

SENTIEN ELECTRONICS PTY. LTD.



Let SENTIEN put you in Control

REFRIGERATION | HEATING | AIR-CONDITIONING
AND CONTROLS

LAE | FANTINI COSMI | WEISS INSTRUMENTS | NHD | GO-LINK

COMPANY OVERVIEW

Sentien Electronics Pty Ltd was established in 1993.

Sentien Electronics is a distributor for Refrigeration, Heating and Air-Conditioning controls. The company's focus has always been to provide quality products at competitive prices which meet our customers needs, with an emphasis on reliability and customer service.

Sentien Electronics prides itself on customer service, with our knowledgeable and dedicated staff prepared to go the extra mile to ensure customer satisfaction. It is with this philosophy and dedication to service which has ensured that Sentien Electronics has continued to grow and create a trusted name among its customers and the industry in which it serves.

Throughout the years Sentien Electronics has formed valuable partnerships with our suppliers which is the key to our success. Our products are sourced globally from companies which share the same dedication and philosophy that we do.

Companies such as LAE Electronic, which have been manufacturing for over 40 years and supply customers such as Williams Refrigeration, Foster Refrigeration, ATLAS COPCO , Criosbanc Carrier and LEC Refrigeration.

We supply Panel Mount, Wall Mount, Din Rail Mounted thermostats for Normal, Medium and Low Temperature applications. They also supply a range of Humidity, Pressure and Rack controls, as well as a range of software for both on-site and remote monitoring that can be either hard wired or wirelessly networked.

Fantini Cosmi is a European leader for Temperature, Pressure, Level & Flow Controls in the Heating sector and has been manufacturing since 1938.

I.C.M. is a USA supplier of Timers, De-Ice Controls, Phase failure & phase sequence controls, Digital room thermostats.

WEISS Instruments is a USA supplier which has been manufacturing Temperature & Pressure gauges since 1899.

NHD is a Taiwanese manufacturer of Magnetic Motor Controls, Contactors, Overloads, enclosures, Soft starters, SCR Power controllers, with ISO9002, UL, SA, CE Approvals.

We also have access to a wide range of products such as Differential Air Pressure switches, Axial Cross flow and External Rotor fans, Centrifugal, forward & backward curved fans, Blower fans, Electronic fans, power supplies, speed controls, dimmers, manual reset thermostats, flow switches, Refrigeration, water and oil solenoid valves. Current sensing switches, pressure transducer, data loggers, hand-held thermometers, humidity, anemometers, thermocouples, heating elements for Bain Maries & Hot food bars. Indicator lamps, rocker, toggle, rotary switches, T8 LEDs in various sizes, fixed LED strips, flexible LED strips, RGB LEDs.

Our aim is to provide a one stop shop with various products complimenting the LAE range of digital controls. If you are interested in a product or products not listed above, feel free to contact us with your requirements, and we will contact our sources around the world in an endeavour to provide you with the optimal solution for your needs.

We look forward to hearing from you in the future.

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MED & LOW TEMP COMPACT CONTROLLERS

ATI-5 UNIVERSAL DEFROST CONTROLLER – FOR HIGH TEMPERATURE



ATI-5

TECHNICAL DATA

CONTROL RANGE -50÷120°C , -55÷240°F
ACCURACY NTC10K: <±0.3°C (-40.0÷70.0°C) PTC1000: <±0.5°C (-50÷120°C)
POWER SUPPLY 230V~ ±10% 50÷60Hz 3W
PANEL CUT-OUT 71x 29 mm
SENSOR TYPE selectable NTC10K standard mod. SN4K20P1/P2 or PTC1000 standard mod. ST1K20P1/P2

RESOLUTION 0.1 / 1 °C; °F
FRONT PROTECTION IP55

- Selectable Refrigerating or Heating control • Runs on mains power supply
- Direct compressor control through high power 16(4)A, 16(5)A or 16(8)A relay
- Selectable NTC10K or PTC probe input • Integrated defrost functions
- Auxiliary output configurable in four different operation modes • On/Off button
- Absolute or relative temperature alarms • Door open alarm
- Automatic condenser maintenance warning • Connection to LAE supervisory systems
- Optional light control button • Quick programming through ZOT-AT1 key

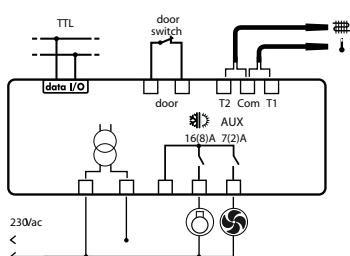
SPECIFICATIONS

FUNCTIONS		AS1E-G	BS2E-BG	BS6E-AL
INPUTS	THERMOSTAT	√	√	√
	EVAPORATOR		√	√
	DOOR SWITCH		√	√
OUTPUTS	THERMOSTAT 16(4)A	√	√	
	THERMOSTAT 16(8)A			√
	AUXILIARY 7(2)A		√	√
POWER SUPPLY	230VAC	√	√	√
SERIAL PORT	TTL			√
	RS485		√	
KEYPAD	GENERIC	√	√	
	WITH LIGHT BUTTON			√

APPLICATION

Freestanding upright cabinets and counters, cold stores, plug-in display cases, control panels, heated cabinets.

Models with removable screw terminal blocks are available. In this case, the letter "S" of code changes in "Q", ex. AT1-5BQ2E-BG. All models come with an alarm buzzer. Versions with 110V power supply are available. On request, the AT1-5 is also available with gasket for a better protection between bezel and metal panel.



AT2-5 UNIVERSAL DEFROST CONTROLLER – FOR HIGH AND LOW TEMPERATURE



AT2-5

TECHNICAL DATA

CONTROL RANGE -50÷120°C , -55÷240°F
ACCURACY NTC10K: <±0.3°C (-40.0÷70.0°C) PTC1000: <±0.5°C (-50÷120°C)
POWER SUPPLY 230V~ ±10% 50÷60Hz 3W
PANEL CUT-OUT 71x 29 mm
SENSOR TYPE selectable NTC10K standard mod. SN4K20P1/P2 or PTC1000 standard mod. ST1K20P1/P2

RESOLUTION 0.1 / 1 °C; °F
FRONT PROTECTION IP55

- Selectable Refrigerating or Heating control • Runs on mains power supply
- Direct compressor control through high power 16(5)A • Excellent evaporator fan control
- Selectable NTC10K or PTC input • Integrated defrost functions
- Auxiliary output configurable in six different operation modes • On/Off button
- Absolute or relative temperature alarms • Door open alarm
- Automatic condenser maintenance warning • Connection to LAE supervisory systems
- Optional light control button • Quick programming through ZOT-AT2 key
- Electrical, off cycle or hot gas defrost

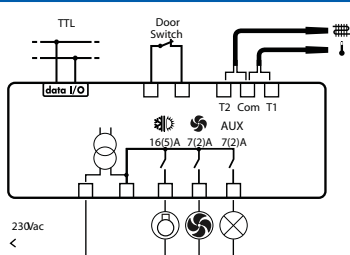
SPECIFICATIONS

FUNCTIONS		BS4E-G	BS4E-BG	BS4E-AL
INPUTS	THERMOSTAT	√	√	√
	EVAPORATOR	√	√	√
	DOOR SWITCH	√	√	√
OUTPUTS	THERMOSTAT	√	√	√
	EVAPORATOR FANS	√	√	√
	AUXILIARY	√	√	√
POWER SUPPLY	230VAC	√	√	√
SERIAL PORT	SERIAL PORT TTL		√	√
KEYPAD	GENERIC	√	√	
	WITH LIGHT BUTTON			√

APPLICATION

High or Low Temperature upright cabinets and counters, cold stores, plug-in display cases, control panels, heated cabinets.

Models with removable screw terminal blocks are available. In this case, the letter "S" of code changes in "Q", ex. AT2-5BQ4E-AL. All models come with an alarm buzzer. Versions with 110V power supply are available. On request, the AT2-5 is also available with gasket for a better protection between bezel and metal panel.



HEATING CONTROLLER

LTR-5 SINGLE OUTPUT ON/OFF OR PID THERMOSTAT OR HUMIDISTAT



LTR-5

- Runs on mains power supply
- PID with autotuning or ON/OFF control
- Output on relay (16A) or SSR piloting
- Input for PTC, NTC10K or 0÷1V 0.1 / 1°C or 1°F resolution
- Refrigerating (dehumidifying) or heating (humidifying) control mode selection
- Stand-by button on the front
- Load start limitation and safety function in the event of breakage of the sensor
- Quick setup through ZOT-LTR device
- Connection to LAE supervisory systems TAB.

SPECIFICATIONS

FUNCTIONS	LTR-5T	LTR-5C	LTR-5A
INPUT TYPE	PTC	NTC10K	0÷1V
RANGE	-50÷150°C -60÷300°F	-40÷125°C -40÷260°F	0÷99.9% r.H.
ACCURACY	±0.3°C(a); ±1.0°C(c)	±0.3°C(b); ±1°C(c)	±0.7% r.H.
RESOLUTION	0.1/1°C; °F		0.1/1 % r.H.
FRONT PROTECTION	IP55		
PANEL CUT-OUT	71 x 29 mm		

APPLICATION

TEMPERATURE Control of small cold stores, refrigerated cabinets and tables, heating systems, heated cupboards, bainsmarie, ovens, laboratory equipment.

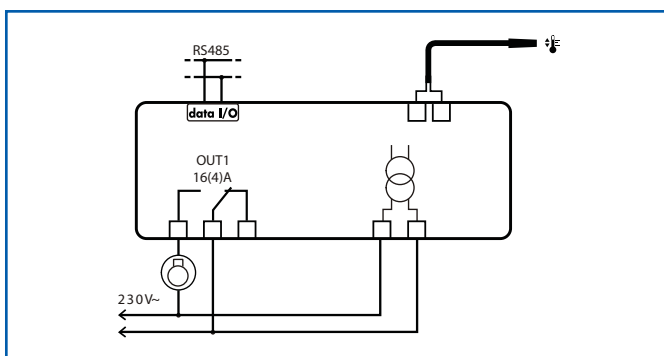
HUMIDITY Control of greenhouses, seasoning cells, cold rooms, air-conditioned rooms.

HOW TO ORDER EXAMPLES

LTR-5CSRE-A (NTC10K input, 1 relay, screw terminals, 230Vac supply, TTL port)

LTR-5ASRU (0÷1V input, 1 relay, screw terminals, 115Vac supply, no serial port)

On request, the LTR-5 is also available with gasket for a better protection between bezel and pane.



LTR-5	T	E	R	S	-B
	1	2	3	4	5
POS	FUNCTION	DESCRIPTION			
1	INPUT	T*= PTC; C**= NTC10K; A= 0÷1V			
2	CONNECTORS	S= screw terminals; Q= male + female terminals			
3	OUTPUT TYPE	R = relay; F = SSR drive			
4	SUPPLY	D =12Vac/dc; E =230Vac; U =115Vac, 2W			
5	SERIAL COMM.	- = no serial port; -A = TTL; -B = RS485			

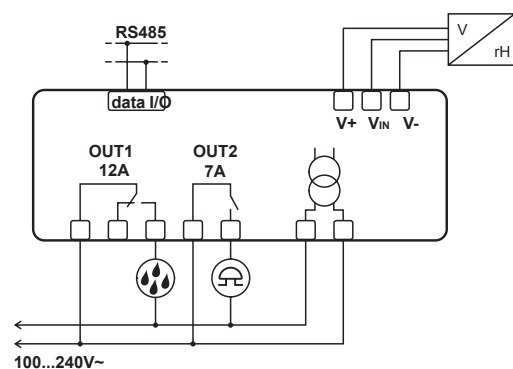
AC2-5 TWO CHANNEL UNIVERSAL CONTROLLER

Main Features

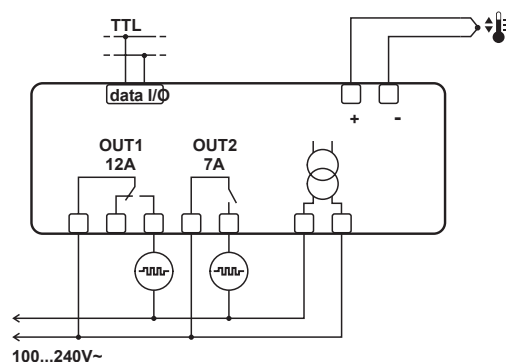
- Stylish capacitive touch display and keypad technology
- Runs on universal mains power supply
- PID with autotuning or ON/OFF control
- Main output on 12A relay or for SSR-piloting and auxiliary output on 7A relay
- Input for 0÷1V, 0/4÷20mA, PTC/NTC10K, TC J/K or Pt100
- Selectable Refrigerating/Heating (Dehumidifying/Humidifying) control
- Absolute or relative temperature alarms
- Connectivity to supervisory systems and gateway for cloud



