

Item	Specifications	
	ZEN-10C_AR-A-V2	ZEN-10C_D_-D-V2
Power supply voltage	100 to 240 VAC, 50/60 Hz	12 to 24 VDC (DC ripple rate: 5%)
Rated power supply voltage	85 to 264 VAC	10.8 to 28.8 VDC
Power consumption	9 VA max.	4 W max.
Inrush current	3 A max.	30 A max.
Ambient temperature	0°C to 55°C (-25°C to 55°C for ZEN-10C2 models (LED))	
Ambient storage	-20°C to 55°C (-40°C to 75°C for ZEN-10C2 models (LED))	
Control method	Stored program control	
I/O control method	Cyclic scan	
Programming language	Ladder diagram	
Program capacity	96 lines (3 input conditions and 1 output per line)	
LCD display	12 characters x 4 lines, with backlight (LCD-type CPU unit only)	
Operation keys	8 (4 cursor keys and 4 operation keys) (LCD-type CPU unit only)	
Super-capacitor holding time	2 days min. (25°C)	
Battery life (ZEN-BAT01)	10 years min. (25°C)	
Calendar & Clock function	Accuracy: ± 15 s/month (at 25°C)	

## Accessories

Name	Description	Order code
Memory Cassette	EEPROM (for data security and copying)	ZEN-ME01
Battery unit	Battery (keeps time, date and bit values for 10 years at 25°C)	ZEN-BAT01
Connecting Cable	For the programming software, RS-232C cable, 9-way 'D' connector for PC	ZEN-CIF01
USB-Serial conversion cable	USB-Serial conversion cable (to be used in combination with ZEN-CIF01)	CS1W-CIF31
ZEN support software	Runs on Windows ME, 2000, XP, NT4.0 Service Pack 3, Vista	ZEN-SOFT01-V4



## Extended flexible automation

Ideal for small-scale control applications, the ZEN-20C provides an economical alternative to discrete timers, counters and general purpose relays. With 12 Inputs and 8 relay or transistor Outputs, and expansion possibilities of up to 44 I/O on C1 and C2 models, the ZEN-20C offers extended flexibility, with features such as calendar and real time clock functionality.

- ZEN-20C1/C2 expandable up to 44 I/Os
- ZEN DC units have analogue input 0-10 VDC
- DC models have as well high speed counter 150 Hz
- Expansion available with relay output or transistor output

## Ordering information

Name	Number of I/O points	Inputs (I)/ power supply	Outputs (O)	Type	LCD, buttons (B), calendar and clock	Analogue input/comparators (A)	8-digit counter (F)/ comparators (G)	No. of bits 16	No. of bits 8	Size in mm (HxWxD)	Order code		
CPU units	20	12	100 to 240 VAC	8	Relays	LCD	yes	–	–	Work bits (M) Holding bits (H) Button input (B) Timers (T) Counters (C) Weekly timers (@) LCD display (D) Timer/counter comparator (P)	Holding timers (#) Button input (B)	90x122.5 x56	ZEN-20C1AR-A-V2
						LED	–	–	ZEN-20C2AR-A-V2				
						LCD	yes	yes / 4	yes / 4				ZEN-20C1DR-D-V2
						LED	–	yes / 4	yes / 4				ZEN-20C1DR-D-V2
	Expandable up to 44 I/O	12 to 24 VDC	Transistors	LCD	yes	yes / 4	yes / 4	ZEN-20C1DT-D-V2					
				LED	–	yes / 4	yes / 4	ZEN-20C2DT-D-V2					
				LCD	yes	–	yes / 4	ZEN-20C3AR-A-V2					
				LCD	yes	yes / 4	yes / 4	ZEN-20C3DR-D-V2					
Fixed I/O	100 to 240 VAC	Relays	LCD	yes	–	yes / 4	ZEN-20C1AR-A-V2						
			LCD	yes	yes / 4	yes / 4	ZEN-20C3DR-D-V2						
			LCD	yes	–	yes / 4	ZEN-20C1AR-A-V2						
			LCD	yes	yes / 4	yes / 4	ZEN-20C3DR-D-V2						
Fixed I/O	12 to 24 VDC	Relays	LCD	yes	–	yes / 4	ZEN-20C1AR-A-V2						
			LCD	yes	yes / 4	yes / 4	ZEN-20C3DR-D-V2						
			LCD	yes	–	yes / 4	ZEN-20C1AR-A-V2						
			LCD	yes	yes / 4	yes / 4	ZEN-20C3DR-D-V2						

