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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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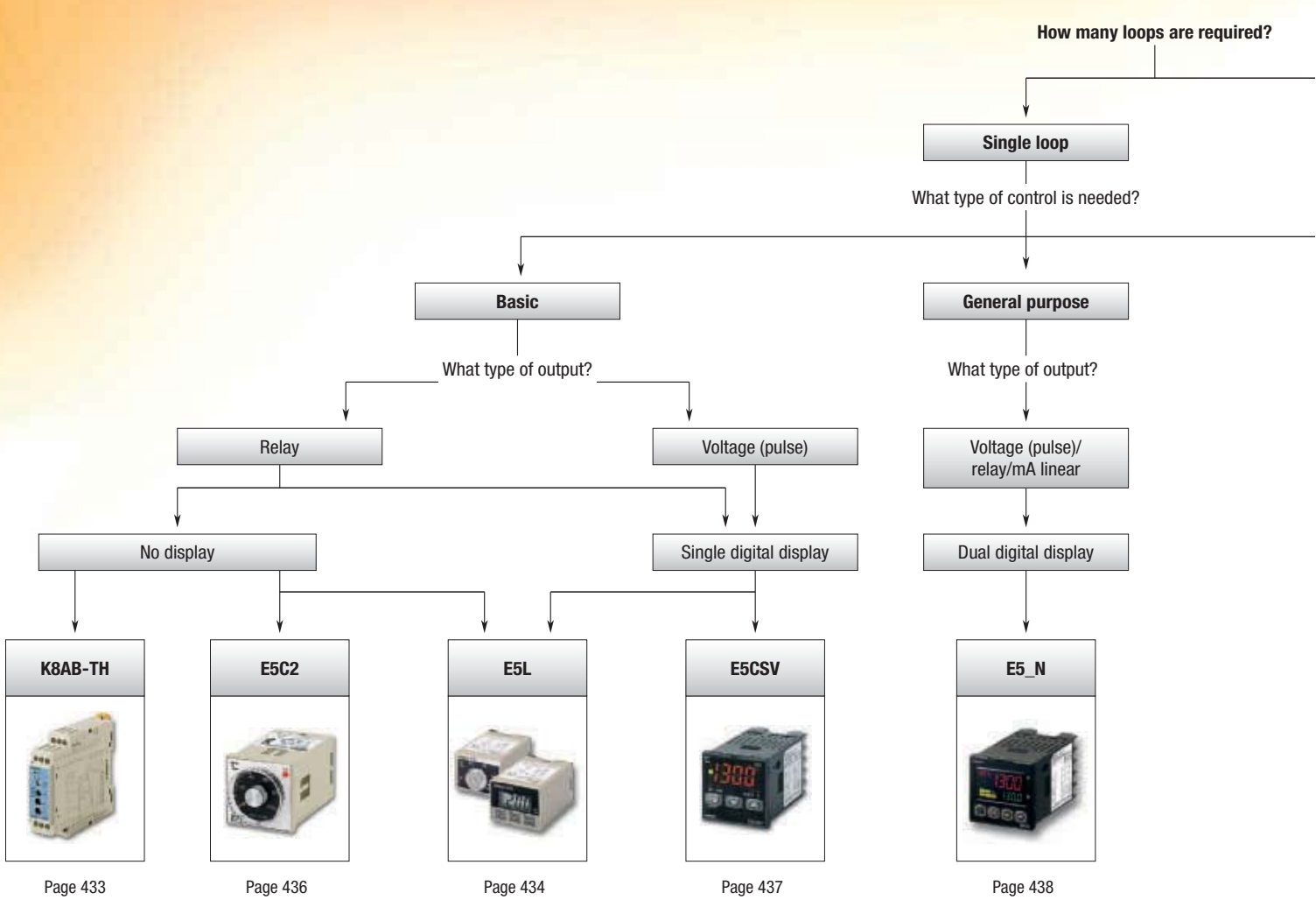
CELCIUX° – CONTROL AND CONNECTIVITY

CelciuX° – Multi Loop Temperature Controller

The 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, the 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
- One unit handling various types of input, such as Pt, Thermocouple, mA, and V input

Always the latest news on:
www.omron-industrial.com/celciux



Multi-loop

What type of mounting is required?

Process

What type of output?

Voltage (pulse)/ relay/mA/Volt/SSR

Triple digital display

E5_N-H

Page 444

Process

Dual digital display

E5_K/E5_K-T

Page 441

Advanced

Triple digital display

Standard

E5_R

Page 446

SV programmer

E5_R-T

Page 446

On-panel

In-panel

CelciuXº

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Selection table

	Category	Alarm controller	Analogue/digital temperature controller	Analogue temperature controller	Compact digital temperature controller	Digital temperature controller		
Selection criteria								
	Model	K8AB-TH	E5L	E5C2	E5CSV	E5AN	E5EN	E5CN
	Type	Basic				General purpose		
	Panel	In-panel type		In- & on-panel type	On-panel type			
	Loops	–	Single loop					
	Size	22.5 mm wide	45x35 mm	1/16 DIN	1/16 DIN	1/4 DIN	1/8 DIN	1/16 DIN
Control mode	ON/OFF	■	■	■	■	■	■	■
	PID	–	–	■ *1	–	–	–	–
	2-PID *2	–	–	–	■	■	■	■
	Operation *3	–	H/C	H	H/C	H & C	H & C	H & C
	Valve Control *4	–	–	–	–	–	–	–
Features	Accuracy	±2%	±1°C	–	±0.5%	±0.3%	±0.3%	±0.3%
	Auto-tuning	–	–	–	■	■	■	■
	Self-tuning	–	–	–	■	■	■	■
	Transfer output	–	–	–	–	□	□	□
	Remote input	–	–	–	–	–	–	–
	Number of alarms	1	–	–	1	3	3	3
	Heater alarm	–	–	–	–	□ *5	□ *5	□ *5
	IP rating front panel	IP20	IP40	IP40	IP65	IP66	IP66	IP66
	Display	Rotary switch	SV dial 3 digit LCD	SV dial	Single 3.5 digit	Dual 4 digit (colour change)	Dual 4 digit (colour change)	Dual 4 digit (colour change)
Supply voltage	110/240 VAC	■	■	■	■	■	■	■
	24 VAC/VDC	□	–	–	□	□	□	□
Comms *6	RS-232	–	–	–	–	□	□	–
	RS-485	–	–	–	–	□	□	□
	Event IP	■	–	–	–	□	□	□
	QLP port *7	–	–	–	–	■	■	■
	DeviceNet	–	–	–	–	–	–	–
	Modbus	–	–	–	–	■	■	■
Control output	Relay	■	■	■	■	■	■	■
	SSR	–	–	–	–	–	–	–
	Voltage (pulse)	–	–	■	■	■	■	■
	Linear voltage	–	–	–	–	–	–	–
	Linear current	–	–	–	–	■	■	■
Input type – linear	mA	–	–	–	–	□	□	□
	mV	–	–	–	–	■	■	■
	V	–	–	–	–	□	□	□
Input type – thermocouple	K	■	–	■	■	■	■	■
	J	■	–	–	■	■	■	■
	T	■	–	–	■	■	■	■
	E	■	–	–	–	■	■	■
	L	–	–	■	■	■	■	■
	U	–	–	–	■	■	■	■
	N	–	–	–	■	■	■	■
	R	■	–	–	■	■	■	■
	S	■	–	–	–	■	■	■
	B	■	–	–	–	■	■	■
	W	–	–	–	–	■	■	■
	PLII	■	–	–	–	■	■	■
Input type – RTD	Pt100	■	–	■	■	■	■	■
	JPt100	–	–	–	■	■	■	■
	THE	–	sensor provided	■	□	–	–	–
	Page	433	434	436	437	438	438	438