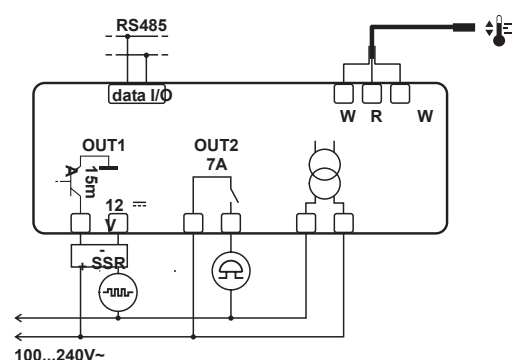
AC2-5 series							
TECHNICAL DATA	AC2-5T...		AC2-5P...	AC2-5J...		AC2-5A...	AC2-5I...
Input Type	PTC	NTC10K	Pt100	TC "J"	TC "K"	0÷1V	0/4÷20mA
Range	-50÷150°C -60÷300°F	-40÷125°C -40÷260°F	-100÷850°C -150÷999°F	-50÷750°C -60÷999°F	-50÷999°C -60÷999°F	Configurable in setup	
Accuracy*	±0.3°C ±0.6°F	±0.3°C ±0.6°F	±0.3°C(a); ±1°C(b) < ±2°F	< ±3°C < ±5°F	< ±3mV	< ±0.2mA	
Resolution	0.1 / 1°C / 1°F			1 °C / °F		0.1 / 1	
Max. loads of outputs	OUT1		3.6 FLA; 21.6 LRA 240Vac; 12A resistive				
	OUT2		10A resistive @ 120Vac; 7A resistive @ 240Vac				
	SSR drive for OUT1		15mA 12Vdc				
Power supply	100 ÷ 240 Vac ±10%, 50/60Hz, 3W; 12Vac/dc ±10%, 3W						
Ambient temperature & humidity	-10... +50°C; 15%... 80% rH						
Panel-cutout	71 x 29 mm						



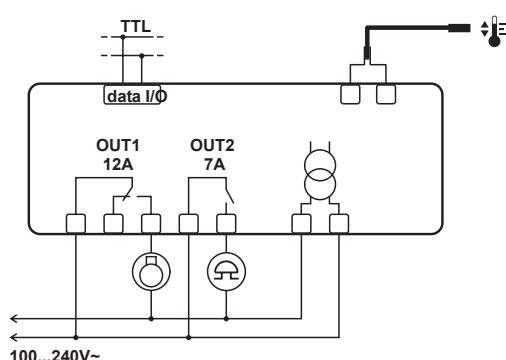
AC2-5AS2RW



AC2-5JS2RW



AC2-5PS2MW



AC2-5TS2RW

BR5-COMPACT COMPREHENSIVE REFRIGERATION CONTROLLER

Main features

- Up to 5 configurable outputs for a perfect adaptation to the specific needs such as: control of variable speed compressors (*example 2*) or fans (*example 1*), drive of a large external compressor relay (*example 3*), control of lights, ON/OFF fans, heaters, switched loads, defrost, alarms, second evaporator
- With or without RTC for timed control functions
- Suitable for R290 compressors
- Universal mains power supply
- Connectivity to residential supervisory systems or Cloud
- Several display colour options: amber, blue, green, red or white



Functions

		-A001WR	-B001WR	-A101WT
Output OUT5	-A For ECM fans	•		•
	-B For VCC		•	
RTC	0 Fitted	•	•	
	1 None			•
Inputs/Outputs	01 Standard version: 6 inputs, 4 outputs	•	•	•
Power Switch	W 100...240Vac	•	•	•
Serial communication	R RS485	•	•	
	T TTL			•
	F WiFi (external module)			
Aesthetical options and F/W	- None			

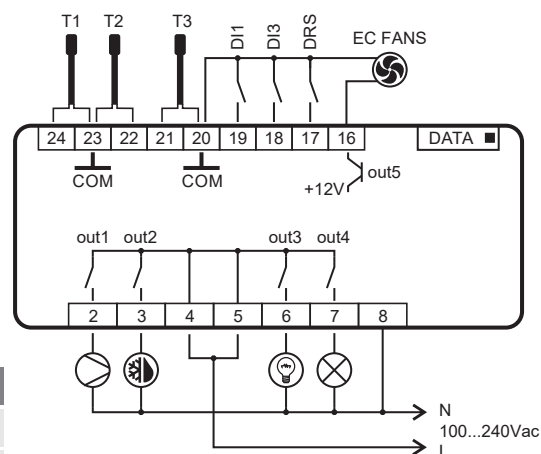
➤ All models are fitted with buzzer.

Technical Data

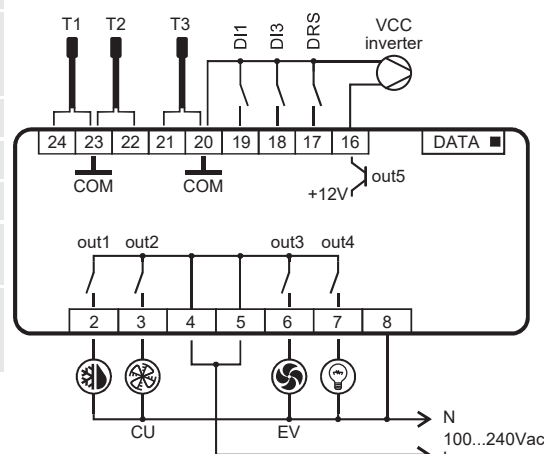
Range	-50÷110°C, -58÷180°F
Resolution	0.1 / 1°C; °F
Precision	<±0.5°C within the measurement range
Sensor type	NTC 10KΩ@25°C

Relay output max loads (240Vac):

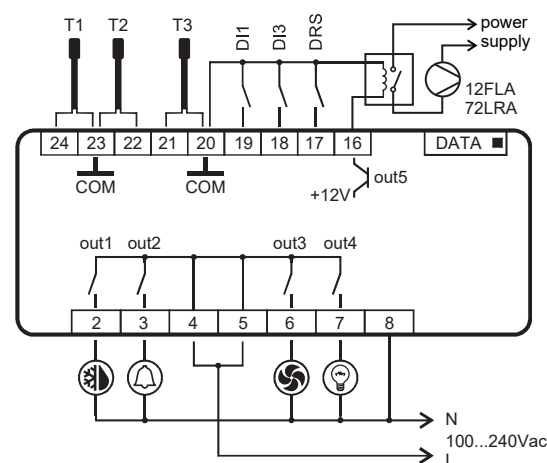
OUT1	12A resistive 3.5 FLA; 21 LRA
OUT2	7A resistive 1 FLA; 4 LRA
OUT3	7A resistive 1 FLA; 4 LRA
OUT4	7A resistive 1 FLA; 4 LRA
OUT5	SELV 90mA@12Vdc
Power supply	100÷240Vac ±10% 50÷60Hz 3W
Ambient temperature	-10÷50°C
Real Time Clock battery	>10 years



EXAMPLE 1



EXAMPLE 2



EXAMPLE 3

CD5- ADAPTABLE TOUCH PAD CONTROLLER

Main Features

- Up to four powerful outputs, all configurable for a perfect adaptation to the specific requirements, such as: direct control of a highly rated compressor, LED light control, ECM ON/OFF fan control, regulation of heaters for heating/catering equipment, control of switched loads, defrost, alarms.
- Suitable for R290 natural refrigerant gas.
- Immediate configuration of the specific control mode (HT, LT, heating etc.).
- Excellent measurement accuracy $\pm 0.1^{\circ}\text{C}$.
- Universal power supply.
- TTL or RS485 serial port; IoT connectivity option via an external LAE Gateway.
- Selectable ASCII/RTU communication protocol.
- Several display colour options: blue, white, red.



Functions			-01WHRB	-01WHRW	-02WHTB
Inputs/Outputs	01	Standard 4 inputs, 4 outputs	•	•	
	02	4 inputs, 3 outputs			•
Power Supply	W	100...240Vac	•	•	•
	N	Standard			
Relays	H	For inflammable gas	•	•	•
	R	RS485	•	•	
Serial port	T	TTL			•
	N	None			
	B	Blue	•		•
Display	R	Red			
	W	White		•	
Aesthetical options and F/W	-	None			
	-xxx	Extras			

Applications

Fridges and freezers, cold stores, control panels, food warmers, bain-maries.

› Standard Model: **CD5-01WHRB**

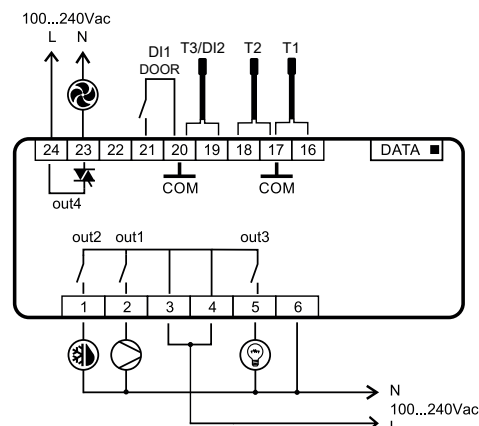
› All versions are fitted with alarm buzzer

Technical Data

Range	$-50 \div 110^{\circ}\text{C}$, $-58 \div 180^{\circ}\text{F}$		
Resolution	0.1 / 1 $^{\circ}\text{C}$; $^{\circ}\text{F}$		
Precision	$\pm 0.1^{\circ}\text{C}$ within the measurement range		
Sensor Type	NTC10KQ@25 $^{\circ}\text{C}$		

Maximum loads of outputs:


OUT1	15 FLA; 90 LRA; 15A resistive		
OUT2	10A resistive @ 120Vac; 7A resistive @ 240Vac		
OUT3	10A resistive @ 120Vac; 7A resistive @ 240Vac		
OUT4	SSR 1A (30A inrush)		
Power Supply	100÷240Vac	$\pm 10\%$	50÷60Hz 3W
Ambiente Temperature	$-10 \div 50^{\circ}\text{C}$		



BIT25- SPLIT HT/LT REFRIGERATION CONTROLLER



MAIN FEATURES

- Three highly rated relay outputs
- Configurable control of Aux 1 and Aux 2 outputs
- Alternate set of parameters for energy saving
- Management of multiple alarms
- Option of setpoint adjustment via a potentiometer
- Standby button (On/Off)
- Option of universal power supply 
- Connection to LAE supervisory systems

Applications

Upright refrigerators, bottle coolers, plug-in display cases for shops and supermarkets, cold stores, control panels.

TECHNICAL DATA: LCD-5S DISPLAY UNIT

Dimensions : 77x35x20 mm (WxHxD) Panel cut-out: 71x29mm
Front protection: IP55

TECHNICAL DATA

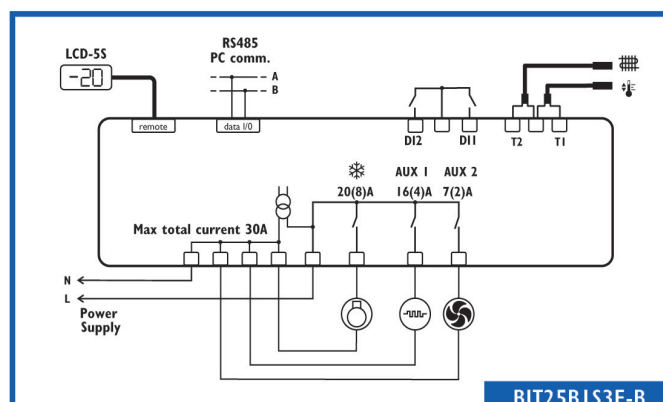
Range: -50...110°C, -58...180°F
Resolution: 0.1/1 °C, °F
Precision: $\leq \pm 0.5^\circ\text{C}$ within the measurement range
Sensor type: NTC10K
Power supply: 115Vac, 230Vac or universal 115..230Vac $\pm 10\%$ 50÷60Hz 3W

BIT25 series

	Functions	A0S2E-A	B1S3E-B
Temperature inputs	Thermostat	✓	✓
	Evaporator		✓
Digital inputs	DI1 digital input	✓	✓
	DI2 digital input		✓
Outputs	Thermostat	✓	✓
	Auxiliary 1	✓	✓
	Auxiliary 2		✓
Power supply	230Vac	✓	✓
Serial port	TTL	✓	
	RS485		✓

All models come with an alarm buzzer.