## Specifications

Item	Specifications	
	ZEN-20C_AR-A-V2	ZEN-20C_D_-D-V2
Power supply voltage	100 to 240 VAC, 50/60 Hz	12 to 24 VDC (DC ripple rate: 5%)
Rated power supply voltage	85 to 264 VAC	10.8 to 28.8 VDC
Power consumption	11 VA max.	5 W max.
Inrush current	4 A max.	30 A max.
Ambient temperature	0°C to 55°C (-25°C to 55°C for ZEN-20C2 models (LED))	
Ambient storage	-20°C to 55°C (-40°C to 75°C for ZEN-20C2 models (LED))	
Control method	Stored program control	
I/O control method	Cyclic scan	
Programming language	Ladder diagram	
Program capacity	96 lines (3 input conditions and 1 output per line)	
LCD display	12 characters x 4 lines, with backlight (LCD-type CPU unit only)	
Operation keys	8 (4 cursor keys and 4 operation keys) (LCD-type CPU unit only)	
Super-capacitor holding time	2 days min. (25°C)	
Battery life (ZEN-BAT01)	10 years min. (25°C)	
Calendar & Clock function	Accuracy: ± 15 s/month (at 25°C) if applicable	

## Accessories

Name	Description	Order code
Memory Cassette	EEPROM (for data security and copying)	ZEN-ME01
Battery unit	Battery (keeps time, date and bit values for 10 years at 25°C)	ZEN-BAT01
Connecting Cable	For the programming software, RS-232C cable, 9-way 'D' connector for PC	ZEN-CIF01
USB-Serial conversion cable	USB-Serial conversion cable (to be used in combination with ZEN-CIF01)	CS1W-CIF31
ZEN support software	Runs on Windows ME, 2000, XP, NT4.0 Service Pack 3, Vista	ZEN-SOFT01-V4



## ZEN Expansion units

To enlarge your ZEN application we provide three different expansion units in only 35 mm width ZEN housing. All expansion units have standard 4 inputs and 4 outputs. You can add maximum 3 expansion units to one CPU.

- 4 inputs, 100 to 240VAC or 12 to 24VDC
- 4 outputs, either relays or transistors (only DC models)
- DIN-rail mounting
- Size in mm (HxWxD): 90x35x56

## Ordering information

Name	Number of I/O points	Inputs (X)/ power supply	Outputs (Y)	Size in mm (HxWxD)	Order code
Expansion I/O units	8	4 100 to 240 VAC 12 to 24 VDC	4 Relays	90x35x56	ZEN-8E1AR
			4 Transistors		ZEN-8E1DR
					ZEN-8E1DT

## Specifications

Item	Specifications	
	ZEN-8E1AR	ZEN-8E1D_
Power supply voltage	100 to 240 VAC, 50/60 Hz	12 to 24 VDC (DC ripple rate: 5% max.)
Rated power supply voltage	85 to 264 VAC	10.8 to 28.8 VDC
Power consumption	4 VA max.	2 W max.
Inrush current	1.5 A max.	15 A max.
Ambient temperature	0°C to 55°C (-25°C to 55°C for ZEN-10C2 models (LED))	
Ambient storage	-20°C to 55°C (-40°C to 75°C for ZEN-10C2 models (LED))	



## ZEN Power Supply

The ZEN Power Supply has the same compact housing as our 10 I/O CPU units. With a current/wattage output of 1.3 A/30 W it covers enough power to supply the DC ZEN itself and the eventually used sensors. If needed parallel operation is possible.

- Output voltage 24 VDC
- Output current 1.3 A
- Capacity 30 W
- Allows parallel operation
- Size in mm (HxWxD): 90x70x56

### Ordering information

Power rating	Inputs voltage	Output current	Order code
30 W	100 to 240 VAC	1.3 A	ZEN-PA03024