*1 P only
*2 2-PID is Omron´s easy to use high performance PID algorithm
*3 H = heat, H/C = heat or cool, H & C = heat and/or cool
*4 Valve control = relay up and down

Digital temperature controller		Digital process controller					
E5GN	**CelciuX°**	**E5CN-H**	**E5EN-H/AN-H**	**E5_K(-T)**	**E5AR**	**E5ER**	**E5_R-T**
General purpose	Modular	Universal		Universal/Programmer	Advanced		SV Programmer
On-panel type	In-panel type	On-panel type					Same specifications as corresponding E5_R.
Single loop	Multi-loop	Single loop			Multi-loop		
1/32 DIN	31×96 mm	1/16 DIN	1/4, 1/8 DIN	1/4, 1/8, 1/16 DIN	1/4 DIN	1/8 DIN	
■	■	■	■	■	■	■	
–	–	–	–	–	–	–	
■	■	■	■	■	■	■	
H & C	H & C	H & C	H & C	H & C	H & C	H & C	
–	–	□	□	□ (not CK)	■	■	
±0.3%	±0.5%	±0.1%	±0.1%	±0.3%	±0.1%	±0.1%	
■	■	■	■	■	■	■	
■	■	■	■	■	–	–	
□	□	□	□	□	■	■	
–	–	–	■	□ (not CK)	■	■	
2	4	3	3	3	4	4	
□	□*5	□*5	□*5	□	–	–	
IP66	–	IP66	IP66	IP66	IP66	IP66	
Dual 4 digit (colour change)	LED	Dual 5 digit (colour change)	Triple 5 digit (colour change)	Dual 4 digit	Triple 5 digit	Triple 5 digit	
■	–	■	■	■	■	■	
□	■	□	□	–	□	□	
–	■	–	□	□	–	–	
□	■	□	□	□	□	□	
□	■	□	■	□	■	■	
■	■	■	■	■	■	■	
–	□	–	–	□ (E5EK)	□	□	
■	■	■	■	–	■	■	
■	–	–	■	■	■	■	
–	–	■	■	■	–	–	
■	■	■	■	■	■	■	
–	–	■	■	■	–	–	
–	■	■	■	■	■	■	
□	■	■	■	■	■	■	
■	■	■	■	–	–	–	
□	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	■	■	
■	■	■	■	■	–	–	
■	■	■	■	■	■	■	
■	■	■	■	■	–	–	
–	–	–	–	–	–	–	
438	442	444	444	441	446		

*5. Heater alarm = heater burnout & SSR failure detection
*6. PROFIBUS-DP communication option via PRT1-SCU11 for E5_N(-H), E5_R, CelciuX°. More information on Page 448
*7. QLP: Quick Link Port to connected TC to PC using the smart USB cable E58-CIFQ1

Protect your heating application

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

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

Ordering information

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

*1 Setting range depending on sensor type selected

Specifications

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

Ideal for simple built-in control

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

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

Ordering information

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

Options (Order separately)

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

Specifications

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

* The accuracy of the accessory thermistor is not included.

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

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

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

Ordering information

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

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

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

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

Accessories

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

Specifications

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

The easy way to perfect temperature control

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

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

Ordering information

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

Note: Other models are available on request.

Accessories

Type	Order code
Hard protective cover	Y92A-48B

Specifications

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

Compact and intelligent general purpose controllers

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

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

Ordering information

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

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

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

Accessories

E5CN option boards

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

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

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

E5CN series optional tools

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

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

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

E5AN/-EN option boards
(one slot available in each instrument)

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

E5AN/-EN series optional tools

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

Specifications

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

Advanced compact digital process controllers

The E5_K series of advanced controllers provides standard models and models with programmer functionality. The modular structure of the series makes it very versatile. A number of tuning functions are provided, including auto-tuning, self-tuning and fuzzy self-tuning.

- Size in mm (HxWxD): 96x48x100/53x53x100/96x96x100
- Control mode: ON/OFF or PID
- Control output: relay, SSR, voltage or current
- Universal inputs (Pt100/Thermocouple/Volt/Milliampere)
- Supported by ThermoTools PC Software

Ordering information

Specification	Alarms	Order code		
		Standard model 48x48 mm	Programmer model 48x48 mm	Supply voltage
Base unit with terminal cover	1	E5CK-AA1-500	E5CK-TAA1-500	AC100-240
Specification	**Alarms**	**Standard model 48x96 mm**	**Programmer model 48x96 mm**	**Supply voltage**
Standard model with terminal cover	2	E5EK-AA2-500	E5EK-TAA2-500	AC100-240
Position-proportional model with terminal cover		E5EK-PRR2-500	E5EK-TPRR2-500	
Standard mode with terminal cover and DeviceNet		E5EK-AA2-DRT-500		
Specification	**Alarms**	**Standard model 96x96 mm**	**Programmer model 96x96 mm**	**Supply voltage**
Standard model with terminal cover	2	E5AK-AA2-500	E5AK-TAA2-500	AC100-240
Position-proportional model with terminal cover		E5AK-PRR2-500	E5AK-TPRR2-500	

Note: One output unit and One option unit can be mounted to each E5CK unit.
Note: Two output units and up to 3 option units can be mounted in each E5EK/E5AK base unit.

Option units

Model	Name	Specification	Order code
E5CK	Output units	Relay/relay	E53-R4R4
		Pulse (NPN)/relay	E53-Q4R4
		Pulse (PNP)/relay	E53-Q4HR4
		Linear (4 to 20 mA)/relay	E53-C4R4
		Linear (0 to 20 mA)/relay	E53-C4DR4
		Linear (0 to 10 V)/relay	E53-V44R4
		Pulse (NPN)/pulse (NPN)	E53-Q4Q4
		Pulse (PNP)/pulse (PNP)	E53-Q4HQ4H
	Option units	RS-232C	E53-CK01
		RS-485	E53-CK03
		Event input: 1 point	E53-CKB
		Transfer output (4 to 20 mA)	E53-CKF

Model	Name	Specification	Order code
E5AK E5EK	Output units	Relay	E53-R
		SSR	E53-S
		Pulse (NPN) 12 VDC	E53-Q
		Pulse (NPN) 24 VDC	E53-Q3
		Pulse (PNP) 24 VDC	E53-Q4
		Linear (4 to 20 mA)	E53-C3
		Linear (0 to 20 mA)	E53-C3D
		Linear (0 to 10 V)	E53-V34
		Linear (0 to 5 V)	E53-V35
	Option units	Event input	E53-AKB
		Communication (RS-232C)	E53-EN01
		Communication (RS-422)	E53-EN02
		Communication (RS-485)	E53-EN03
		Transfer output	E53-AKF