In order to know more options available for the models, please consult LAE or our local dealer.



BD1-28 SPLIT COMPREHENSIVE REFRIGERATION CONTROLLER



MAIN FEATURES

- Refrigeration controller with cyclic defrosts
- Enhanced ECO Energy Saving management
- Synchronised defrosts among more controllers
- Optional control of a second compressor or evaporator
- Up to 2 auxiliary outputs (Light, switched loads etc.)
- Excellent evaporator fan control
- Universal mains power supply
- Optional power supply for refrigerated transports
- Several alarm sources: temperature, door, condenser temperature etc.
- Quick programming through ZOT-BD I
- Connection to LAE supervisory systems, including option
- Many display options: coloured LED's with DU5S or contrast LCD, fully customised

BD1-28 series

	Functions	B003W-A	C1S4L-C	C1S5W-B
Temperature inputs	Thermostat	✓	✓	✓
	Evaporator	✓	✓	✓
	Auxiliary	✓	✓	✓
DI1, DI2 digital inputs	Voltage free contact	✓		
DI3 aux. digital input	Voltage free contact/defrost synchronization		✓	✓
Outputs	Thermostat	✓	✓	✓
	Evaporator fans	✓	✓	✓
	Defrost	✓	✓	✓
	Auxiliary 1		✓	✓
	Auxiliary 2			✓
Connections	Quick with M/F connectors	✓		
	Screw terminals		✓	✓
Power supply	100÷240Vac	✓		✓
	7÷30Vdc		✓	
Aux functions	TTL serial port	✓		
	RS485 serial port			✓
	RF module		✓	

All models come with an alarm buzzer.

In order to know more options available for the models, please consult LAE or our local dealer.

Applications

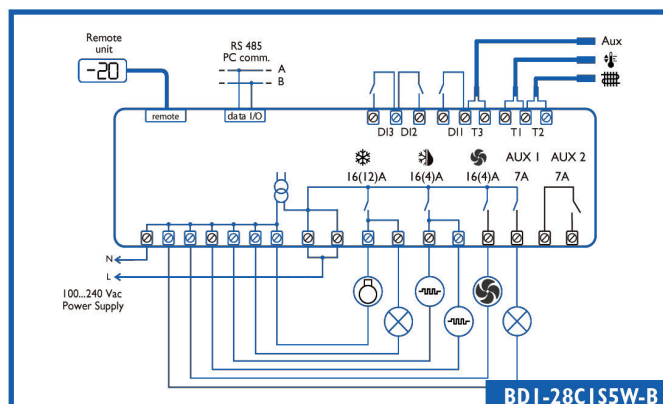
Upright refrigerators, plug-in and supermarket display cases, cold stores, control panels.

TECHNICAL DATA DU4S: RED LED DISPLAY UNIT

Dimensions : 77x35x20 mm (WxHxD) Panel cut-out: 71x29mm
Front protection: IP55

TECHNICAL DATA

Range: -50÷110°C, -58...180°F
Resolution: 0.1/1 °C; °F
Precision: <±0.5°C within the measurement range
Sensor type: NTC 10KΩ@25°C
Power supply: 100÷240Vac ±10% 50÷60Hz 3W



HUMIDITY PRESSURE TRANSMITTERS

HUMIDITY

HUMIDITY TRANSMITTERS

TYPE HT2WAD

SENSOR TYPE Capacitive

OUTPUT SIGNAL $0 \div 1\text{Vdc}$

RANGE $0\% \div 100\%r.H$

ACCURACY $\pm 5\%r.H.$ ($25\% \div 75\%r.H.$)

SHEATH $\varnothing 14 \times 40\text{mm}$

PROTECTION IP65 (electronics)

OPERATING TEMPERATURE $0 \div 75^\circ\text{C}$ (sensor) / $0 \div 50^\circ\text{C}$ (electronics)

DIMENSIONS OF THE ENCLOSURE $110 \times 53 \times 75\text{mm}$ (electronics)

POWER SUPPLY 12Vdc , 0.2W



HUMIDITY AND TEMPERATURE TRANSMITTER

TYPE HT2WSE

SENSOR TYPE Capacitive

OUTPUT SIGNAL RS485

RANGE $0\% \div 100\%r.H$ / $0 \div 70^\circ\text{C}$

ACCURACY $\pm 5\%r.H.$ ($25\% \div 75\%r.H.$) / $\pm 0.3^\circ\text{C}$ @ 25°C ; $\pm 1^\circ\text{C}$ ($0 \div 70^\circ\text{C}$)

SHEATH $\varnothing 14 \times 40\text{mm}$

PROTECTION IP65 (electronics)

OPERATING TEMPERATURE $0 \div 75^\circ\text{C}$ (sensor) / $0 \div 50^\circ\text{C}$ (electronics)

DIMENSIONS OF THE ENCLOSURE $110 \times 53 \times 75\text{mm}$ (electronics)

POWER SUPPLY 12Vdc , 0.2W

PRESSURE

PRESSURE TRANSMITTERS

TYPE PGT35

SENSOR TYPE Piezoresistive gauge

OUTPUT SIGNAL $4 \div 20\text{mA}$

RANGE $-0.5 \div 35.0\text{ bar}$

ACCURACY $\max \pm 1\%FS$ ($0 \div 50^\circ\text{C}$)

SHEATH $\varnothing 17 \times 58\text{ mm}$

CONNECTIONS mPm connector

PRESSURE PORT $7/16''-20\text{UNF}$ male, steel AISI 316L

PROTECTION IP65

AMBIENT TEMPERATURE $-40 \div 100^\circ\text{C}$

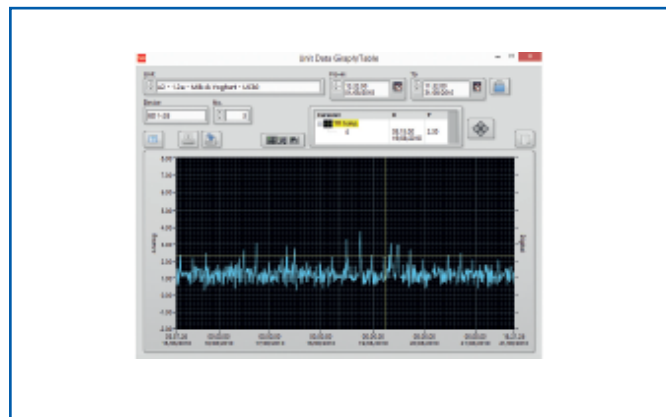
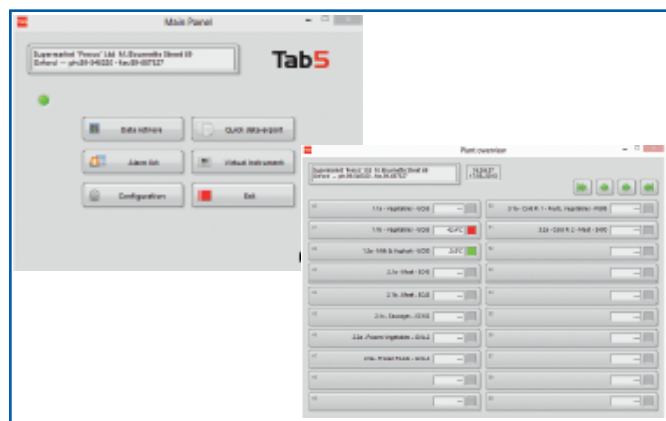
POWER SUPPLY $8 \div 32\text{Vdc}$



TAB5.0 SOFTWARE

MONITORING, LOGGING AND PROGRAMMING SOFTWARE

- Overall plant monitoring
- Storage of temperature, humidity, pressure, alarms
- Display and printing in numerical and graphic form of stored data
- Export of stored data for Excel* or others
- Diagnostics with dynamic graphs of all analog and digital inputs
- Virtual instrument for analysing the system and setting regulator parameters
- Direct sending of emails relating to the alarm state
- Connection to remote PC for tele-servicing via Internet
- Several languages available: English, German, Italian, Spanish, Polish etc



AVAILABLE OPTIONS

Available as full service option described above, or in a 'low cost' version for data logging only. This Version is called TAB LV.

SYSTEM REQUIREMENTS

- Computer with Windows 7/8/10 operating system installed and properly running, minimum processor and memory as required from Windows* version – USB port – Mouse
- 1024x768 pixel screen resolution
- 10GB available on Hard Disk
- RS232 serial port (COM); an additional port is required if a GSM modem is fitted
- USB to RS-485 converter mod. USB485-STIXL.
- Up to 200 controllers connectable. Every 62 Controllers, you must add a repeater ATC-109N

Temperature controller for cold rooms

FOR POSITIVE OR NEGATIVE COLD ROOMS

AKOCORE is the new family of AKO controllers for cold rooms, with new advanced functions and a totally innovative design.

Quick installation, with a two step start up wizard.

Wall mount with IP65 protection. Audible and visual alarms.



Versions	Models	Relay outputs							Other Functions		
		Power supply	Solenoid	Defrost (20A)	Fan (16A)	Auxiliary 1	Crankcase Resistors	Auxiliary 2 (16A)	Defrost 2nd Evaporator	Defrost 400V / III	CAMM module
4 RELAY TEMPERATURE CONTROLLER	AKO-16523	230V	1A	3000 W	12A (9A)	15A (15A)	150W				Optional
	AKO-16520	120V	1A	3000 W	12A (9A)	15A (15A)	150W				
5 RELAY TEMPERATURE CONTROLLER WITH ELECTRICAL PROTECTION	AKO-16523P	230V	1A	3000 W	12A (9A)	15A (15A)	150W	12A (9A)	■		
	AKO-16520P	120V	1A	3000 W	12A (9A)	15A (15A)	150W	12A (9A)	■		
5 RELAY TEMPERATURE CONTROLLER AND III+N POWER CONTACTOR	AKO-16523D	230V	1A	10,000W	12A (9A)	15A (15A)	150W	12A (9A)	■	■	

Inputs		
ANALOGUE INPUTS	AI1	Room store temperature
	AI2	Evaporator temperature
	AI3/DI2	Log temperature **
2 DIGITAL INPUTS	DI1 and DI2/A3	Door contact External alarm Severe external alarm SP switching Remote defrost Defrost lockout Pressure switch low

Outputs		
RELAYS	COOL - 16A	Solenoid
	DEFROST - 20A	Electrical Resistance
	FAN EVAP - 16A	Evaporator Fans
	AUX1 - 20A	Crankcase Resistor or Compressor
		Light
	AUX2* - 16A	Alarm
		Light
		2nd evaporator
		Door frame resistance

* Available for models ending in the letters P and D.

** According to EN-12830 Regulation.

Trapped Person Alarm

- IP65 protection for the station and push-button to withstand hostile environments and extreme working conditions.
- The push-button can withstand temperatures up to -50°C, ensuring proper operation in deep-frozen cold rooms
- 10-hour battery backup with autonomous operation with the device in alarm status
- Efficient acoustic and visual alarm with sound power of 90dB



Models	Versions	
AKO-55123B	TRAPPED PERSON ALARM 1 FOCUS POINT *	230Vac
AKO-55424B	TRAPPED PERSON ALARM 4 FOCUS POINTS **	90-240Vac
AKO-55326	TRAPPED PERSON PUSH-BUTTON -50°C	12Vdc
AKO-58120	TRAPPED PERSON PUSH-BUTTON PROTECTOR	-

(*) Includes one Trapped Person Push-Button AKO-55326

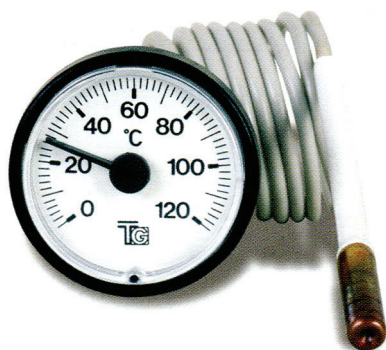
(**) Includes two Trapped Person Push-Buttons AKO-55326

Power supply	100-240 V~ 50/60 Hz
Maximum input power	15 W
Accumulators	Ni-MH 1.6 Ah
Lighting + alarm autonomy	> 10 Hours (*)
No. of inputs.....	4
Compatibility of inputs.....	AKO-55326 push-button
Relays.....	SPDT 8(2)A 250 V~
Working ambient temperature	-5 °C to 50 °C
Storage ambient temperature	-30 °C to 60 °C
Protection degree	IP 65
Installation category	II s/ EN 61010-1
Pollution degree	II s/ EN 61010-1
Double isolation between power supply , secondary circuit and relay output.	
Sound power	90 dB(A) at 1 metre
MODBUS address	Shown on label
Maximum push-button cable distance	300 m
Dimensions	290 mm (W) x 141 mm (H) x 84.4 mm (D)













CAPILLARY THERMOMETERS

- Sturdiness and reading immediacy are the basic features of the wide range of instruments that satisfies any application requirements in the fields of heating, cooling and household appliances, where remote temperature and pressure metering is required.
- Sensing element: Bourdon spiral (thermometers) - Bourdon arch (pressure gauges).
- Available capillary length: 500 ÷ 3000 mm.
- Fastening by self-locking gills.
- Functional and artwork custom solutions are available.