### Specifications

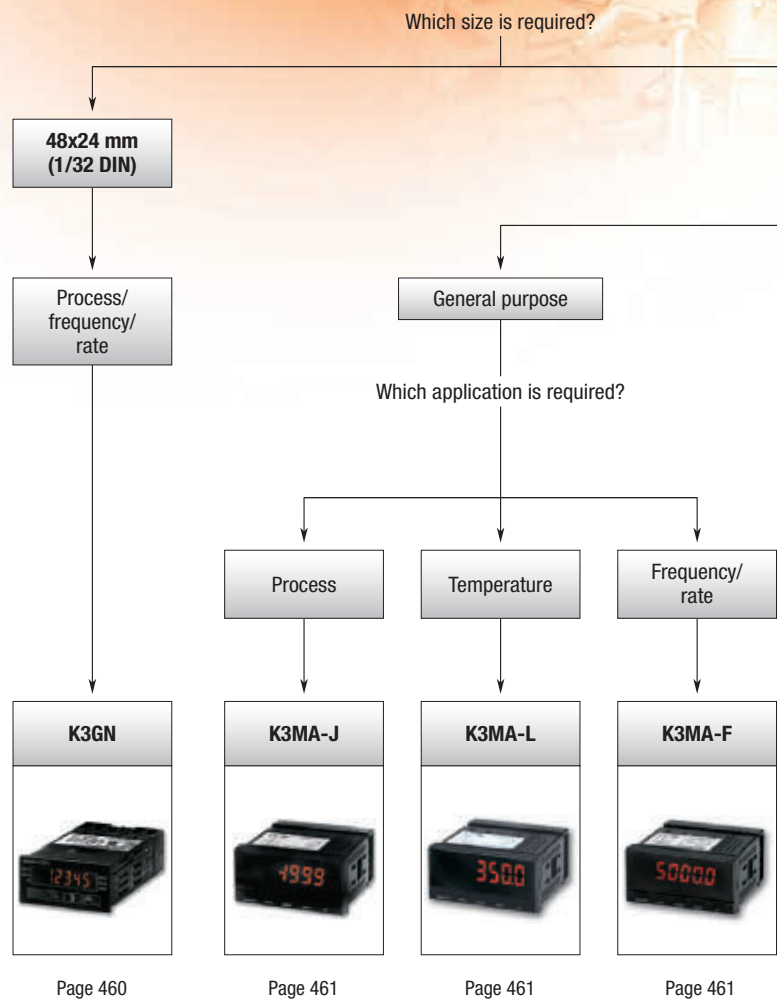
Item	Specifications	
Power rating	30 W	
Efficiency	80% min. (24 V)	
Input voltage	100 to 240 VAC (85 to 264 VAC), single-phase	
Output voltage	Voltage adjustment	±10% to ±15% (with V. ADJ) min. of rate output voltage
	Ripple	2% (p-p) max. (-25°C to -10°C: 4% max.)
	Input variation	0.5% max.
	Temperature	0.05% / °C max.
Overload protection	105% to 135% of rated load current, inverted L drop, intermittent	
Overvoltage protection	yes	
Input Current	100 V	0.8 A max.
	200 V	0.45 A max.
Output indicator	yes (green)	
Weight	240 g max.	
Operating temperature	-10°C to 60°C	
Parallel operation	yes (2 units max.)	

## LOOKING FOR PERFECT MEASURING & READ-OUT?

### K3HB-V – For perfect weighing

With our K3HB series we cover a wide range of applications. One of them is the weighing indicator which performs perfect measurement in any weighing application. The instrument can be equipped with a load-cell power supply of 10V/100 mA. Several option boards for communication, contact output boards or event inputs are also available. On top of these you can get direct DeviceNet communication.

- High speed sampling 20 ms
- Equipped with position meter
- Two colour display for easy recognition

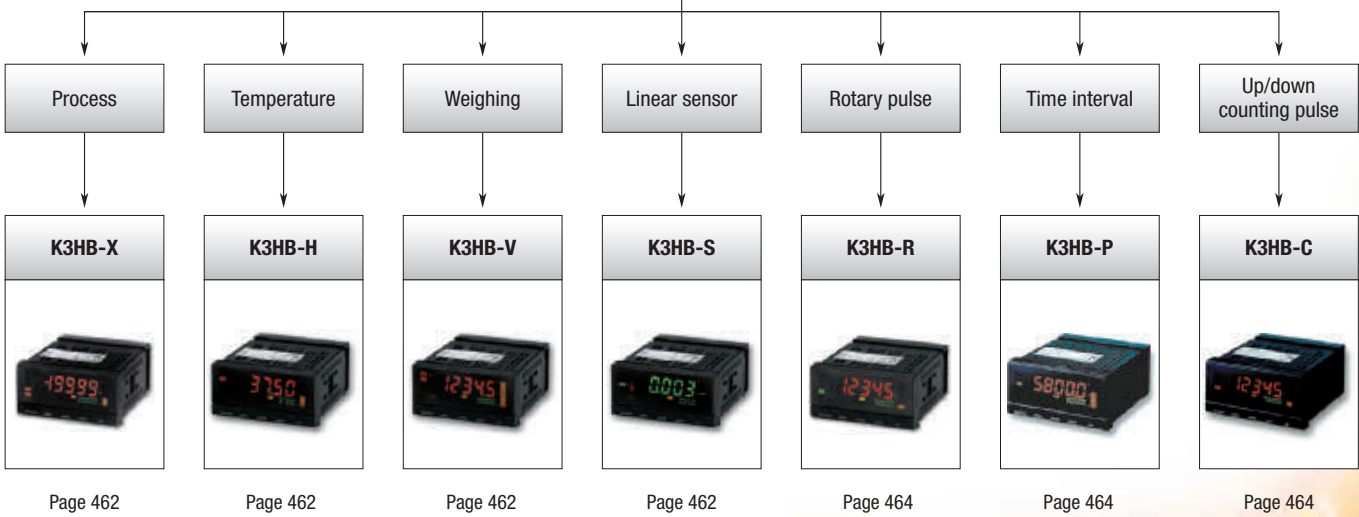




96x48 mm  
(1/8 DIN)

Advanced

Which application is required?