E5_K/E5_K-T optional tools

Option	Order code
PC based configuration and tuning software ThermoTools	ESTT-YB177-MV1S

Specifications

Heater burnout	Optional, CK: loop burnout
Thermocouple input type	K, J, T, E, L, U, N, R, S, B, W, PLII
RTD input type	Pt100, JPt100
Linear input type	mA, 0 to 50 mV
Control mode	2-PID or ON/OFF control
Accuracy	0.3% FS, 1 digit max.
Self-tuning	yes
Auto-tuning	yes
RS-485	optional
Event input	optional
Ambient temperature	-10 to 55°C
IP rating front panel	IP66
Sampling period	Temperature input: 250 ms Linear input: 100 ms

CelciuXº - Multi-Loop temperature control – Control and Connectivity

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

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

Ordering information

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

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

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

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

Accessories

Current transformer

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

Communications and cables

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

Specifications

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

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

Universal compact digital process controllers

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

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

Ordering information

Type	Input	Output	Fixed option	Alarms	Order code	
					48x48 mm model (includes supply voltage indication)	
On-panel	Universal TC/Pt/mV mA/V	Relay output	–	2 relays	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

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

Accessories

E5CN-H option boards

(One slot available in each instrument)

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

E5CN-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

Control method	Auxiliary output	Control output 1/2	Heater burnout	Optional function	Order code (includes supply voltage indication)	
				Transfer output	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	1-phase		E5AN-HAA2HBMD-500 AC/DC24	E5EN-HAA2HBMD-500 AC/DC24
		2 SSR output fitted	1-phase		E5AN-HSS2HBM-500 AC100-240	E5EN-HSS2HBM-500 AC100-240
		2 SSR output fitted	1-phase		E5AN-HSS2HBMD-500 AC/DC24	E5EN-HSS2HBMD-500 AC/DC24
		none fitted, 2 slots	3-phase	4 to 20 mA output	E5AN-HAA2HHBFM-500 AC100-240	E5EN-HAA2HHBFM-500 AC100-240
		none fitted, 2 slots	3-phase	4 to 20 mA output	E5AN-HAA2HHBFMD-500 AC/DC24	E5EN-HAA2HHBFMD-500 AC/DC24
		2 SSR output fitted	3-phase	4 to 20 mA output	E5AN-HSS2HHBFM-500 AC100-240	E5EN-HSS2HHBFM-500 AC100-240
		2 SSR output fitted	3-phase	4 to 20 mA output	E5AN-HSS2HHBFMD-500 AC/DC24	E5EN-HSS2HHBFMD-500 AC/DC24
	3 alarm relays	none fitted, 2 slots		4 to 20 mA output	E5AN-HAA3BFM-500 AC100-240	E5EN-HAA3BFM-500 AC100-240
		none fitted, 2 slots		4 to 20 mA output	E5AN-HAA3BFMD-500 AC/DC24	E5EN-HAA3BFMD-500 AC/DC24
		2 SSR output fitted		4 to 20 mA output	E5AN-HSS3BFM-500 AC100-240	E5EN-HSS3BFM-500 AC100-240
		2 SSR output fitted		4 to 20 mA output	E5AN-HSS3BFMD-500 AC/DC24	E5EN-HSS3BFMD-500 AC/DC24
Valve	2 alarm relays	2 relay output fitted			E5AN-HPRR2BM-500 AC100-240	E5EN-HPRR2BM-500 AC100-240
		2 relay output fitted			E5AN-HPRR2BMD-500 AC/DC24	E5EN-HPRR2BMD-500 AC/DC24
		2 relay output fitted		4 to 20 mA output	E5AN-HPRR2BFM-500 AC100-240	E5EN-HPRR2BFM-500 AC100-240
		2 relay output fitted		4 to 20 mA output	E5AN-HPRR2BFMD-500 AC/DC24	E5EN-HPRR2BFMD-500 AC/DC24

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

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

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

E5AN-H/EN-H output option boards

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

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

E5AN-H/EN-H option boards

(one slot available in each instrument)

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

E5AN-H/EN-H series optional tools

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

Fast, accurate and equipped for application specific needs

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

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

Ordering information

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

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

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

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

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

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

Accessories

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

E5_R/E5_R-T optional tools

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

Specifications

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

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
- R88-MCW151-E
- F7 varispeed drives
- V1000 inverters

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

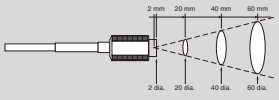
ES1B

Achieve low-cost measurements with an infrared thermosensor

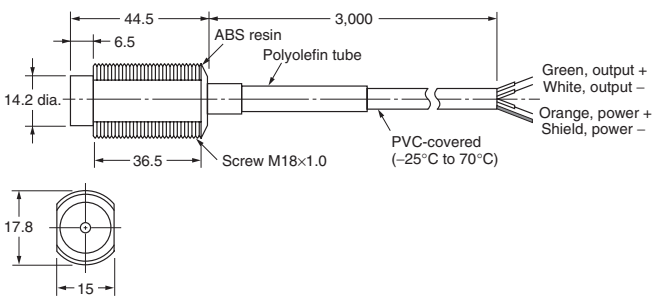
This infrared thermosensor provides an accurate, stable and cost-effective way to measure the temperature of objects. It behaves just like a standard K-type thermocouple, which enables it to operate with any temperature controller or alarm unit.

- 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.×44.5 (screw M18×1.0), cable 3,000

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

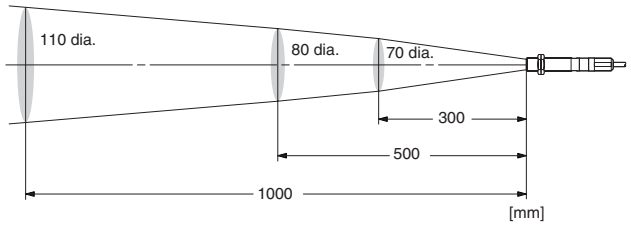
This gateway supports all CompoWay/F equipped products, including temperature controllers, digital panel indicators, etc. It can also be used for connecting MCW151-E and E5_K series.

- 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

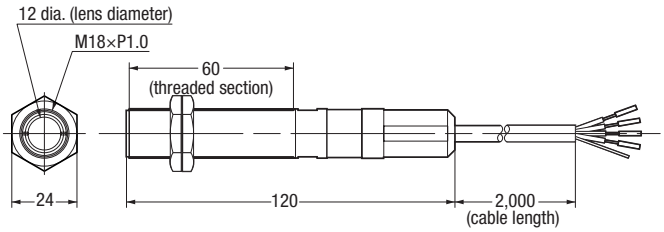


Note: The measurement range is the measurement diameter for an optical response of 90%. Make sure that the actual object to be measured is sufficiently larger than the measurement diameters in the above figure.