ROUND THERMOMETER






















- Fixing bracket available on request (only for models 110).
- Functional and artwork custom solutions are available.

DIAL			INSCRIPTION		FRAME	TEMP. RANGE	BULB		CAPILLARY		FLUSH WALL DIMENSION	CODE		
shape	dimension (mm)	color	font	color	color	[°C]	dimension (mm)	material	length (mm)	material	(mm)			
○	Ø 42	□	DIN			-40 ÷ 40	Ø 8,5 x 30	Cu	1500	Cu + PVC	Ø 37	113-00336-00A		
○						0 ÷ 120	Ø 6,5 x 30					113-10135-00A		
○	Ø 43					0 ÷ 120	Ø 6,5 x 30				Ø 40	115-10135-00A		
○				Ø 57			-40 ÷ 40					Ø 8,5 x 30	Ø 52	110-00336-00A
○							0 ÷ 120					Ø 6,5 x 30		110-10135-00A
○						50 ÷ 350	Ø 3 x 80	Stainless steel		Stainless steel	110-40135-00A			

DRUM THERMOMETER



- Functional and artwork custom solutions are available.

DIAL			INSCRIPTION		FRAME	TEMP. RANGE	BULB		CAPILLARY		FLUSH WALL DIMENSION	CODE
shape	dimension (mm)	color	font	color	color	[°C]	dimension (mm)	material	length (mm)	material	(mm)	
	14 x 68		DIN			-40 ÷ 40	Ø 8,5 x 30	Cu	1500	Cu + PVC	11 x 62	171-05336-00A
						0 ÷ 120	Ø 6,5 x 30					171-10135-00A
	14 x 70					-40 ÷ 40	Ø 8,5 x 30					181-05336-00A
						0 ÷ 120	Ø 6,5 x 30					181-10135-00A
	31 x 64					-40 ÷ 40	Ø 8,5 x 30				25 x 58	150-05336-00A
						0 ÷ 120	Ø 6,5 x 30					150-10135-00A

DIGITAL THERMOMETERS

DIGITAL THERMOMETER

DIGITAL THERMOMETER



HAND HELD THERMOMETER

305

- -58/1300°C and -58/2000°F Selectable.
- Reading Hold and Maximum Record Function. K-Type
- Thermocouple Input
- 0.1°C/0.1°F Resolution
- Single Input and Supply with 1 Pcs 4 Feet Probe

307

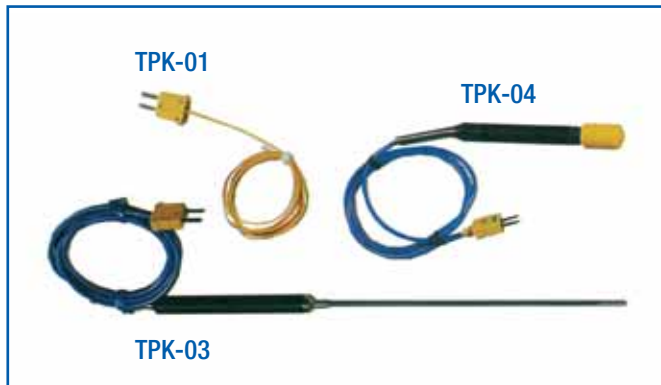
- -58/1300°C and -58/2000°F Selectable.
- Reading Hold and Maximum Record Function. K-Type
- Thermocouple Input
- 0.1°C/0.1°F Resolution
- Dual Input with Differential Temperature
- (T1 – T2) and Supply. With 2 Pcs 4 Feet Probe



NON-CONACT LASER INFRARED THERMOMETER

400L

- CE Approval
- °F / °C Selectable
- Built-in Laser Pointer to Improve Aim
- Narrow Field of View (At 12° Distance Measure 1° Target)
- Resolution 0.1°F / 0.1°C
- Dimensions 175 x 39 x 72 mm, Weight: 179 Grams
- Fixed Emissivity 0.95
- Distance Spot = 12.1
- Temp. Range -60~500°C (-76~932°F)
- Operating Range 0~50°C (32 ~ 122°F)
- Accuracy +/-1.0°C (+/-1.8°F)
- Auto-Hold and Power-Off Function
- Back Light
- Battery Life Typical 18 Hours Continuous Use



TYPE K THERMOCOUPLE PROBES

TPK-01 BEAD PROBE

Measures surface or Air Temperature to 200°C (392°F) 4Ft. long wire has an Industry Standard Miniature Connector Plug.

TPK-03 IMMERSION PROBE

General Purpose Needle Type with Stainless Sheath use for measurements up to 800°C (1472°F).

TPK-04 SURFACE PROBE

Miniature, Fast Response Probe, with 800°C (1472°F) Max. Surface Temperature. Ideal for measuring the Surface Temperature of small electronic parts.



HAND HELD DIGITAL THERMOMETER

RT-905A

- CE Approval
- -50/200°C & -58/392°F Switchable
- Max/Min Temperature Memory
- Data Hold Function
- High/Low Temperature Alarm Setting
- Key Tone for Operation Confirmation
- Foldaway Stand
- Stainless Steel Probe 3.5mm x 125mm with 1m Long Wire

APPLICATIONS

Food Processing, Laboratory Pharmaceutical, Agriculture, Other Purposes.

CONTACTORS

THREE POLE CONTACTORS

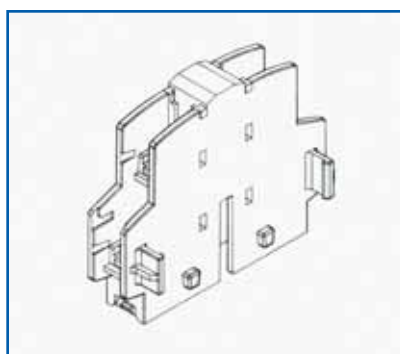
“SMC” – SERIES 9A TO 105A (AC3)



CATALOGUE NAME	INSTANTANEOUS AUXILIARY CONTACTS		RATED INSULATION VOLTAGE	ACI DUTY 0≥40°C	IE	AC3 3 PHASE				AC3 1 PHASE		WEIGHT KG		APPROVAL
						220V	380V	440V	575V	120V	230V			
	N / O	N / C	UI	ITH		KW HP	KW HP	KW HP	KW HP	KW HP	KW HP			
SMC-09	1	1	1000V	20A	9A	2.2 3	3.7 5	3.7 5	3.7 5	0.37 0.5	1.5 2	0.36		CE
SMC-12	1	1	1000V	25A	12A	3 4	5.5 7.5	5.5 7.5	5.5 7.5	0.55 0.75	1.5 2	0.36		CE
SMC-18	1	1	1000V	32A	15A	3.7 5	7.5 10	7.5 10	7.5 10	0.75 1	2.2 3	0.37		CE
SMC-22	1	1	1000V	40A	22A	5.5 7.5	11 15	11 15	11 15	1.5 2	3.7 5	0.37		CE
SMC-32	2	2	1000V	50A	32A	7.5 10	15 20	15 20	15 20	2.2 3	4 5.5	0.48		CE
SMC-40	2	2	1000V	60A	42A	11 15	19 25	19 25	19 25	3 4	5.5 7.5	0.48		CE
SMC-50	2	2	1000V	80A	55A	15 20	30 40	30 40	30 40			1.3		CE
SMC-65	2	2	1000V	100A	65A	19 25	33 45	33 45	33 45			1.3		CE
SMC-80	2	2	1000V	110A	80A	22 30	37 50	37 50	37 50			1.3		CE
SMC-85	2	2	1000V	135A	105A	25 35	45 60	55 75	55 75			1.3		CE

NOTE SMC-32 ~ SMC85 includes of 2PCS SMC-D11

AUXILIARY CONTACTS BLOCKS / SMC-D11



CATALOG NAME	APPLICABLE CONTACTORS	AUXILIARY N/O	CONTACTS N/C	INSULATION VOLTAGE	THERMAL CURRENT	WEIGHT KG	APPROVAL
SMC-D11	SMC-09 TO SMC-85	1	1	660V	10A	0.034	CE

NOTE

SMC-09~SMC-22 includes 1PCS SMC-D11 only

10A MAX and 600VAC

UI 600V

ITH 10A

CONTACTORS

THREE POLE CONTACTORS

"C" – SERIES 9A TO 100A (AC3)

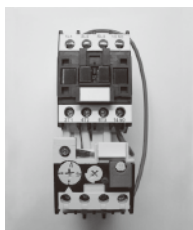


CATALOGUE NAME	INSTANTANEOUS AUXILIARY CONTACTS		RATED INSULATION VOLTAGE	ACI DUTY 0≥40°C	IE	AC3 3 PHASE				AC3 1 PHASE		WEIGHT KG		APPROVAL
	N / O	N / C				220V	380V	440V	575V	120V	230V			
C-06D10 C-06D01	1 -	- 1	1000V	16A	9A	2.2 3	3.7 5	3.7 5	3.7 5	0.2 1/3	1.1 1.5	0.177		CE
C-09D10 C-09D01	1 -	- 1	1000V	20A	9A	2.2 3	5.5 7.5	5.5 7.5	5.5 7.5	0.37 0.5	1.5 2	0.350		SP CE UL
C-11D10 C-11D01	1 -	- 1	1000V	25A	12A	3 4	5.5 7.5	5.5 7.5	5.5 7.5	0.55 0.75	1.5 2	0.350		SP CE UL
C-12D10 C-12D01	1 -	- 1	1000V	25A	16A	4 5.5	7.5 10	7.5 10	7.5 10	0.75 1	2.2 3	0.350		SP CE UL
C-18D10 C-18D01	1 -	- 1	1000V	32A	22A	5.5 7.5	11 15	11 15	11 15	1.5 2	3.7 5	0.350		SP CE
C-25D10 C-25D01	1 -	- 1	1000V	40A	32A	7.5 10	15 20	15 20	15 20	2.2 3	4 5.5	0.525		SP CE
C-35D10 C-35D01	1 -	- 1	1000V	50A	42A	11 15	19 25	19 25	19 25	3 4	5.5 7.5	0.550		SP CE
C-45D11	1	1	1000V	60A	55A	15 20	30 40	30 40	30 40			1.100		CE
C-44D11	1	1	1000V	80A	65A	19 25	33 45	33 45	33 45			1.100		CE
C-65D11	1	1	1000V	90A	80A	22 30	37 50	37 50	37 50			1.100		CE
C-80D11	1	1	1000V	125A	105A	25 35	45 60	55 75	55 75			1.100		CE
C-100D11	1	1	1000V	130A	110A	30 40	55 75	55 75	60 80			1.430		CE

NOTE SMC-32 ~ SMC85 includes of 2PCS SMC-D11

CONTACTORS

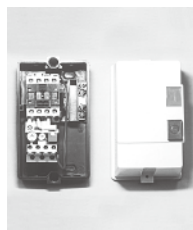
ENCLOSURES OF MAGNETIC STARTERS – MS1 IP65



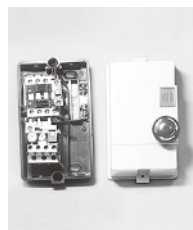
MSO-09D



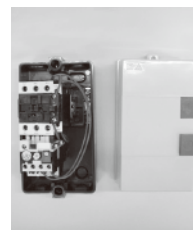
MS-12D



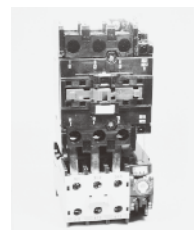
MS1-18D



MS1-25D-R



MS1-35D



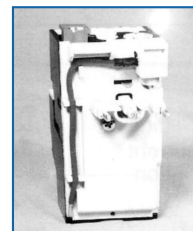
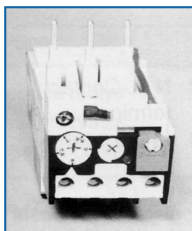
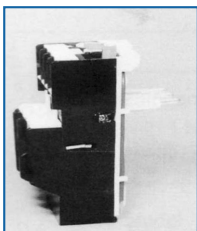
MSO-45D