# Selection table

Category		Multifunctional digital panel indicator	Process indicator	Temperature indicator	Frequency/rate indicator	Process indicator
Selection criteria						
	Model	K3GN	K3MA-J	K3MA-L	K3MA-F	K3HB-X
	Size	1/32 DIN	1/8 DIN			
Features	Colour change display	■	■	■	■	■
	Number of digits	5	5	4	5	5
	Leading zero suppression	■	■	■	■	■
	Forced zero function	■	■	■	■	■
	Min./max. hold function	■	■	■	■	■
	Average processing	■	■	■	■	■
	User selectable inputs	■	■	■	■	■
	Start-up compensating time	■	–	–	■	–
	Key protection	■	■	■	■	■
	Decimal point position setting	■	■	■	■	■
	Accuracy	±0.1% of full scale	±0.1% of full scale	±0.1% of full scale	±0.1% of full scale	±0.1% of full scale (DC voltage & DC current), ±0.5% of full scale (AC voltage & AC current)
	Input range	0 to 20 mA, 4 to 20 mA or 0 to 5 V, 1 to 5 V, -5 to 5 V, -10 to 10 V or 0 to 30 Hz or 0 to 5 kHz	0 to 20 mA, 4 to 20 mA or 0 to 5 V, 1 to 5 V, -5 to 5 V, -10 to 10 V	Pt100, JPt100 or thermocouple K, J, T, E, L, U, N, R, S, B	0 to 30 Hz or 0 to 5 kHz	0.000 to 10.000 A, 0.0000 to 19.999 mA, -199.99 to 199.99 mA, 4.000 to 20.000 mA, 0.0 to 400.0 V, 0.0000 to 1.999 V, -199.99 to 199.99 V, 1.0000 to 5.0000 V
	Sample rate	250 ms	250 ms	500 ms	–	20 ms
	Features	Remote/local processing, parameter initialisation, programmable output configuration, process value hold	Teaching, comparative output pattern selection, parameter initialisation, programmable output configuration, process value hold	Programmable output configuration, process value hold	Teaching, comparative output pattern selection, programmable output configuration, process value hold	Scaling, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output
Sensor power supply	–	–	–	■	□	
Front protection	IP rating	IP66	IP66	IP66	IP66	IP66
	Supply voltage	24 VDC	24 VAC/VDC or 100 to 240 VAC	24 VAC/VDC or 100 to 240 VAC	24 VAC/VDC or 100 to 240 VAC	100 to 240 VAC or 24 VAC/VDC
Inputs	NPN	■	–	■	■	□
	PNP	■	–	■	■	□
	Temperature	–	–	–	–	–
	Contact	–	–	–	■	–
	Voltage pulse	–	–	–	■	–
	Load cell	–	–	–	–	–
	DC voltage	■	■	■	–	□
	DC current	■	■	–	–	□
	AC voltage	–	–	–	–	□
AC current	–	–	–	–	□	
Outputs	Relay	■	■	■	■	□
	NPN	■	–	–	–	□
	PNP	■	–	–	–	□
	Linear	–	–	–	–	□
	BCD	–	–	–	–	–
	Comms	■	–	–	–	□
Page	460	461			462	

# Digital panel indicators

Temperature indicator	Weighing indicator	Linear sensor indicator	Up/down counting pulse indicator	Time interval indicator	Rotary pulse indicator
<b>K3HB-H</b>	<b>K3HB-V</b>	<b>K3HB-S</b>	<b>K3HB-C</b>	<b>K3HB-P</b>	<b>K3HB-R</b>
1/8 DIN				–	–
■	■	■	■	■	■
5	5	5	5	5	5
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
■	■	■	■	■	■
–	–	–	–	–	■
■	■	■	■	■	■
■	■	■	■	■	■
Thermocouple: ±0.3% of full scale, Pt-100: ±0.2% of full scale	±0.1% of full scale	One input: ±0.1% of full scale, two inputs: ±0.2% of full scale		±0.08% rgd ±1 digit	±0.006% rgd ±1 digit ±0.02% rgd ±1 digit
Pt100, thermocouple K, J, T, E, L, U, N, R, S, B, W	0.00 to 199.99 mV, 0.000 to 19.999 mV, 100.00 mV, 199.99 mV	0 to 20 mA, 4 to 20 mA, 0 to 5 V, -5 to 5 V, -10 to 10 V	No voltage contact: 30 Hz, voltage pulse: 50 kHz, open collector: 50 kHz	No voltage contact: 30 Hz, voltage pulse: 50 kHz, open collector: 50 kHz	No voltage contact: 30 Hz, voltage pulse: 50 kHz, open collector: 50 kHz
20 ms	20 ms	0.5 ms	–	–	–
Scaling, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output	Scaling, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output	Scaling, 2-input calculation, teaching, averaging, output hysteresis, output OFF-delay, output test, bank selection, reset, comparative output	Scaling, measurement operation selection, output hysteresis, output OFF-delay, output test, display value selection, display colour selection, key protection, bank selection, display refresh period, maximum/minimum hold, reset	Scaling, measurement operation selection, output hysteresis, output OFF-delay, output test, teaching, display value selection, display colour selection, key protection, bank selection, display refresh period, maximum/minimum hold, reset	Scaling, measurement operation selection, averaging, previous average value comparison, output hysteresis, output OFF-delay, output test, teaching, display value selection, display colour selection, key protection, bank selection, display refresh period, maximum/minimum hold, reset
□	□	□	□	□	□
IP66	IP66	IP66	IP66	IP66	IP66
100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC	100 to 240 VAC or 24 VAC/VDC
□	□	□	■	■	■
□	□	□	■	■	■
■	–	–	–	–	–
–	–	–	–	–	–
–	–	–	■	■	■
–	■	–	–	–	–
–	–	■	–	–	–
–	–	■	–	–	–
–	–	–	–	–	–
–	–	–	–	–	–
□	□	□	□	□	□
□	□	□	□	□	□
□	□	□	□	□	□
□	□	□	□	□	□
–	–	–	□	□	□
□	□	□	□	□	□
462			464		