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)

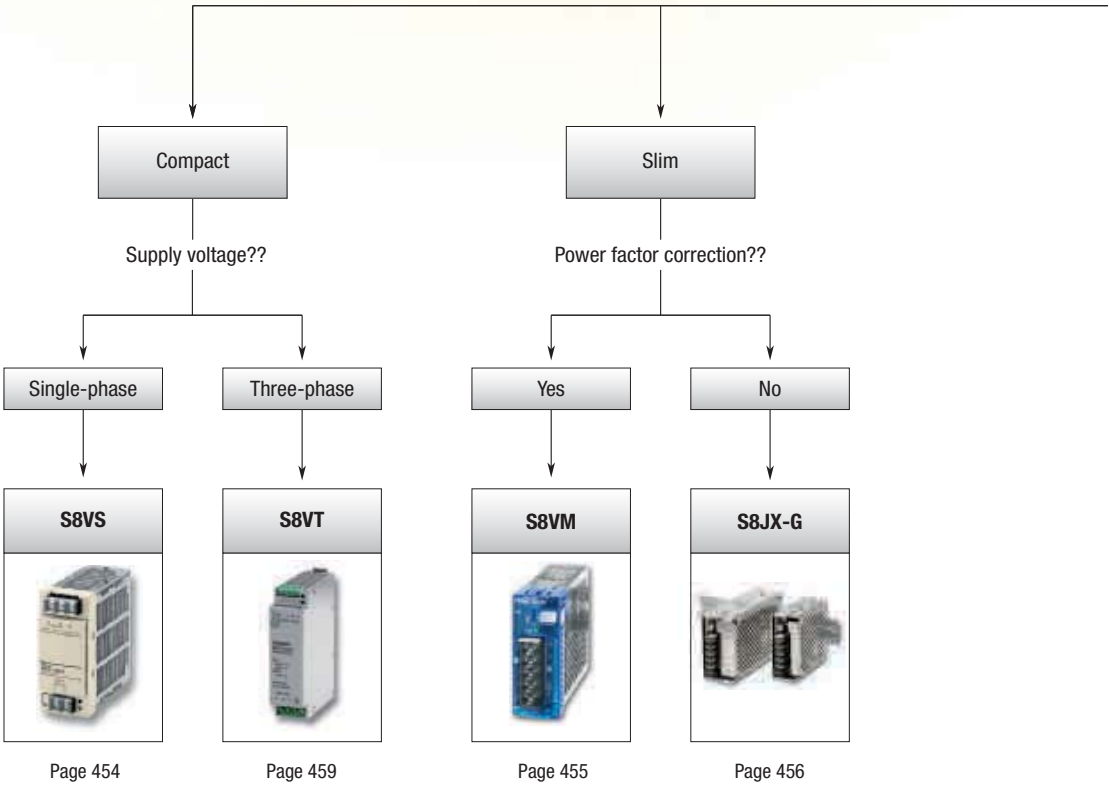


PREVENT YOUR SYSTEM FROM STOPPING

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?

- Modular
  - **S8TS**

    Page 457
- DC back-up
  - S8TS DC battery back-up up to several minutes
    - **S8T-DCBU-01**

      Page 458
  - S8TS buffer block momentary up to 500 ms
    - **S8T-DCBU-02**

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	Category	Compact Power Supplies		Slim Power Supplies						Modular		
Selection criteria												
	Model	S8VS	S8VT	S8VM		S8JX-G				S8TS		
	Phases	Single-phase										
	Rated voltage	100 to 240 VAC										
	Voltage	24 V	24 V	12 V	24 V	5 V	12 V	15 V	24 V	5 V	12 V	24 V
Power	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	454	459	455		456				457		

■ 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.	7.4 A max.
	200 V	0.25 A max.	0.6 A max.	1.0 A max.	1.1 A max.	2.0 A max.	3.9 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.	2.4 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	-10 to 60°C *1	-10 to 60°C, derating beyond 40°C, no icing or condensation			
Series operation		yes (24 V only)	yes	yes	yes	yes	yes

*1 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 *1	
30 W	12 V	2.5 A	84.5x35.1x109.4	S8VM-03012CD	–	–
	24 V	1.3 A		S8VM-03024CD	S8VM-03024AD *1	
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	–	–

*1 No 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*1

*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*1	Without bus line connectors*2	With bus line connectors*1	Without bus line connectors*2
24 V	2.5 A	S8TS-06024-E1*3	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

*1 One S8T-BUS01 connector and one S8T-BUS02 connector are included as accessories.
*2 Bus line connectors can be ordered separately if necessary.
*3 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*1	S8T-BUS11
AC line bus (For series operation or isolated operation)	1 connector	S8T-BUS02
	10 connectors*2	S8T-BUS12

*1 One package contains 10 S8T-BUS01 connectors.
*2 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.	24 V models: 22 to 28 V, 12 V models: 12 V ±10% min.	
	Ripple	2% (p-p) max.	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

Motor timer

H2C

Page 469

Which type of timer is needed?

- **Analogue**
  - Which mounting method is required?
    - **DIN-rail**
      - Which size is required?
        - 17.5 mm → **H3DS** Page 464
        - 22.5 mm → **H3DE** Page 465
    - **Plug/front**
      - **H3YN** Page 466
      - **H3CR** Page 467
- **Digital**
  - Which size is required?
    - 48x24 mm → **H8GN timer/counter** Page 477
    - 48x48 mm → **H5CX** Page 468

Selection table

	Category	Analogue solid state timer										
Selection criteria												
	Model	H3DS-M	H3DS-S	H3DS-A	H3DS-F	H3DS-G	H3DS-X	H3DE-M	H3DE-S	H3DE-F	H3DE-G	H3DE-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
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	□	□	□	–	–	–	□	□	–	–	–
Outputs	Transistor	–	–	–	–	–	–	–	–	–	–	–
	Relay	■	■	■	■	■	–	■	■	■	■	■
	SCR	–	–	–	–	–	■	–	–	–	–	–
	Relay output type: SPDT	■	■	■	■	–	–	□	■	■	■ (2x)	■
	Relay output type: SPST-NO	–	–	–	–	■ (2x)	–	–	–	–	–	–
	Relay output type: DPDT	–	–	–	–	–	–	□	■	–	–	–
	Relay output type: 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 120 h	0.1 s to 120 h	0.1 s to 12 h	1 s to 120 s	0.1 s to 120 s
	Time range: Number of sub ranges	7	7	7	6	2	7	8	8	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 12 VDC	24 to 230 VAC/DC	24 to 230 VAC/ DC	24 to 230 VAC/ DC	100 to 120 VAC, 200 to 230 VAC, 24 VAC/DC, 48 VAC/DC
	Number of operating modes	8	4	1	2	1	1	8	4	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	–	–	–	–	–	–	–	–	–	–	–
	Star-delta	–	–	–	–	■	–	–	–	–	–	–
Re-marks	Transistor	–	–	–	–	–	■	–	–	–	–	–
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Selection criteria	Category		Analogue solid state timer					Digital timer		Motor timer
	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		–	□	–	–	–	–	–	–
Outputs	Transistor		–	□	–	–	–	□	–	–
	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		–	–	–	–	–	■	■	–
	Star-delta		–	–	–	■	–	–	–	–
Re-marks	Transistor		–	□	–	–	–	■	–	–
	Page		466	467				468	477	469

■ 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 to120 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		2x Relay SPST-NO	1 s to 120 s	Star-delta	H3DS-GL	H3DS-GLC
Two-wired timer	24 to 230 VAC/VDC (50/60 Hz)	SCR output	0.1 s to 120 h	ON-delay	H3DS-XL	H3DS-XLC