Non-reversing starters - enclosed and open type

Model Name	3-phase				1-phase		Overload Relay Type	Instantaneous Auxiliary Contacts		Weight Kg	Approval
	220V	380V	440V	575V	120V	230V		N/O	N/C		
Open type Non-push button Starters	KW HP A	KW HP A	KW HP A	KW HP A	KW HP A	KW HP A					
MSO-06D	2.2 3 9	3.7 5 9	3.7 5 8	3.7 5 6.5	0.2 0.33 7.2	1.1 1.5 10	MTH	1	-	0.285	CE
MSO-09D	2.2	3.7	3.7	3.7	0.37	1.5	TH12/20,NTH			0.485	
MS-09D	3	5	5	5	0.75	2	NTH	1	-	0.866	CE
MS1-09D	9	9	8	6.5	13.8	12	NTH			0.940	
MSO-11D	3	5.5	5.5	5.5	0.55	1.5	TH12/20,NTH			0.485	
MS-11D	4	7.5	7.5	7.5	0.75	2	NTH	1	-	0.866	CE
MS1-11D	12	12	11	9	13.8	12	NTH			0.940	
MSO-12D	4	7.5	7.5	7.5	0.75	2.2	TH12/20,NTH			0.485	
MS-12D	5.5	10	10	10	1	3	NTH	1	-	0.866	CE
MS1-12D	16	16	15	13	16	17	NTH			0.940	
MSO-18D	5.5	11	11	11	1.5	3.7	TH20,NTH			0.515	
MS-18D	7.5	15	15	15	2	5	NTH	1	-	0.915	CE
MS1-18D	23	22	21	16	24	28	NTH			0.969	
MSO-25D	7.5	15	15	15	2.2	4	TH20,NTH			0.673	
MS-25D	10	20	20	20	3	5.5	NTH	1	-	1.435	CE
MS1-25D	30	30	30	25	34	33	NTH			1.450	
MSO-35D	11	19	19	19	3	5.5	TH20,NTH			0.690	
MS-35D	15	25	25	25	4	7.5	NTH	1	-	1.460	CE
MS1-35D	42	39	36	29	45	40	NTH			1.475	
MSO-45D	15 20 55	30 40 64	30 40 52	30 40 46			NTH			1.700	
								1	1		CE
MSO-55D	19 25 65	33 45 68	33 45 57	33 45 50			NTH			1.700	
								1	1		CE
MSO-65D	22 30 75	37 50 72	37 50 64	37 50 53			NTH			1.700	
								1	1		CE
MSO-80D	25 35 90	45 60 85	55 75 95	55 75 72			NTH			1.900	
								1	1		CE
MSO-100D	30 40 105	55 75 105	55 75 95	60 80 76			NT H			1.900	
								1	1		CE

THERMAL OVERLOAD RELAYS

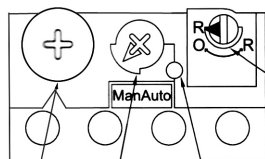
"NTH"-Series 0.35A to 44A



THERMAL OVERLOAD RELAYS

Compensated and differential overload relays
with 1 N/O + 1 N/C electrically separated auxiliary contacts
for direct connection with "C and SMC" - series contactors

Model Name	Relay Setting Range RC (FLC) A	Contactor Type	Weight Kg	Approval	Motor Capacity (HP)				
					1 phase		3 phase		
					100-110V	200-220V	200-220V	380-440V	500-550V
NTH-0.5	0.35 - 0.5A	C-09D,SMC-09	0.14					0.125	
NTH-0.75	0.5 - 0.75A	C-09D,SMC-09	0.14	CE ULS				0.125	0.25
NTH-1.05	0.75 - 1.05A	C-09D,SMC-09	0.14	CE ULS					0.5
NTH-1.45	1.05 - 1.45A	C-09D,SMC-09	0.14	CE ULS				0.25	0.5
NTH-1.9	1.4 - 1.9A	C-09D,SMC-09	0.14	CE ULS				0.75	
NTH-2.5	1.8 - 2.5A	C-09D,SMC-09	0.14	CE ULS				0.5	1
NTH-3	2.4 - 3A	C-09D,SMC-09	0.14	CE ULS				1.5	2
NTH-4	2.9 - 4A	C-09D,SMC-09	0.14	CE ULS	1/8	0.5	1	2	
NTH-5	3.8 - 5A	C-09D,SMC-09	0.14	CE ULS	1/4	0.75		3	3
NTH-6.5	4.5 - 6.5A	C-09D,SMC-09	0.14	CE ULS	1/2	0.75	1.5		5
NTH-8	6 - 8A	C-09D,SMC-09	0.14	CE ULS	1/2		2	5	
NTH-11	8 - 11A	C-09D,SMC-09	0.14	CE ULS		1.5	3		5
NTH-14	11 - 14A	C-12D,SMC-12	0.14	CE ULS	0.75	2	4	7.5	10
NTH-15	10 - 15A	C-12D,SMC-18	0.14	CE ULS	0.75	2	4	7.5	10
NTH-17	14 - 17A	C-12D,SMC-18	0.14	CE ULS	1	2	5	10	15
NTH-21	17 - 21A	C-18D,SMC-22	0.15	CE ULS	1.5	3		15	20
NTH-25	21 - 25A	C-18D,SMC-32	0.15	CE ULS	2	4	7.5		20
NTH-28	24 - 28A	C-25D,SMC-32	0.15	CE ULS				20	
NTH-32	26 - 32A	C-25D,SMC-32	0.15	CE ULS		5	10		25
NTH-38	30 - 38A	C-35D,SMC-40	0.18	CE				25	30
NTH-44	36 - 44A	C-35D,SMC-40	0.18	CE		7.5	15	30	40



Setting current button
Setting lever
Man & Auto indication button
Switching position button

Button for reset and disconnection -setting: O/R or R;
O/R=reset and disconnection
R=reset only

Knob for changing to "reset". Function depends on the position of the reset button.

1. MAN-position

A. MAN-position and reset button on position R.

The blue reset button is for manual reset only. Accidental pushing of the reset button of the untripped relay does not result in any contact function.

B. MAN-position and reset button on position O/R.

The blue reset button is for manual reset and it can be used as a STOP-button as well. Contact 95-96 open while pressing the reset button.

2. AUTO-position

A. AUTO-position and reset button on position R.

The tripped relay will automatically reset itself after approx. 1 min.

B. AUTO-position and reset button on position O/R.

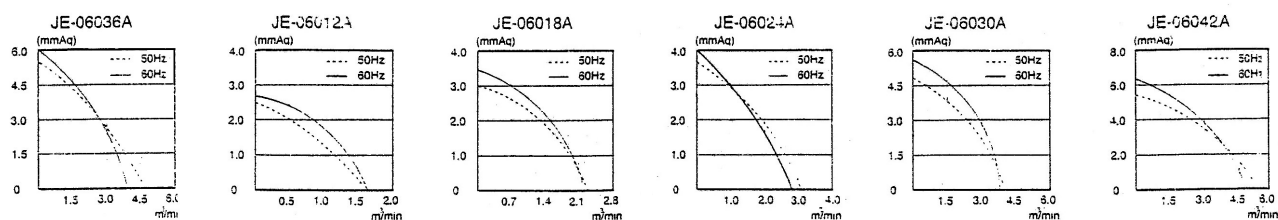
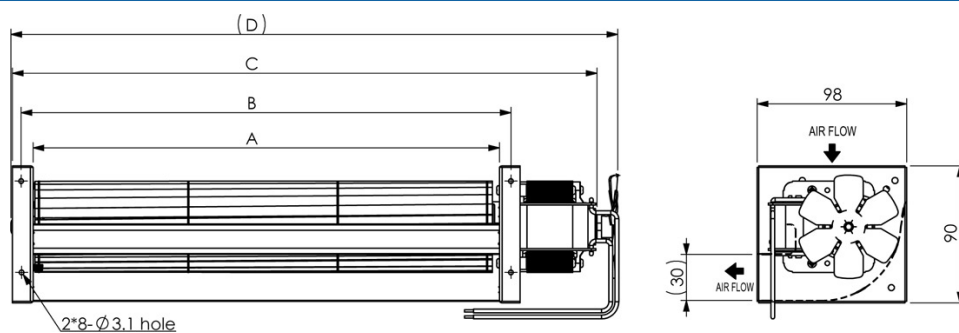
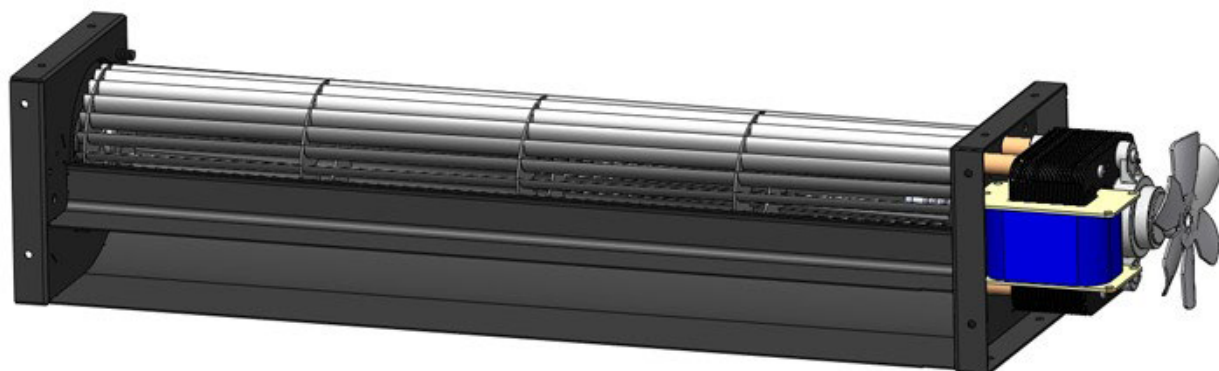
The tripped relay will automatically reset itself after approx. 1 min.

The blue reset button is used only as a STOP-button. Contact 95-96 open while the reset button is pressed.

Note : Select and set the overload relay according to the current value on the motor rating plate. Direct mounting on the underside of the contactors. Terminals protected against direct finger contact and fitted with ready to tighten screws. Lockable and sealable Man/Auto switch. Trip Test. Cover locks the function.

CROSS FLOW FANS

MODEL-JE-060A SERIES AC CROSS FLOW FAN

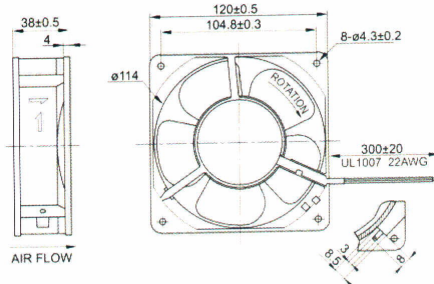
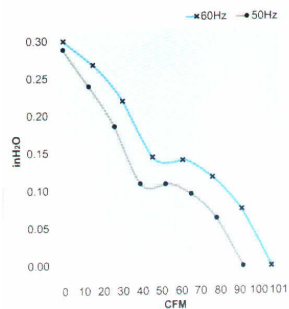


Performance

Specs.	SIZE(mm)			Rated Voltage V	Rated Frequency Hz	Rated Current A	Input Power W	Speed Rpm	Static Pressure mmAq	Maximum Air Flow m³/min	Noise dB	Weight g
Model	A	B	C									
JE-06012A12	123	138	191	120	60	0.23	18	2350	2.7	1.7	43	1030
JE-06012A23	123	138	191	230	50	0.12	18	2350	2.5	1.7	43	
JE-06018A12	184	199	257	120	60	0.31	23	1800	3.4	2.2	41	1250
JE-06018A23	184	199	257	230	50	0.16	23	2000	3.0	2.3	43	
JE-06024A12	245	260	323	120	60	0.43	31	1800	4.0	2.8	39	1470
JE-06024A23	245	260	323	230	50	0.20	29	2200	3.7	3.1	46	
JE-06030A12	306	321	384	120	60	0.58	41	2000	5.6	3.7	44	1520
JE-06030A23	306	321	384	230	50	0.26	35	2100	4.8	4.0	46	
JE-06036A12	368	383	446	120	60	0.58	42	1700	6.0	3.9	40	1620
JE-06036A23	368	383	446	230	50	0.27	38	2000	5.2	4.7	46	
JE-06042A12	429	444	507	120	60	0.58	42	1600	6.5	4.8	40	1670
JE-06042A23	429	444	507	230	50	0.28	38	1850	5.6	5.3	45	