■ Standard □ Available – No/not available





## Compact and intelligent digital panel meter

The K3GN is able to cover a wide variety of applications with its 3 main functions: process meter, RPM processor/tachometer and digital data display for PC/PLC. Configuration is easy and the design is advanced and compact.

- Process indicator DC voltage/current
- RPM process/tachometer
- Digital data display for PC/PLC
- Very compact 1/32 DIN housing: Size in mm (HxWxD): 24x48x83mm
- 5-digit display with programmable display colour, in red or green

### Ordering information

Input type	Supply voltage	Output	Order code	
			No communications	RS-485
DC voltage/current, NPN	24 VDC	Dual relays (SPST-NO)	K3GN-NDC 24 DC	K3GN-NDC-FLK 24 DC
		Three NPN open collector	K3GN-NDT1 24 DC	K3GN-NDT1-FLK 24 DC
DC voltage/current, PNP		Dual relays (SPST-NO)	K3GN-PDC 24 DC	K3GN-PDC-FLK 24 DC
		Three PNP open collector	K3GN-PDT2 24 DC	K3GN-PDT2-FLK 24 DC

### Specifications

Supply voltage	24 VDC
Operating voltage range	85 to 110% of the rated supply voltage
Power consumption	2.5 W max. (at max. DC load with all indicators lit)
Ambient temperature	Operating: -10 to 55°C (with no condensation or icing) Storage: -25 to 65°C (with no condensation or icing)
Display refresh period	Sampling period (sampling times multiplied by number of averaging times if average processing is selected)
Max. displayed digits	5 digits (-19999 to 99999)
Display	7-segment digital display, character height: 7.0 mm
Polarity display	"-" is displayed automatically with a negative input signal
Zero display	Leading zeros are not displayed
Scaling function	Programmable with front-panel key inputs (range of display: -19999 to 99999). The decimal point position can be set as desired.
External controls	HOLD: (measurement value held) ZERO: (forced-zero)
Hysteresis setting	Programmable with front-panel key inputs (0001 to 9999)
Other functions	Programmable colour display Selectable output operating action Teaching set values Average processing (simple average) Lockout configuration Communications writing control (communications output models only)
Output	Relays: 2 SPST-NO Transistors: 3 NPN open collector 3 PNP open collector  Combinations: Communications output (RS-485) + relay outputs Communications output (RS-485) + transistor outputs Communications output (RS-485) + transistor outputs (3 PNP open collector)
Communications	Communications function: RS-485
Delay in comparative outputs (transistor outputs)	750 ms max.
Degree of protection	Front-panel: NEMA4X for indoor use (equivalent to IP66) Rear case: IEC standard IP20 Terminals: IEC standard IP20
Memory protection	Non-volatile memory (EEPROM) (possible to rewrite 100,000 times)
Size in mm (HxWxD)	24x48x80



## Highly visible LCD display with 2 colour (red and green) LEDs

The K3MA series comes with a process meter, a frequency/rate meter and a temperature meter of either 100 to 240 VAC or 24 VAC/VDC. All are equipped with the same quality display and have the same short depth of 80 mm.