Specifications

Terminal block	Screw terminal type: Clamps two 2.5 mm^2 max. bar terminals without sleeves Screw-less clamp type: Clamps two 1.5 mm^2 max. bar terminals without sleeves
Mounting method	DIN-rail mounting
Operating voltage range	85 to 110% of rated supply voltage
Power reset	Minimum power-off time: 0.1 s, 0.5 s for H3DS-G
Reset voltage	2.4 VAC/VDC max., 1.0 VAC/VDC max. for H3DS-X
Voltage input	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
Control output	Contact output: 5 A at 250 VAC with resistive load ($\cos\phi = 1$)
	5 A at 30 VDC with resistive load ($\cos\phi = 1$)
Ambient temperature	Operating: -10 to 55°C (with no icing)
	Storage: -25 to 65°C (with no icing)
Accuracy of operating time	±1% max. of FS (±1% ±10 ms max. at 1.2 s range)
Setting error	±10% ±50 ms max. of FS
Influence of voltage	±0.7% max. of FS (±0.7% ±10 ms max. at 1.2 s range)
Influence of temperature	±5% max. of FS (±5% ±10 ms max. at 1.2 s range)
Life expectancy (not H3DS-X)	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)
Size in mm(HxWxD)	80x17.5x73

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

The H3DE 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
- 24-230VAC/VDC (except -H)
- Wide time setting range: 0.10 s - 120 h (except -H and -G), 8 ranges

Ordering information

Type	Supply voltage	Control output	Time setting range	Operating modes	Order code
Multi-functional standard timers	12 VDC	DPDT	0.1 s to 120 h	ON-delay, flicker OFF start, flicker ON start, signal ON/OFF-delay, signal OFF-delay, interval, one-shot	H3DE-M2 DC12 *1
	24 to 230 VAC/VDC	SPDT			H3DE-M1 AC/DC24-230
		DPDT			H3DE-M2 AC/DC24-230 *1
		SPDT		ON-delay, flicker ON start, interval, one-shot	H3DE-S1 AC/DC24-230
		DPDT			H3DE-S2 AC/DC24-230 *1
Twin timer		SPDT	0.1 s to 12 h	Flicker OFF start, flicker ON start	H3DE-F AC/DC24-230
Star-delta timer		2x SPDT	1 to 120 s	Star-delta	H3DE-G AC/DC24-230
Power OFF-delay timer	24 VAC/VDC	SPDT	1 to 120 s	Signal OFF-delay	H3DE-H AC/DC24 L
			0.1 to 12 s		H3DE-H AC/DC24 S
	48 VAC/VDC		1 to 120 s		H3DE-H AC/DC48 L
			0.1 to 12 s		H3DE-H AC/DC48 S
	100 to 120 VAC		1 to 120 s		H3DE-H AC100-120 L
			0.1 to 12 s		H3DE-H AC100-120 S
	200 to 230 VAC		1 to 120 s		H3DE-H AC200-230 L
			0.1 to 12 s		H3DE-H AC200-230 S

*1 One output can be set to instantaneous.

Specifications

Terminal block	Clamps two 2.5 mm^2 max. bar terminals without sleeves
Mounting method	DIN-rail mounting
Operating voltage range	85 to 110% of rated supply voltage
Power reset	Minimum power-off time: H3DE-M/S, H3DE-F: 0.1 s, H3DE-G: 0.5 s
Reset voltage	2.4 VAC/VDC max. (not for H3DE-H)
Voltage input (H3DE-M/-S)	Max. permissible capacitance between input lines (terminals B1 and A2): 2,000 pF
	Load connectable in parallel with inputs (terminals B1 and A2)
	H-level: 20.4 to 253 VAC/VDC, L-level: 0 to 2.4 VAC/VDC
Control output	Contact output: 5 A at 250 VAC with resistive load ($\cos\phi = 1$), 5 A at 30 VDC with resistive load ($\cos\phi = 1$)
Ambient temperature	Operating: -10 to 55°C (with no icing), storage: -25 to 65°C (with no icing)
Accuracy of operating time	±1% max. of FS (±1% ±10 ms max. at 1.2 s range)
Setting error	±10% ±0.05 s max. of FS
Signal input time	50 ms min.
Influence of voltage	±0.5% max. of FS
Influence of temperature	±2% max. of FS
Contact material	AGNi+gold plating
Life expectancy	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)
Degree of protection	IP30 (terminal block: IP20)
Size in mm (HxWxD)	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	H3YN-41 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	±1% FS max. (1 s range: ±1% ±10 ms max.)	
Setting error	±10% ±50 ms FS max.	
Reset time	Min. power-opening time: 0.1 s max. (including halfway reset)	
Influence of voltage	±2% FS max.	
Influence of temperature	±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
		24 to 48 VAC/12 to 48 VDC			H3CR-A 24-48AC/12-48DC
Transistor		24 to 48 VAC/12 to 48 VDC	0.05 s to 300 h		H3CR-AS 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
		24 to 48 VAC/12 to 48 VDC			H3CR-A8 24-48AC/12-48DC
Transistor		24 to 48 VAC/12 to 48 VDC	0.05 s to 300 h		H3CR-A8S 24-48AC/12-48DC
Relay SPDT		100 to 240 VAC/100 to 125 VDC			H3CR-A8E 100-240AC/100-125DC
		24 to 48 VAC/VDC			H3CR-A8E 24-48AC/DC
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			H3CR-F8 100-240AC
		24 VAC/VDC			H3CR-F8 24AC/DC
	11	100 to 240 VAC	0.05 s to 30 h	Flicker ON start	H3CR-FN 100-240AC
		24 VAC/VDC			H3CR-FN 24AC/DC
	8	100 to 240 VAC			H3CR-F8N 100-240AC
		24 VAC/VDC			H3CR-F8N 24AC/DC
Time-limit contact and instantaneous contact		100 to 120 VAC		Star-delta	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			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 A-1: Signal ON-delay 2 A-2: Power ON-delay 1 A-3: Power ON-delay 2 b: Repeat cycle 1 b-1: Repeat cycle 2 d: Signal OFF-delay E: Interval F: Cumulative Z: ON/OFF-duty adjustable flicker	Screw terminals	48x48x84	Signal, Reset, Gate (NPN/PNP inputs)	H5CX-A-N
	12 to 24 VDC/24 VAC			48x48x65		H5CX-AD-N
Transistor output	100 to 240 VAC			48x48x84		H5CX-AS-N
	12 to 24 VDC/24 VAC			48x48x65		H5CX-ASD-N
Contact output	100 to 240 VAC		11-pin socket	48x48x69.7	Signal, Reset, Gate (NPN/PNP inputs)	H5CX-A11-N
	12 to 24 VDC/24 VAC					H5CX-A11D-N
Transistor output	100 to 240 VAC					H5CX-A11S-N
	12 to 24 VDC/24 VAC					H5CX-A11SD-N
Contact output	100 to 240 VAC	toff: Twin timer OFF start ton: Twin timer ON start	8-pin socket	48x48x69.7	Signal, Reset (NPN inputs)	H5CX-L8-N
	12 to 24 VDC/24 VAC					H5CX-L8D-N
Transistor output	100 to 240 VAC					H5CX-L8S-N
	12 to 24 VDC/24 VAC					H5CX-L8SD-N
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 toff: Twin timer OFF start 1 ton: Twin timer ON start 1			–	H5CX-L8E-N
	12 to 24 VDC/24 VAC					H5CX-L8ED-N
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	P2CF-08-E
	11-pin, finger safe type	P2CF-11-E
Back-connecting socket	8-pin	P3G-08
	11-pin	P3GA-11
Hard cover		Y92A-48
Soft cover		Y92A-48F1