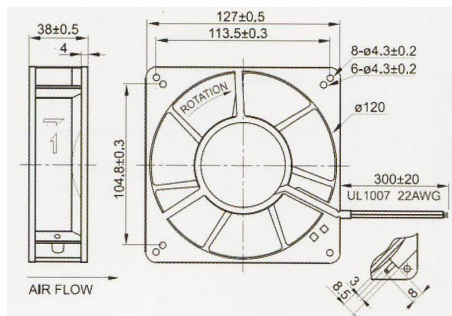
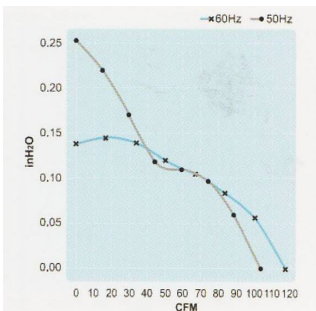
AC AXIAL FANS

S128 SERIES AC-FAN / AC-LÜFTER 120x120x38MM



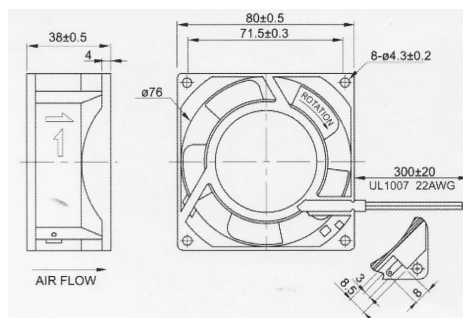
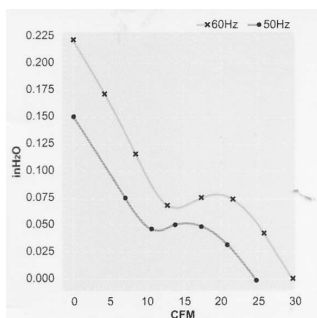
SPECIFICATIONS		RATED VOLTAGE (VAC)	FREQU. (Hz)	INPUT POWER (W)	RATED CURRENT (A)	LOCKED CURRENT (A)	SPEED (RPM)	MAX. AIRFLOW (m³/min.)	MAX. AIRFLOW (CFM)	MAX. PRESSURE (mm H ₂ O)	MAX. PRESSURE (inch H ₂ O)	NOISE	WEIGHT
MODEL	S128-1-HWB	115	50	14	0.20	0.27	2.700	2.60	92.0	8.0	0.32	42	0.53
		115	60	12	0.16	0.23	3.100	3.00	106.0	8.0	0.32	46	0.53
	S128-2-HWB	230	50	17	0.10	0.14	2.700	2.60	92.0	8.0	0.32	42	0.53
		230	60	15	0.08	0.12	3.100	3.00	106.0	8.0	0.32	46	0.53

S127 SERIES AC-FAN / AC-LÜFTER 127x127x38MM



SPECIFICATIONS		RATED VOLTAGE (VAC)	FREQU. (Hz)	INPUT POWER (W)	RATED CURRENT (A)	LOCKED CURRENT (A)	SPEED (RPM)	MAX. AIRFLOW (m³/min.)	MAX. AIRFLOW (CFM)	MAX. PRESSURE (mm H ₂ O)	MAX. PRESSURE (inch H ₂ O)	NOISE	WEIGHT
MODEL	S127-2-HWB	230	50	17	0.10	0.13	2.700	2.90	103.0	7.3	0.29	46	0.55
		230	60	15	0.09	0.11	3.000	3.40	120.0	2.8	0.11	50	0.55

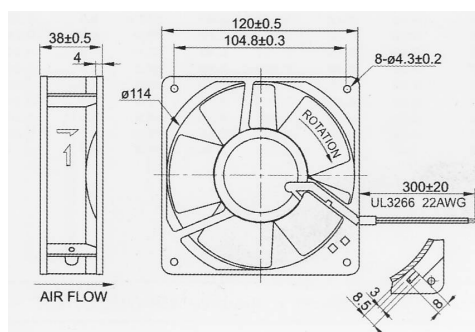
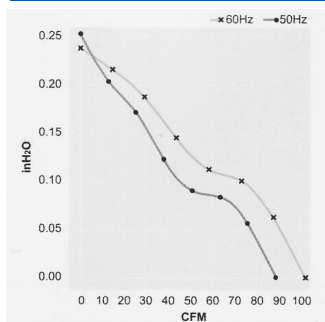
S088 SERIES AC-FAN / AC-LÜFTER 80x80x38MM



SPECIFICATIONS		RATED VOLTAGE (VAC)	FREQU. (Hz)	INPUT POWER (W)	RATED CURRENT (A)	LOCKED CURRENT (A)	SPEED (RPM)	MAX. AIRFLOW (m³/min.)	MAX. AIRFLOW (CFM)	MAX. PRESSURE (mm H ₂ O)	MAX. PRESSURE (inch H ₂ O)	NOISE	WEIGHT
MODEL	S088-2-HWB	230	50	14	0.07	0.08	2.500	0.68	85.0	24.0	0.16	32	0.28
		230	60	12	0.06	0.07	3.000	0.83	99.0	30.0	0.22	36	0.28

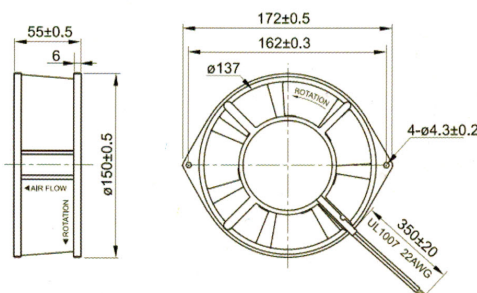
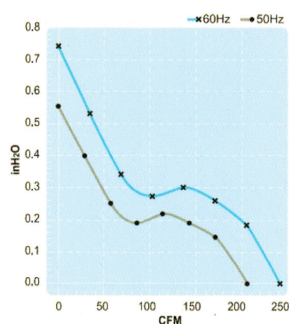
AC AXIAL FANS

MS128 SERIES AC-FAN / AC-LÜFTER 120 120 38MM / METAL-IMPELLER



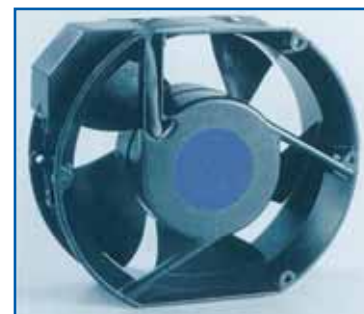
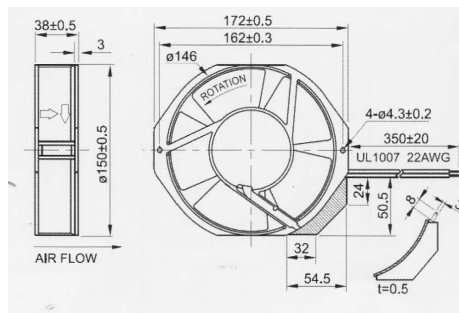
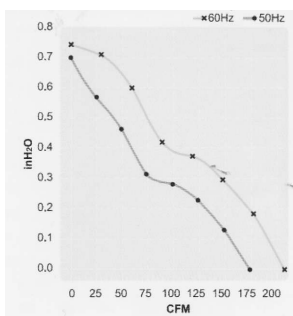
SPECIFICATIONS		RATED VOLTAGE (VAC)	FREQU. (Hz)	INPUT POWER (W)	RATED CURRENT (A)	LOCKED CURRENT (A)	SPEED (RPM)	MAX. AIRFLOW (m³/min.)	MAX. AIRFLOW (CFM)	MAX. PRESSURE (mm H ₂ O)	MAX. PRESSURE (inch H ₂ O)	NOISE	WEIGHT
MODEL	MS128-2WB	230	50	17	0,10	0,13	2.700	2.5	89.0	6.5	0,26	42	0.55
		230	60	15	0,09	0,12	3.10	2.9	103.0	6.0	0,24	46	0.55

S175 SERIES AC-FAN / AC-LÜFTER Ø172 55MM



SPECIFICATIONS		RATED VOLTAGE (VAC)	FREQU. (Hz)	INPUT POWER (W)	RATED CURRENT (A)	LOCKED CURRENT (A)	SPEED (RPM)	MAX. AIRFLOW (m³/min.)	MAX. AIRFLOW (CFM)	MAX. PRESSURE (mm H ₂ O)	MAX. PRESSURE (inch H ₂ O)	NOISE	WEIGHT
MODEL	S175-1-HWB	115	50	26	0,24	0,58	2.850	5,8	205	14,0	0,55	61	1,08
		115	60	30	0,25	0,58	3.400	6,8	241	18,5	0,73	66	1,08
	S175-2-HWB	230	50	26	0,11	0,58	2.850	5,8	205	14,0	0,55	61	1,08
		230	60	31	0,13	0,58	3.400	6,8	241	18,5	0,73	66	1,08

S178 SERIES AC-FAN / AC-LÜFTER Ø172x150x38MM / THERMAL PROTECTION



SPECIFICATIONS		RATED VOLTAGE (VAC)	FREQU. (Hz)	INPUT POWER (W)	RATED CURRENT (A)	LOCKED CURRENT (A)	SPEED (RPM)	MAX. AIRFLOW (m³/min.)	MAX. AIRFLOW (CFM)	MAX. PRESSURE (mm H ₂ O)	MAX. PRESSURE (inch H ₂ O)	NOISE	WEIGHT
MODEL	S178-2-HWB	230	50	27	0,11	0,18	2.850	5,0	117	17,0	0,67	54	0.72
		230	60	26	0,11	0,18	3.400	6,0	212	19,0	0,75	58	0.72

FAN SPEED CONTROLS

ELECTRONIC FAN SPEED CONTROL

ADR 40



ELECTRONIC SPEEDCONTROLLER FOR SINGLE PHASE MOTORS

CURRENT MAX. 4 AMPS

POWEER SUPPLY 230V-1, Ph-50/60 Hz, min. 180V, max. 260V

EU-CONFORMITY CE – SIGN

Electronical Filter according EMV-89/336/EEC and ICE801-2 cl.4

CONNECTIONS:


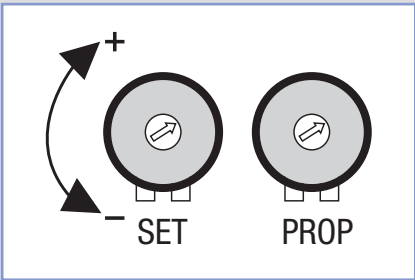
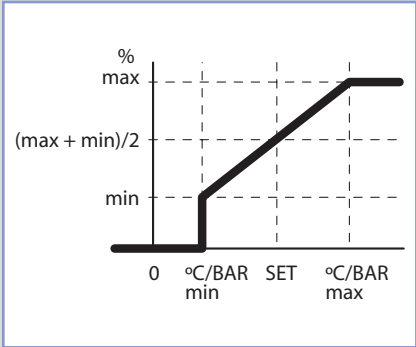