- 1/8 DIN size housing
- Highly visible, negative transmissive backlit LCD display
- 14.2 mm high characters
- 5 digits (-19,999 to 99,999), K3MA-L: 4 digits
- Front-panel IP66

### Ordering information

Indicator	Supply voltage	Input type & ranges	Output	Order code
Process meter	100 to 240 VAC	DC voltage: 0 to 5 V, 1 to 5 V, -5 to 5 V, -10 to 10 V	2 relay contact outputs (SPST-NO)	K3MA-J-A2 100-240VAC
	24 VAC/VDC	DC current: 0 to 20 mA, 4 to 20 mA	2 relay contact outputs (SPST-NO)	K3MA-J-A2 24VAC/VDC
Temperature meter	100 to 240 VAC	Platinum-resistance thermometer: Pt100, JPt100 or thermocouple K, J, T, E, L, U, N, R, S, B	1 relay contact output (SPDT)	K3MA-L-C 100-240VAC
	24 VAC/VDC		1 relay contact output (SPDT)	K3MA-L-C 24VAC/VDC
Frequency/rate meter	100 to 240 VAC	Rotary pulse: No voltage: 0.05 to 30.00 Hz; open collector: 0.1 to 5000.0 Hz	2 relay contact outputs (SPST-NO)	K3MA-F-A2 100-240VAC
	24 VAC/VDC		2 relay contact outputs (SPST-NO)	K3MA-F-A2 24VAC/VDC

### Accessories

Type	Order code
Splash-proof soft cover	K32-49SC
Hard cover	K32-49HC

### Specifications

Item	100-240 VAC models	24 VAC/VDC models
Supply voltage	100 to 240 VAC	24 VAC (50/60 Hz), 24 VDC
Operating voltage range	85 to 110% of the rated supply voltage	
Power consumption (under maximum load)	6 VA max.	4.5 VA max. (24 VAC) 4.5 W max. (24 VDC)
Ambient temperature	Operating: -10 to 55°C (with no condensation or icing) Storage: -25 to 65°C (with no condensation or icing)	
Weight	Approx. 200 g	
Display	7-segment digital display, character height: 14.2 mm	
Polarity display	"-" is displayed automatically with a negative input signal	
Zero display	Leading zeros are not displayed	
Hold function	Max. hold (maximum value), min. hold (minimum value)	
Hysteresis setting	Programmable with front-panel key inputs (0001 to 9,999)	
Delay in comparative outputs	1 s max.	
Degree of protection	Front-panel: NEMA4X for indoor use (equivalent to IP66) Rear case: IEC standard IP20 Terminals: IEC standard IP00 + finger protection (VDE 0106/100)	
Memory protection	Non-volatile memory (EEPROM) (possible to rewrite 100,000 times)	
Size in mm (HxWxD)	48x96x80	



## Process, temperature, weighing and linear sensor indicators

These indicators with analogue input feature a clear and easy-to-use colour change display. All models are equipped with an IP66 housing. K3HB series is high speed, with a sample rate of 50 Hz, and even 2,000 Hz for K3HB-S

- Position meter indication for easy monitoring
- Optional DeviceNet, RS-232C, RS-485
- Double display, with 5 digits, in two colours
- 1/8 DIN size housing

### Ordering information

Type of indicator	Input sensor type and range	Supply voltage	Order code
Process indicator K3HB-X	AC current input, from 0.000 to 10.000 A, 0.0000 to 19.999 mA	100 to 240 VAC	K3HB-XAA 100-240VAC
		24 VAC/VDC	K3HB-XAA 24VAC/VDC
	DC current input, from ±199.99 mA, to 4.000 to 20.000 mA	100 to 240 VAC	K3HB-XAD 100-240VAC
		24 VAC/VDC	K3HB-XAD 24VAC/VDC
	AC voltage input, from 0.0 to 400.0 V to 0.0000 to 1.999 V	100 to 240 VAC	K3HB-XVA 100-240VAC
		24 VAC/VDC	K3HB-XVA 24VAC/VDC
	DC voltage input, from ±199.99 V to 1.0000 to 5.0000 V	100 to 240 VAC	K3HB-XVD 100-240VAC
		24 VAC/VDC	K3HB-XVD 24VAC/VDC
Temperature indicator K3HB-H	Temperature input Pt100, thermocouple K, J, T, E, L, U, N, R, S, B, W	100 to 240 VAC	K3HB-HTA 100-240VAC
		24 VAC/VDC	K3HB-HTA 24VAC/VDC
Weighing indicator K3HB-V	Load cell input (DC low voltage input), 0.00 to 199.99 mV, 0.000 to 19.999 mV, 100.00 mV, 199.999 mV	100 to 240 VAC	K3HB-VLC 100-240 VAC
		24 VAC/VDC	K3HB-VLC 24VAC/VDC
Linear sensor indicator K3HB-S	DC process input, 0 to 5 V, 1 to 5 V, -5 to 5 V, -10 to 10 V, 0 to 20 mA, 4 to 20 mA	24 VAC/VDC	K3HB-SSD AC/DC24
		100 to 240 VAC	K3HB-SSD AC100-240