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)	red	
	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
DIN-rail mounting/ front-connecting socket	8-pin, finger safe type	P2CF-08-E
	11-pin, finger safe type	P2CF-11-E
Back-connecting socket	8-pin, screw terminal	P3G-08
	11-pin	P3GA-11

Name/specifications		Order code
Hold-down clip (pair)	For PL08 and PL11 sockets	**Y92H-1**
	For PF085A socket	**Y92H-2**
Flush mounting adapter		Y92F-30
Time setting ring		**Y92A-Y1**

Specifications

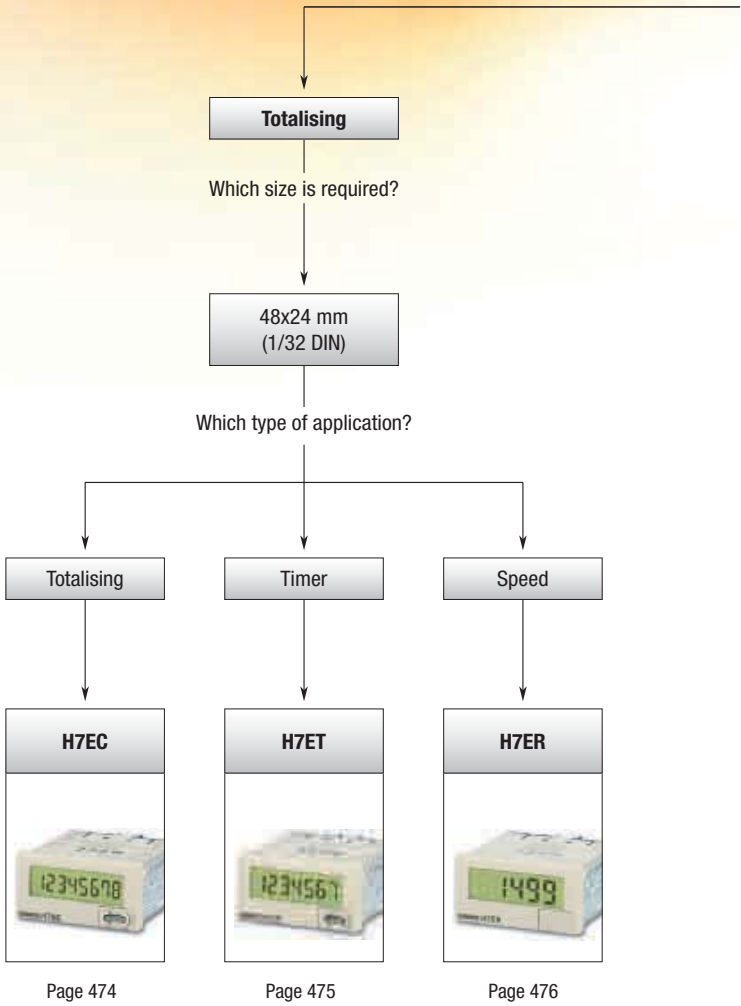
Operating voltage range	85 to 110% of rated supply voltage
Reset voltage	10% max. of rated supply voltage
Reset time	Min. power-opening time: 0.5 s, min. pulse width: 0.5 s
Control outputs	6 A at 250 VAC, resistive load ($\cos\phi = 1$)
Mounting method	Flush mounting (except for H2C-F/-FR models), surface-mounting,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

Pre-set counter time count

Which size is required?

48x24 mm (1/32 DIN)

48x48 mm (1/16 DIN)

Cam positioner

Which size is required?

96x96 mm (1/4 DIN)

H8GN counter/timer

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H7CX

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H8PS

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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
Features	Dual operation	–	–	–
	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	□	□	□
	Comms	–	–	–
Functions	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^{-1} or 1000 min^{-1}; 1000 s^{-1} or 1000 min^{-1} <--> 10000 min^{-1}
Colour	Beige	■	■	■
	Black	■	■	■
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	Counter type	Pre-set counter/timer	Pre-set counter	Cam positioner
Selection criteria				
	Model	H8GN	H7CX	H8PS
	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	■	□	–
	Tachometer	–	□	–
Inputs	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	–	■	–
	IP rating	IP66	IP66	IP40
Terminals	Screw terminals	■	■	■
	PCB terminals	–	–	■
	11-pin socket	–	□	–
Supply voltage	100 to 240 VAC	–	■	–
	12 to 24 VDC	–	■	–
	24 VDC	■	–	■
	Comms	□	–	–
Functions	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	■	■	–
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■ 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 999999.9 h <-> 3999 d 23.9 h or 999 h 59 m 59 s <-> 9999 h 59.9m

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
	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^{-1} (1 pulse/rev.) 1,000 min^{-1} (60 pulse/rev.)		1,000.0 s^{-1} (10 pulse/rev) 1,000.0 min^{-1} (600 pulse/rev) <-> 10,000 min^{-1} (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 DC voltage input	7-segment LCD	H7ER-NV	H7ER-NV-B	H7ER-NV1	H7ER-NV1-B
	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^{-1} (when encoder resolution of 10 pulse/rev is used) 1,000.0 min^{-1} (when encoder resolution of 600 pulse/rev is used) <-> 10,000 min^{-1} (when encoder resolution of 60 pulse/rev is used) (switchable with switch)	1,000 s^{-1} (when encoder resolution of 1 pulse/rev is used) 1,000 min^{-1} (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	
				Communications	
Counter	Timer			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