POWER SUPPLY

Removable screw-type connectionsfor max. 2.5mm²

SENSORS

Removable screw-type connections for max. 2.5mm²

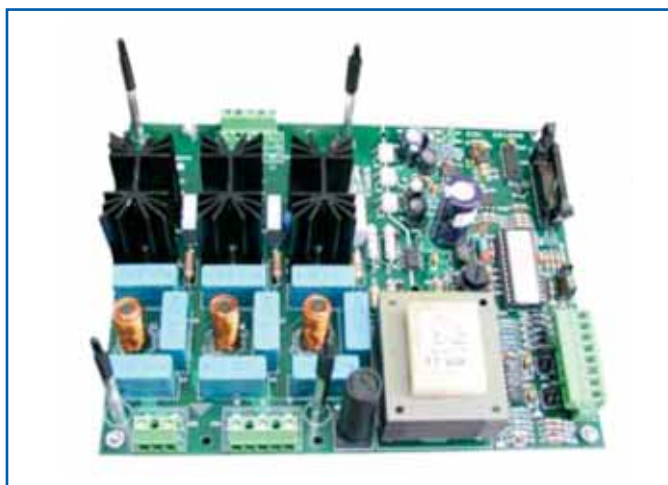
PRODUCT INFORMATION

TECHNICAL DATA	POWER SUPPLY	APPLICATION
<p>AMBIENT TEMPERATURES Temperatures -20°C ./ . +55°C Humidity <90% r.H. not condensing</p> <p>ANALOGUE – INPUT 1 x Presssure Transducer 4 – 20mA 1 x Temperature Sensor NTC (10 kOhm) Max. Starting Current 2 x Nominal Current for max. 10 sec</p> <p>ADR 40 – BOARD TO BE INSTALLED IN CABINETS IP 24 Dimensions W x H x D : 90 x 85 x 40 mm</p> <p>ADR 40 DP – IN ALU DIE CAST BOX, IP 55 Dimensions W x H x D : 97 x 120 x 60 mm</p> 	<p>SINGLE PHASE 230 Volts, 50 – 60 Hz</p> <p>MIN. POWER SUPPLY 180 Volts</p> <p>PRESSURE RANGE WITH PRESSURE TRANSDUCER Min. +10 bars Max. +40 bars</p> <p>TEMPERATURE RANGE WITH NTC-SENSOR Min. -20°C Max. +100°C</p> <p>PRESSURE CONTROL The setup of the requested set points and also the range of the proportional band has to be done by adjusting two trimmer which are placed on the board.</p> <p>TEMPERATURE CONTROL The setup of the requested set points and also the range of the proportional band has to be done by adjusting two trimmer which are placed on the board.</p> <p>The adjustment of the trimmer is always for the connected pressure transducer or the temperatur sensor.</p> 	<p>CHILLER / HEAT PUMP The Speed Controller ADR 40 can be used in chiller applications (increasing temperature = increasing speed) as well as heat pump applications (increasing temperature = decreasing speed). Heat pump applications are possible to control only by using pressure transducers 4-20 mA. By using ADR 40 in heat pump applications a bridge has to be made on the NTC connection.</p> <p>In pressure control for safety reasons or particular requirements a NTC-Sensor could be installed in addition to the pressure transducer. In case that measured temperatures exceed 90°C the speed controller will stop the motor and drop in again according to the measured pressure when temperature undergoes 90°C.</p> <p>At new starts motors are always forced for some seconds to run at 70% of the speed.</p> <p>In case of breakdowns of the board the ADR fails to safe.</p> <p>FUNCTION DIAGRAM CHILLERBETRIEB</p> 
<p>ADR 40 PP – IN PLASTIC BOX IP 54 Dimensions: W x H x D : 170 x 150 x 50 mm</p> 	<p>NO EXTERNAL REMOTE CONTROL NECESSARY</p>	

FAN SPEED CONTROLS

ELECTRONIC FAN SPEED CONTROL

ADR 80



ELECTRONIC FAN SPEED CONTROLLER PRESSURE – OR TEMPERATURE CONTROLS FOR SINGLE – AND THREE PHASE MOTORS

CURRENT MAX. 8 AMPS

POWER SUPPLY: 230V/400V-3 Ph – 50/60 Hz
230V-1 Ph – 50/60 Hz

EU-CONFORMITY CE

Electrical Filter according EMV - 89/336/EEC and ICE801-2 cl.4

CONNECTIONS

POWER SUPPLY

Removable screw-type connections for max. 16mm²

SENSORS

Removable screw-type connections for max. 2.5mm²

PRODUCT INFORMATION

TECHNICAL DATA

AMBIENT TEMPERATURES

Temperatures -10°C ./ -55°C
Humidity less than 90% R.F. not condensing

ANALOGUE – INPUT

2 x Multifunction, 4 – 20mA
0 – 20mA
0 – 10V, NTC (selectable)

SERIAL INTERFACE

System Micronova Type RS 422 or RS 485
and connection to Modern, GCM

MAX. STARTING – CURRENT

Double of nominal data for max. 10 sec

AVAILABLE MODELS:

ADR 80 – BOARD IP 24

Dimensions W x H x D : 198 x 160 x 55 mm

ADR 80 DP – IN HOUSE

Dimensions W x H x D : 315 x 255 x 180 mm



MODEL "DP" – IP 55

INTERGRATED SOFTWARE

PROGRAMMABLE BY USING MULTILINGUAL LCD – DISPLAY

LANGUAGES

English, German, Italian

POWER SUPPLY

Single – or three Phase

DUALSET – CONTROL (VERSION 4)

Also with two different sensors

AVAILABLE REFRIGERANT DATA

R22, R134A, R407C, R404A, R507

PRESSURE CONTROL

Data Input in Bar or °C

TEMPERATURE CONTROL

between -20°C to 80°C

SPEED REGULATION WITH EXTERNAL CONTROL

Regulation by external signal 0-10V

PROGRAMMABLE OUTPUT – VOLTAGE

Maximum 0% to 100%

Minimum 0% to 100%

FAN – START WITH 100%

Programmable between 0 to 10 sec

IDENTIFYING POWER- FACTOR (COSΦ) OF THE MOTOR

For improvement of the control

SENSOR AND / OR PRESSURE – TRANSDUCER

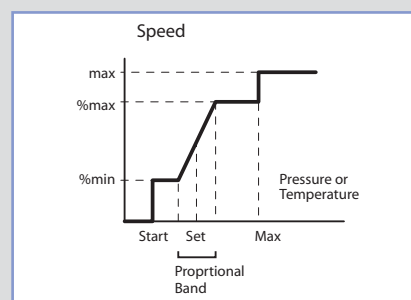
Programmable number, input-signal and max.
working limits.

NETWORK SOFTWARE

All ADR – controllers can be used and
adjusted externally by using the microvision
network software.

ACCESSORIES

THE PRINCIPLES OF ADR CONTROL



ACCESSORIES

REMOTE – CONTROL LCD 2000

With 4 push-buttons, two-lines – Display with
16 digits, height 5mm, for installation in front
door, IP 55 including connecting cord 0.9m.

PMT – PRESSURE TRANSDUCER WITH 7/16UNF FEMALE THREAD SCHRADER

4 – 20mA, working-pressure: 7,18 or 30bar.

PMT-V – PRESSURE TRANSDUCER WITH 7/16UNF FEMALE THREAD SCHRADER

0 – 10V, working-pressure: 7,18 or 30bar.

NTC – TEMPERATURE-SENSOR

Standard Length: 6m

SWPC – SOFTWARE "MICROVISION"

Software for Supervision on Windows™
Base and Graphic Illustration.

REMOTE – CONTROL BY MODERN

Software for Single Remote-Control or
adjustment by PC.

DP – HOUSING IP 55

Prepared for installation of LCD-Display
c/w setting material.

FAN SPEED CONTROLS

ELECTRONIC FAN SPEED CONTROL

ADR 230



ELECTRONIC FAN SPEED CONTROLLER PRESSURE – OR TEMPERATURE CONTROLS FOR SINGLE – AND THREE PHASE MOTORS

CURRENT MAX. 23 AMPS

POWER SUPPLY 230V/400V-3 Ph – 50/60 Hz
230V-1 Ph – 50/60 Hz

EU-CONFORMITY CE – SIGN

Electronical Filter according EMV – 89/336/EEC and ICE801-2 cl.4

CONNECTIONS

POWER SUPPLY

Removable screw-type connections for max. 16mm²

SENSORS

Removable screw-type connections for max. 2.5mm²

PRODUCT INFORMATION

TECHNICAL DATA

AMBIENT TEMPERATURES

Temperatures -10°C ./ -55°C
Humidity less than 90% R.F. not condensing

INPUT 1 x potential-free

ANALOGUE – INPUT

2 x Multifunction, 4 – 20mA
0 – 20mA
0 – 10V, NTC (selectable)

SERIAL INTERFACE:

System Micronova Type RS 422 or RS 485
and connection to Modern, GCM

MAX. STARTING – CURRENT

Double of nominal data for max. 10 sec

AVAILABLE MODELS

ADR 80 – BOARD IP 24

Dimensions W x H x D: 198 x 190 x 87 mm

ADR 80 DP – IN HOUSE

Dimensions W x H x D: 315 x 255 x 230 mm



MODEL "DP" – IP 55

INTERGRATED SOFTWARE

PROGRAMMABLE BY USING MULTILINGUAL LCD – DISPLAY

LANGUAGES

English, German, Italian

POWER SUPPLY

Single – or three Phase

DUALSET – CONTROL (VERSION 4)

Also with two different sensors

AVAILABLE REFRIGERANT DATA

R22, R134A, R407C, R404A, R507

PRESSURE CONTROL

Data Input in Bar or °C

TEMPERATURE CONTROL

between -20°C to 80°C

SPEED REGULATION WITH EXTERNAL CONTROL

Regulation by external signal 0-10V

PROGRAMMABLE OUTPUT – VOLTAGE

Maximum 0% to 100%

Minimum 0% to 100%

FAN – START WITH 100%

Programmable between 0 to 10 sec

IDENTIFYING POWER – FACTOR (COSΦ) OF THE MOTOR

For improvement of the control

SENSOR AND / OR PRESSURE – TRANSDUCER

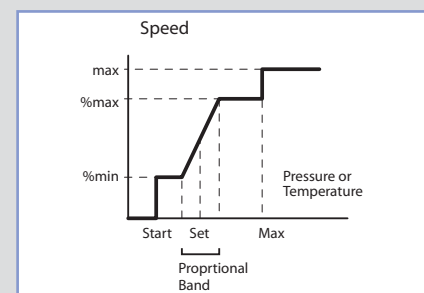
Programmable number, input-signal and max. working limits.

NETWORK SOFTWARE

All ADR – controllers can be used and adjusted externally by using the microvision network software.

ACCESSORIES

THE PRINCIPLES OF ADR CONTROL



ACCESSORIES

REMOTE – CONTROL LCD 2000

With 4 push-buttons, two-lines – Display with 16 digits, height 5mm, for installation in front door, IP 55 including connecting cord 0.9m.

PMT – PRESSURE TRANSDUCER WITH 7/16UNF FEMALE THREAD SCHRADER

4 – 20mA, working-pressure: 7,18 or 30bar.

PMT-V – PRESSURE TRANSDUCER WITH 7/16UNF FEMALE THREAD SCHRADER

0 – 10V, working-pressure: 7,18 or 30bar.

NTC – TEMPERATURE-SENSOR

Standard Length: 6m

SWPC – SOFTWARE "MICROVISION"

Software for Supervision on Windows™ Base and Graphic Illustration.

REMOTE – CONTROL BY MODERN

Software for Single Remote-Control or adjustment by PC.

DP – HOUSING IP 55

Prepared for installation of LCD-Display c/w setting material.

FAN SPEED CONTROLS

ELECTRONIC FAN SPEED CONTROL

D-LCD 2000



REMOTE – CONTROL WITH LCD – DISPLAY APPLICATIONS:

Boards with Microprocessor

FOR EXAMPLE

- Boards CB 2000, CB 1000 (MP0606)
- Controller ADR 70, 80 and 230

PRODUCT INFORMATION

TECHNICAL DATA

TECHNICAL DATA DISPLAY LCD 2000

INDICATOR

LCD – Display
2 lines with each 16 digits per line
Digit Height: 5mm

CONNECTION WITH BOARD

Connection cable 0.9m, max. length 4m

POWER SUPPLY

By connecting cable with the board.

AMBIENT TEMPERATURES

Temperatures 0°C – 60°C
Humidity less than 90% R.F. not condensing

PROTECTION DISPLAY

With front panel installation IP 55

HOUSING

Of robust, not flammable plastic.

DIMENSIONS OF DISPLAY

Frontal: 14.5 cm x 3.7 cm, depth: 1.5 cm

PUSH-BUTTONS FOR USAGE AND PROGRAMMING

Numbers: 4

LED – INDICATOR FUNCTION AND STATUS:

Numbers: 2

OPTION: MI-LCDR

Additional board for long distance installations of the display. Connection through 2-wire telephone cable. Maximum distance is 1 km. On the board itself as additional display can be installed.

INTERGRADED SOFTWARE



BESIDES THE STANDARD VERSION OF THE LCD – REMOTE – CONTROL A BIG VARIETY OF FRONT PANELS ARE AVAILABLE. THE FRONT PANELS CAN BE STYLED INDIVIDUALLY ACCORDING TO CUSTOMER REQUESTS.

The philosophy, under which Micronova developed this range, is to give the user for low cost (only a change of the Polycarbonate surface) a maximum of graphical freedom.

The display therefore can be integrated visually perfect in the finished product of the customer. Because of the large variety of displays with different LED, digit-indicators, push-buttons and different dimensions there is an even larger product differentiation possible. This can and will be all supported by a customer specific Software Development, accordingly guaranteeing exclusive functions and optics.

REMOTE – CONTROL MODULAR – SYSTEM

MICRONOVA offers a large range of LCD-Displays, that are compatible with different boards and Microprocessors.