### Option boards

#### Sensor power supply/output boards

Slot	Output	Sensor power supply	Communications	Applicable indicator types	Order code		
B	Relay	PASS: SPDT	12 VDC ±10%, 80 mA	–	K3HB-X, -H, -S	K33-CPA <sup>*1</sup>	
	Linear current	DC0(4) - 20 mA		–	K3HB-X, -H, -S	K33-L1 A <sup>*2</sup>	
	Linear voltage	DC0(1) - 5 V, 0 to 10 V		–	K3HB-X, -H, -S	K33-L2A <sup>*2</sup>	
	–	–		–	K3HB-X, -H, -S	K33-A <sup>*2</sup>	
	–	–		–	RS-232C	K3HB-X, -H, -S	K33-FLK1 A <sup>*2</sup>
	–	–		–	RS-485	K3HB-X, -H, -S	K33-FLK3A <sup>*2</sup>
	Relay	PASS: SPDT		10 VDC ±5%, 100 mA	–	K3HB-V	K33-CPB <sup>*1</sup>
	Linear current	DC0(4) - 20 mA			–	K3HB-V	K33-L1B <sup>*2</sup>
	Linear voltage	DC0(1) - 5 V, 0 to 10 V			–	K3HB-V	K33-L2B <sup>*2</sup>
	–	–			–	K3HB-V	K33-B <sup>*2</sup>
–	–	–	RS-232C		K3HB-V	K33-FLK1B <sup>*2</sup>	
–	–	–	RS-485	K3HB-V	K33-FLK3B <sup>*2</sup>		

#### Relay/transistor output boards

Slot	Output	Communications	Order code	
C	Relay	H/L: SPDT each	–	K34-C1
		HH/H/LL/L: SPST-NO each	–	K34-C2
	Transistor	NPN open collector: HH/H/PASS/L/LL	–	K34-T1
		PNP open collector: HH/H/PASS/L/LL	–	K34-T2
	–	–	DeviceNet	K34-DRT <sup>*2</sup>

#### Event input boards

Slot	Input type	Number of points	Communications	Order code
D	NPN open collector	5	M3 terminal blocks	K35-1
		8	10-pin MIL connector	K35-2
	PNP open collector	5	M3 terminal blocks	K35-3
		8	10-pin MIL connector	K35-4

<sup>\*1</sup> CPA/CPB can be combined with relay outputs only.

<sup>\*2</sup> Only one of the following can be used by each digital indicator: RS-232C/RS-485 communications, a linear output, or DeviceNet communications. K3HB has got three slots for option boards: Slot B, slot C and slot D.

### Accessories

Type	Order code
Special cable (for event inputs with 8-pin connector)	K32-DICN

## Specifications

<b>Power supply voltage</b>		100 to 240 VAC (50/60 Hz), 24 VAC/VDC, DeviceNet power supply: 24 VDC		
<b>Allowable power supply voltage range</b>		85 to 110% of the rated power supply voltage, DeviceNet power supply: 11 to 25 VDC		
<b>Power consumption</b>		100 to 240 V: 18 VA max. (max. load), 24 VAC/DC: 11 VA/7 W max. (max. load)		
<b>Display method</b>		Negative LCD (backlit LED) display 7-segment digital display (character height: PV: 14.2 mm (green/red); SV: 4.9 mm (green))		
<b>Ambient operating temperature</b>		-10 to 55°C (with no icing or condensation)		
<b>Display range</b>		-19,999 to 99,999		
<b>Weight</b>		Approx. 300 g (base unit only)		
<b>Degree of protection</b>	Front-panel	Conforms to NEMA 4X for indoor use (equivalent to IP66)		
	Rear case	IP20		
	Terminals	IP00 + finger protection (VDE0106/100)		
<b>Memory protection</b>		EEPROM (non-volatile memory), number of rewrites: 100,000		
<b>Event input ratings</b>	Contact	ON: 1 kΩ max., OFF: 100 kΩ min.		
	No-contact	ON residual voltage: 2 V max., OFF leakage current: 0.1 mA max., load current: 4 mA max. Maximum applied voltage: 30 VDC max.		
<b>Output ratings</b>	<b>Transistor output</b>	Maximum load voltage	24 VDC	
		Maximum load current	50 mA	
		Leakage current	100 μA max.	
	<b>Contact output (resistive load)</b>	Rated load	5 A at 250 VAC, 5 A at 30 VDC	
		Rated through current	5 A	
		Mechanical life expectancy	5,000,000 operations	
		Electrical life expectancy	100,000 operations	
	<b>Linear output</b>	Allowable load impedance	500 Ω max. (mA); 5 kΩ min. (V)	
		Resolution	Approx. 10,000	
Output error		±0.5% FS		
<b>Size in mm (HxWxD)</b>		48x96x100		



## Rotary pulse, timer interval and up/down counting pulse indicators

These indicators with analogue input feature a clear and easy-to-use colour change display. All models are equipped with an IP66 housing. K3HB-R and -C are high-speed, with a sample rate up to 50 kHz.