Rated supply voltage		24 VDC
Operating voltage range		85 to 110% of rated supply voltage
Power consumption		1.5 W max. (for max. DC load) (inrush current: 15 A max.)
Mounting method		Flush-mounting
External connections		Screw terminals (M3 screws)
Terminal screw tightening torque		0.5 Nm max.
Attachment		Waterproof packing, flush-mounting bracket
Display		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)
Digits		PV: 4 digits, SV: 4 digits, when total count value is displayed: 8 digits (zeros suppressed)
Memory backup		EEPROM (non-volatile memory) (number of writes: 100,000 times)
Counter	Maximum counting speed	30 Hz or 5 kHz
	Counting range	-999 to 9,999
	Input modes	Increment, decrement, individual, quadrature inputs
Timer	Timer modes	Elapsed time (up), remaining time (down)
Inputs	Input signals	For counter: CP1, CP2, and reset For timer: Start, gate, and reset
	Input method	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.
	Start, reset, gate	Minimum input signal width: 1 or 20 ms (selectable)
	Power reset	Minimum power-opening time: 0.5 s
Control output		SPDT contact output: 3 A at 250 VAC/30 VDC, resistive load ($\cos\phi = 1$)
Minimum applied load		10 mA at 5 VDC (failure level: P, reference value)
Reset system		External, manual, and power supply resets (for timer in A, B, D, E, or Z modes)
Sensor waiting time		260 ms max. (inputs cannot be received during sensor wait time if control outputs are turned OFF)
Timer function	Accuracy of operating time and setting error (including temperature and voltage effects)	Signal start: ±0.03% ±30 ms max. Power-ON start: ±0.03% ±50 ms max.
Ambient temperature	Operating storage	-10 to 55°C (with no icing or condensation)
		-25 to 65°C (with no icing or condensation)
Case colour		Rear section: Grey smoke; front section: N1.5 (black)
Degree of protection		Panel surface: IP66 and NEMA Type 4X (indoors); rear case: IP20, terminal block: IP20
Size in mm (HxWxD)		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				H7CX-AUD1-N
				Transistor output (2x)			H7CX-AUSD1-N
			100 to 240 VAC	Contact output (2x)			H7CX-AW-N
			12 to 24 VDC/24 VAC				H7CX-AWD1-N
1-stage counter 1-stage counter with total counter	11-pin socket	12 VDC	100 to 240 VAC	Contact output		48x48x69.7	H7CX-A11-N
			12 to 24 VDC/24 VAC				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		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

Specifications

Display	7-segment, negative transmissive LCD
Digits	6-digits: -99,999 to 999,999, SV range: -99999 to 999999 or 0 to 999999
Max. counting speed	30 Hz or 5 kHz (selectable, ON/OFF ratio 1:1)
Input modes	Increment, decrement, increment/decrement (UP/DOWN A (command input), UP/DOWN B (individual inputs), or UP/DOWN C (quadrature inputs))
Control output	Contact output: 3 A at 250 VAC/30 VDC, resistive load ($\cos\phi = 1$) 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.
Key protection	Yes
Decimal point adjustment	Yes (rightmost 3 digits)
Sensor waiting time	290 ms max.
Memory backup	EEPROM (overwrites: 100,000 times min.) stores data 10 years min.
Ambient temperature	Operating: -10 to 55°C (-10 to 50°C when mounted side by side)
Case colour	Black (N1.5) (Optional Front Panels are available to change the Front Panel colour to light gray or white.)
Life expectancy	Mechanical: 10,000,000 operations min.
	Electrical: 100,000 operations min. (3 A at 250 VAC, resistive load)
Degree of protection	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		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
Discrete wire output cable	2 m	Y92S-41-200
Connector-type output cable	2 m	E5ZE-CBL200
Support software	CD-ROM	H8PS-SOFT-V1
USB cable	A miniB, 2 m	Y92S-40
Parallel input adapter	Two units can operate in parallel	Y92C-30
Protective cover		Y92A-96B
Watertight cover		Y92A-96N
DIN-rail mounting base		Y92F-91

Encoder accessories

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

Specifications

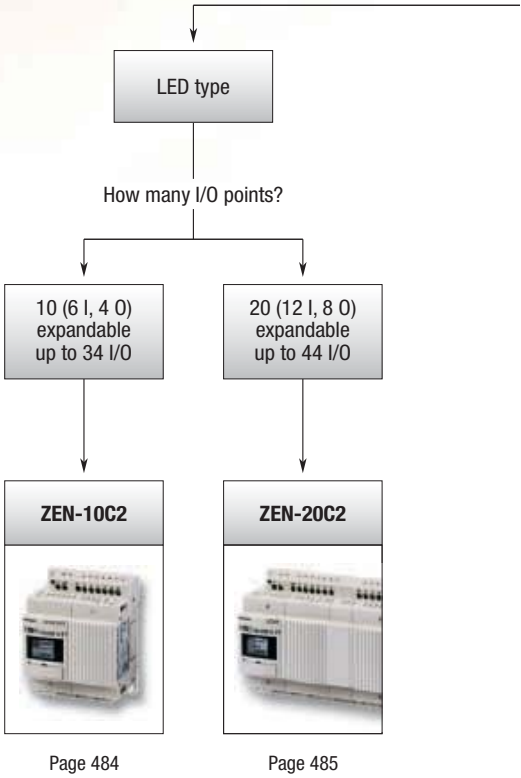
Rated supply voltage			24 VDC
Inputs	Encoder input		8-output models: None; 16-/32-output models: Bank inputs 1/2/4, origin input, start input
	External inputs	Input signals	8-output models: None; 16-/32-output models: Bank inputs 1/2/4, origin input, start input
		Input type	No voltage inputs: ON impedance: 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
Number of banks			8 banks (for 16-/32-output models only)
Display method			7-segment, negative transmissive LCD (main display: 11 mm (red), sub-display: 5.5 mm (green))
Memory backup method			EEPROM (overwrites: 100,000 times min.) that can store data for 10 years min.
Ambient operating temperature			-10 to 55°C (with no icing or condensation)
Storage temperature			-25 to 65°C (with no icing or condensation)
Ambient humidity			25 to 85%
Degree of protection			Panel surface: IP40, rear case: IP20
Case colour			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



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What functionality is required?

Display type with buttons, calendar and clock

How many I/O points?

10 (6 I, 4 O) expandable up to 34 I/O

ZEN-10C1

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20 (12 I, 8 O) expandable up to 44 I/O

ZEN-20C1

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10 (6 I, 4 O) fixed I/O

ZEN-10C3

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20 (12 I, 8 O) fixed I/O

ZEN-20C3

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10 (6 I, 4 O) expandable up to 33 I/O with communication

ZEN-10C4

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Expansion unit

How many extra I/O points?

8 I/O (4 I, 4 O)

ZEN-8E

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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
			Transis-tors	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	Relays	LCD	yes	–	yes / 4				ZEN-10C3AR-A-V2
		12 to 24 VDC		LCD	yes	yes / 4	yes / 4				ZEN-10C3DR-D-V2
	10 Expandable up to 33 I/O	100 to 240 VAC	3	LCD/ Comm.	yes	–	yes / 4				ZEN-10C4AR-A-V2
		12 to 24 VDC			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 (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	20 Expandable up to 44 I/O	12	100 to 240 VAC	8	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)	90x122.5 x56	ZEN-20C1AR-A-V2
						LED	–	–	–				ZEN-20C2AR-A-V2
			12 to 24 VDC			LCD	yes	yes / 4	yes / 4				ZEN-20C1DR-D-V2
						LED	–	yes / 4	yes / 4				ZEN-20C1DR-D-V2
					Transis-tors	LCD	yes	yes / 4	yes / 4				ZEN-20C1DT-D-V2
						LED	–	yes / 4	yes / 4				ZEN-20C2DT-D-V2
	Fixed I/O		100 to 240 VAC		Relays	LCD	yes	–	yes / 4				ZEN-20C3AR-A-V2
			12 to 24 VDC			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	4	Relays	90x35x56	ZEN-8E1AR
			12 to 24 VDC				ZEN-8E1DR
					Transistors		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

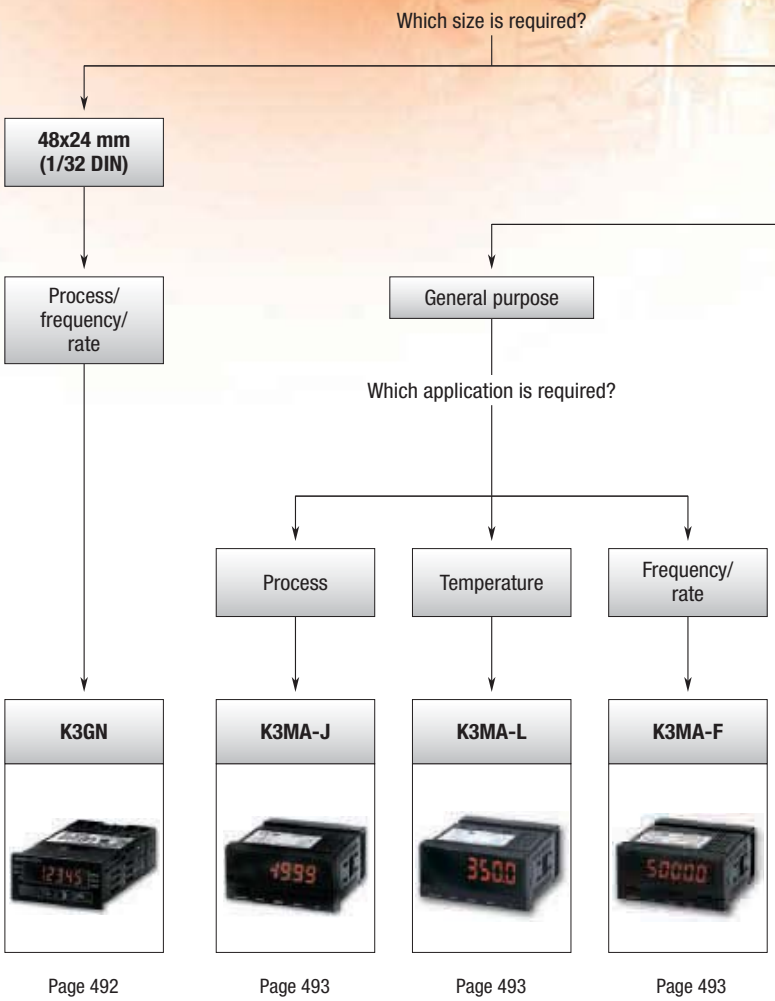
Item	Specifications	
Power rating	30 W	
Efficiency	80% min. (24 V)	
Input voltage	100 to 240 VAC (85 to 264 VAC), single-phase	
Output voltage	Voltage adjustment	±10% to ±15% (with V. ADJ) min. of rate output voltage
	Ripple	2% (p-p) max. (-25°C to -10°C: 4% max.)
	Input variation	0.5% max.
	Temperature	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 10 V/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?

Process	Temperature	Weighing	Linear sensor	Rotary pulse	Time interval	Up/down counting pulse
K3HB-X	**K3HB-H**	**K3HB-V**	**K3HB-S**	**K3HB-R**	**K3HB-P**	**K3HB-C**
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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	■	–	–	–	□
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Temperature indicator	Weighing indicator	Linear sensor indicator	Up/down counting pulse indicator	Time interval indicator	Rotary pulse indicator
K3HB-H	**K3HB-V**	**K3HB-S**	**K3HB-C**	**K3HB-P**	**K3HB-R**
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
□	□	□	■	■	■
□	□	□	■	■	■
■	–	–	–	–	–
–	–	–	–	–	–
–	–	–	■	■	■
–	■	–	–	–	–
–	–	■	–	–	–
–	–	■	–	–	–
–	–	–	–	–	–
–	–	–	–	–	–
□	□	□	□	□	□
□	□	□	□	□	□
□	□	□	□	□	□
□	□	□	□	□	□
–	–	–	□	□	□
□	□	□	□	□	□
494			496		

■ 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 DC current: 0 to 20 mA, 4 to 20 mA	2 relay contact outputs (SPST-NO)	K3MA-J-A2 100-240VAC
	24 VAC/VDC		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 *1
	Linear current	DC0(4) - 20 mA		–	K3HB-X, -H, -S	K33-L1 A *2
	Linear voltage	DC0(1) - 5 V, 0 to 10 V		–	K3HB-X, -H, -S	K33-L2A *2
	–	–		–	K3HB-X, -H, -S	K33-A *2
	–	–		RS-232C	K3HB-X, -H, -S	K33-FLK1 A *2
	–	–		RS-485	K3HB-X, -H, -S	K33-FLK3A *2
	Relay	PASS: SPDT	10 VDC ±5%, 100 mA	–	K3HB-V	K33-CPB *1
	Linear current	DC0(4) - 20 mA		–	K3HB-V	K33-L1B *2
	Linear voltage	DC0(1) - 5 V, 0 to 10 V		–	K3HB-V	K33-L2B *2
	–	–		–	K3HB-V	K33-B *2
	–	–		RS-232C	K3HB-V	K33-FLK1B *2
	–	–		RS-485	K3HB-V	K33-FLK3B *2

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 *2

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

*1 CPA/CPB can be combined with relay outputs only.
*2 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

Power supply voltage			100 to 240 VAC (50/60 Hz), 24 VAC/VDC, DeviceNet power supply: 24 VDC
Allowable power supply voltage range			85 to 110% of the rated power supply voltage, DeviceNet power supply: 11 to 25 VDC
Power consumption			100 to 240 V: 18 VA max. (max. load), 24 VAC/DC: 11 VA/7 W max. (max. load)
Display method			Negative LCD (backlit LED) display 7-segment digital display (character height: PV: 14.2 mm (green/red); SV: 4.9 mm (green))
Ambient operating temperature			-10 to 55°C (with no icing or condensation)
Display range			-19,999 to 99,999
Weight			Approx. 300 g (base unit only)
Degree of protection		Front-panel	Conforms to NEMA 4X for indoor use (equivalent to IP66)
		Rear case	IP20
		Terminals	IP00 + finger protection (VDE0106/100)
Memory protection			EEPROM (non-volatile memory), number of rewrites: 100,000
Event input ratings		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.
Output ratings	**Transistor output**	Maximum load voltage	24 VDC
		Maximum load current	50 mA
		Leakage current	100 μA max.
	Contact output (resistive load)	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
	Linear output	Allowable load impedance	500 Ω max. (mA); 5 kΩ min. (V)
		Resolution	Approx. 10,000
		Output error	±0.5% FS
Size in mm (HxWxD)			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
		100 to 240 VAC	NPN	K3HB-PNB 100-240VAC
		100 to 240 VAC	PNP	K3HB-PPB 100-240VAC
Timer interval indicator K3HB-P		24 VAC/VDC	PNP	K3HB-PPB 24VAC/VDC
		100 to 240 VAC	NPN	K3HB-CNB 100-240VAC
Up/down counting pulse indicator K3HB-C		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 *1
	Linear current	DC0(4) - 20 mA		–	K33-L1 A *2
	Linear voltage	DC0(1) - 5 V, 0 to 10 V		–	K33-L2A *2
	–	–		–	K33-A *2
	–	–		RS-232C	K33-FLK1 A *2
	–	–		RS-485	K33-FLK3A *2

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 *2
	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

*1 CPA can be combined with relay outputs only.
*2 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

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