- Position meter indication for easy monitoring
- Optional DeviceNet, RS-232C, RS-485
- Double display, with 5 digits, in two colours
- 1/8 DIN size housing

### Ordering information

Type of indicator	Input ranges	Supply voltage	Input sensor	Order code
Rotary pulse indicator K3HB-R	No voltage contact: 30 Hz max. Voltage pulse: 50 kHz max. Open collector: 50 kHz max.	100 to 240 VAC	NPN input/voltage pulse	K3HB-RNB 100-240VAC
		24 VAC/VDC		K3HB-RNB 24VAC/VDC
		100 to 240 VAC	PNP input	K3HB-RPB 100-240VAC
		24 VAC/VDC		K3HB-RPB 24VAC/VDC
Timer interval indicator K3HB-P		100 to 240 VAC	NPN	K3HB-PNB 100-240VAC
		24 VAC/VDC	PNP	K3HB-PPB 100-240VAC
Up/down counting pulse indicator K3HB-C		100 to 240 VAC	NPN	K3HB-CNB 100-240VAC
		24 VAC/VDC	NPN	K3HB-CNB 24VAC/VDC
		24 VAC/VDC	PNP	K3HB-CPB 24VAC/VDC

### Option boards

#### Sensor power supply/output boards

Slot	Output	Sensor power supply	Communications	Order code	
B	Relay	PASS: SPDT	12 VDC ±10%, 80 mA	K33-CPA <sup>*1</sup>	
	Linear current	DC0(4) - 20 mA		K33-L1 A <sup>*2</sup>	
	Linear voltage	DC0(1) - 5 V, 0 to 10 V		K33-L2A <sup>*2</sup>	
	-	-		K33-A <sup>*2</sup>	
	-	-		RS-232C	K33-FLK1 A <sup>*2</sup>
	-	-		RS-485	K33-FLK3A <sup>*2</sup>

#### Relay/transistor output boards

Slot	Output	Communications	Order code	
C	Relay	H/L: SPDT each	K34-C1	
		HH/H/LL/L: SPST-NO each	K34-C2	
	Transistor	NPN open collector: HH/H/PASS/L/LL	K34-T1	
		PNP open collector: HH/H/PASS/L/LL	K34-T2	
	-	-	DeviceNet	K34-DRT <sup>*2</sup>
	BCD + transistor	NPN open collector: HH/H/PASS/L/LL	-	K34-BCD

#### Event input boards

Slot	Input type	Number of points	Communications	Order code
D	NPN open collector	5	M3 terminal blocks	K35-1
		8	10-pin MIL connector	K35-2
	PNP open collector	5	M3 terminal blocks	K35-3
		8	10-pin MIL connector	K35-4

<sup>\*1</sup> CPA can be combined with relay outputs only.

<sup>\*2</sup> Only one of the following can be used by each digital indicator: RS-232C/RS-485 communications, a linear output, or DeviceNet communications.  
K3HB has got three slots for option boards: Slot B, slot C and slot D.

### Accessories

Type	Order code
Special cable (for event inputs with 8-pin connector)	K32-DICN
Special BCD output cable	K32-BCD

## Specifications

<b>Power supply voltage</b>		100 to 240 VAC (50/60 Hz), 24 VAC/VDC, DeviceNet power supply: 24 VDC		
<b>Allowable power supply voltage range</b>		85 to 110% of the rated power supply voltage, DeviceNet power supply: 11 to 25 VDC		
<b>Power consumption</b>		100 to 240 V: 18 VA max. (max. load), 24 VAC/DC: 11 VA/7 W max. (max. load)		
<b>Display method</b>		Negative LCD (backlit LED) display 7-segment digital display (character height: PV: 14.2 mm (green/red); SV: 4.9 mm (green))		
<b>Ambient operating temperature</b>		-10 to 55°C (with no icing or condensation)		
<b>Display range</b>		-19,999 to 99,999		
<b>Weight</b>		Approx. 300 g (base unit only)		
<b>Degree of protection</b>	Front-panel	Conforms to NEMA 4X for indoor use (equivalent to IP66)		
	Rear case	IP20		
	Terminals	IP00 + finger protection (VDE0106/100)		
<b>Memory protection</b>		EEPROM (non-volatile memory), number of rewrites: 100,000		
<b>Event input ratings</b>	Contact	ON: 1 kΩ max., OFF: 100 kΩ min.		
	No-contact	ON residual voltage: 2 V max., OFF leakage current: 0.1 mA max., load current: 4 mA max. Maximum applied voltage: 30 VDC max.		
<b>Output ratings</b>	<b>Transistor output</b>	Maximum load voltage	24 VDC	
		Maximum load current	50 mA	
		Leakage current	100 μA max.	
	<b>Contact output (resistive load)</b>	Rated load	5 A at 250 VAC, 5 A at 30 VDC	
		Rated through current	5 A	
		Mechanical life expectancy	5,000,000 operations	
		Electrical life expectancy	100,000 operations	
	<b>Linear output</b>	Allowable load impedance	500 Ω max. (mA); 5 kΩ min. (V)	
		Resolution	Approx. 10,000	
Output error		±0.5% FS		
<b>Size in mm (HxWxD)</b>		48x96x100		