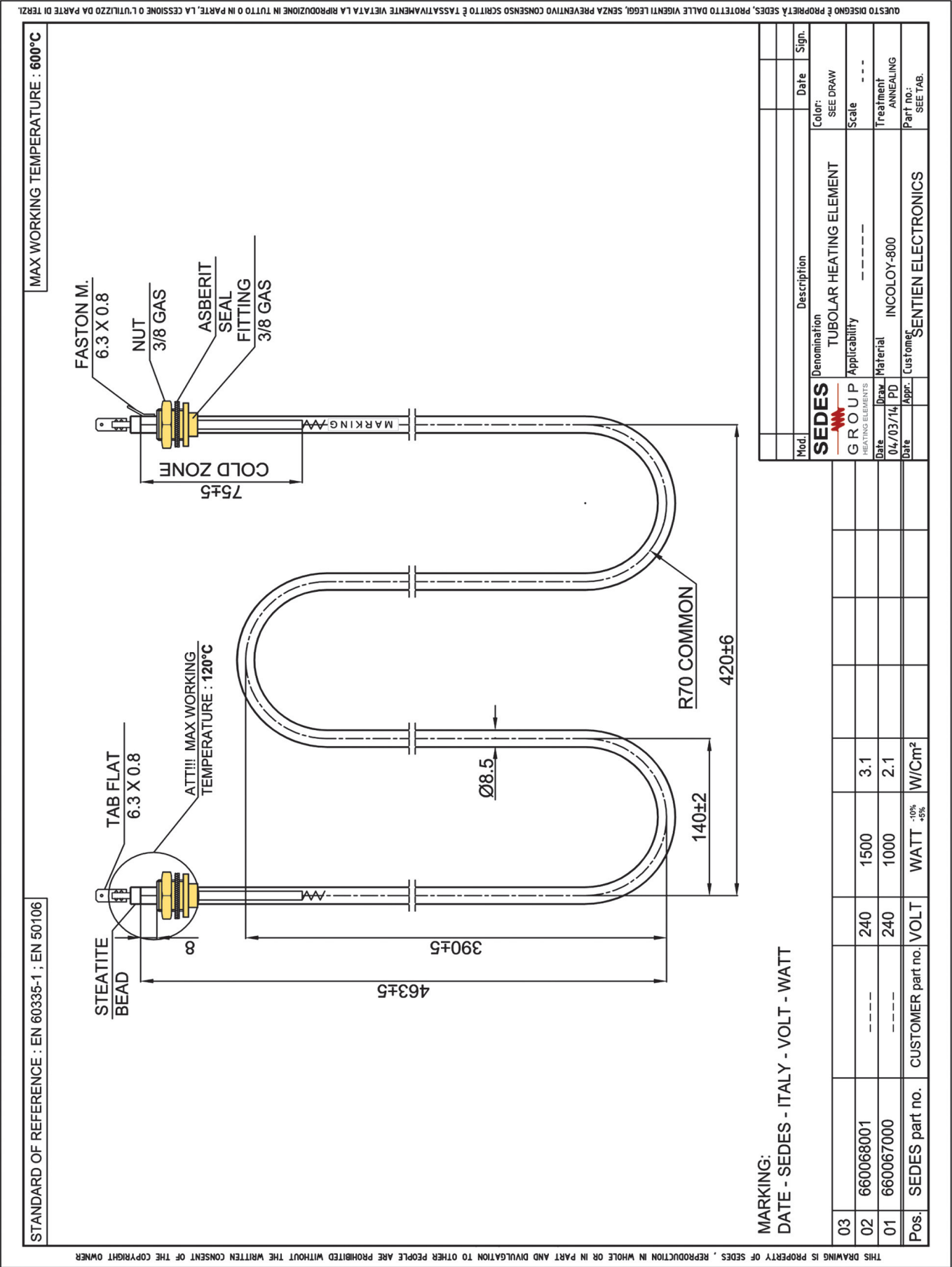
ADVANTAGES OF THE LCD-DISPLAY

The advantages are the possibilities to communicate directly with the user and thereby reduce or eliminate user faults.

HEATING ELEMENTS

HEATING ELEMENT

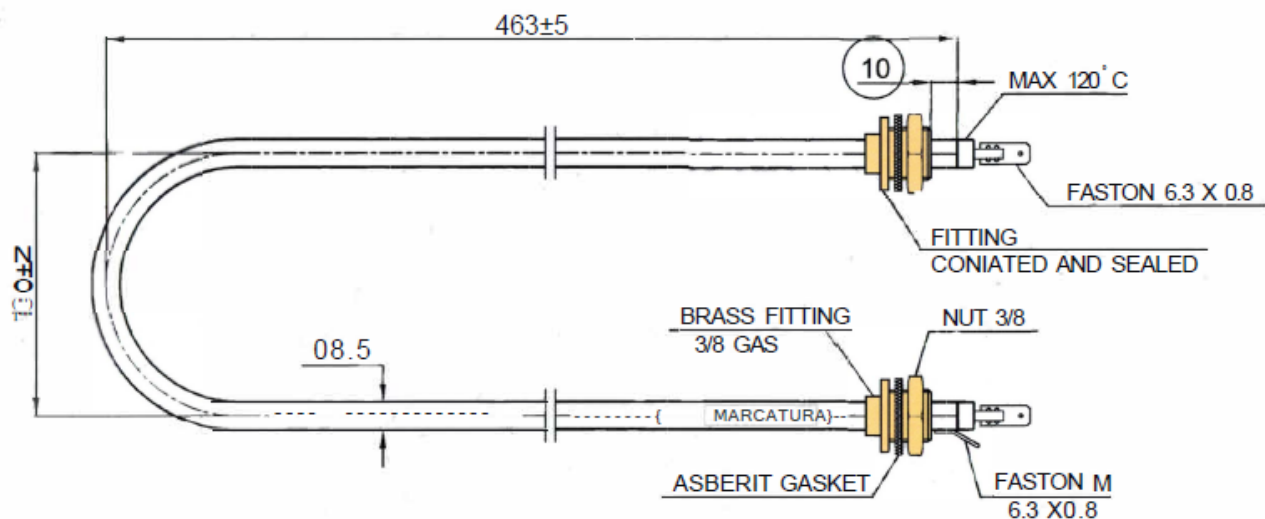
W SHAPED HEATING ELEMENTS



HEATING ELEMENTS

HEATING ELEMENT

U SHAPED 750WATT HEATING ELEMENT



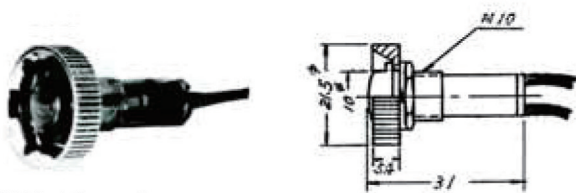
STANDARD OF REFERENCE: EN 60335-1 EN 50106 2011/65/CE RoHS2	WORKING ENVIRONMENT:...	Warning notes: <ul style="list-style-type: none">• Do not deform/break the element.• Please do not alter the surface by abrasion and/or aggressive chemical substances.• Do not bend the electrical connection terminals.• Avoid contact of cables with sharp edges.• The power cables should not be subjected to bends lighter than 4 x their diameter.• Ensure the direction, intensity, fluid contact/ body heat exchange.• The element is not ATEX approved, so it mustn't operate in explosive atmosphere.
	MAXIMUM WORKING TEMPERATURE: + 500°C MINIMUM WORKING TEMPERATURE: +40°C THERMAL CONTROL: • • • SAFETY THERMOSTAT: • • •	
SUPPLY VOLTAGE: AC/ DC FREQUENCY: 50/60 Hz (AC) SUPPLY VOLTAGE TOLERANCE: ±10%	ELEMENT IP DEGREE : IP64	

INDICATOR LIGHTS

NEON INDICATOR LIGHTS

N-024 NEON INDICATOR W/RESISTOR 120V 220V

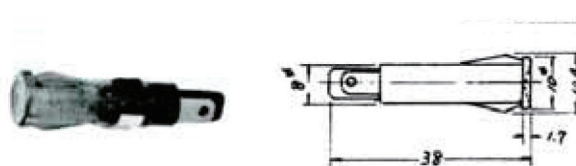
(WITH WIRE)



COLOUR Red, Orange, Green.

N-022 NEON INDICATOR W/RESISTOR 120V 220V

N-022P PILOT INDICATOR LIGHT 6V 12V 24V



COLOUR Red, Orange, Green.

N-701 LED INDICATOR LIGHT W/RESISTOR 2V

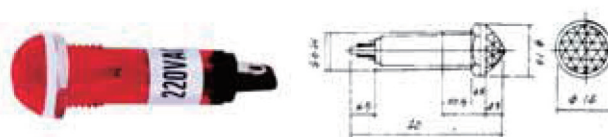
N-701P PILOT INDICATOR LIGHT 6V 12V 24V

N-701L LED INDICATOR LIGHT W/RESISTOR 6V 12V 24V



N-808 NEON INDICATOR LIGHT W/RESISTOR 120V 220V

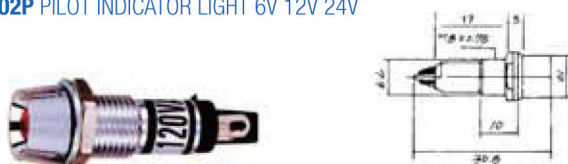
N-808P PILOT INDICATOR LIGHT 6V 12V 24V



N-702 NEON INDICATOR LIGHT WO/RESISTOR

N-702L LED INDICATOR LIGHT W/RESISTOR 6V 12V 24V

N-702P PILOT INDICATOR LIGHT 6V 12V 24V



N-018 NEON INDICATOR W/RESISTOR 120V 220V

N-018P PILOT INDICATOR LIGHT 6V 12V 24V



COLOUR Red, Orange, Green.

N-703 NEON INDICATOR LIGHT W/RESISTOR 120V 220V

N-703L LED INDICATOR LIGHT W/RESISTOR 6V 12V 24V

N-703P PILOT INDICATOR LIGHT 6V 12V 24V



N-3001 NEON INDICATOR LIGHT W/RESISTOR 120V 220V

5-9 BAYONET BASE INDICATOR LIGHT HOLDER



N-806 NEON INDICATOR LIGHT W/RESISTOR 120V 220V

N-806P PILOT INDICATOR LIGHT 6V 12V 24V



N-835W NEON INDICATOR LIGHT W/RESISTOR 120V 220V

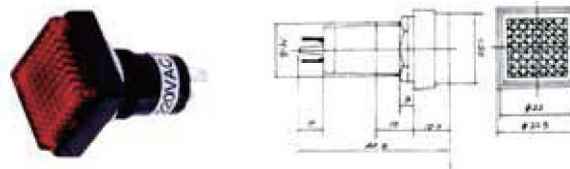


N-828B NEON INDICATOR LIGHT W/RESISTOR 120V 220V



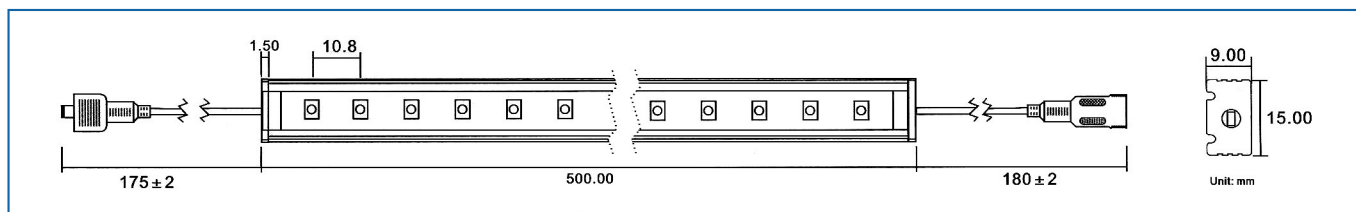
N-813 NEON INDICATOR LIGHT W/RESISTOR 120V 220V

N-813P PILOT INDICATOR LIGHT 6V 12V 24V



LED ALUMINUM STRIP LIGHTING

IP67 SMD3528 Aluminum LED strip



Model No./产品型号: GL-RHA60-**-E

Length/长度: 500mm

LED type/LED型号: SMD3528

LED Q'ty/LED数量: 60pcs

Luminous flux.(±5%)/光通量: 400LM

Working Voltage/工作电压: DC12V

Wattage/功率: 9.6W

IP Rate/IP等级: IP67

Color Temperature/色温: 3000K/4000K/6000K(±10%)

Environmental Temperature/使用温度: -20℃-40℃

Other Length/其他长度: 300mm/600mm/1200mm are available

Model No./产品型号: GL-RHA120-**-E

Length/长度: 1000mm

LED type/LED型号: SMD3528

LED Q'ty/LED数量: 120pcs

Luminous flux.(± 5%)/光通量: 800LM

Working Voltage/工作电压: DC12V

Wattage/功率: 19.2W

IP Rate/IP等级: IP67

Color Temperature/色温: 3000K/4000K/6000K(± 10%)

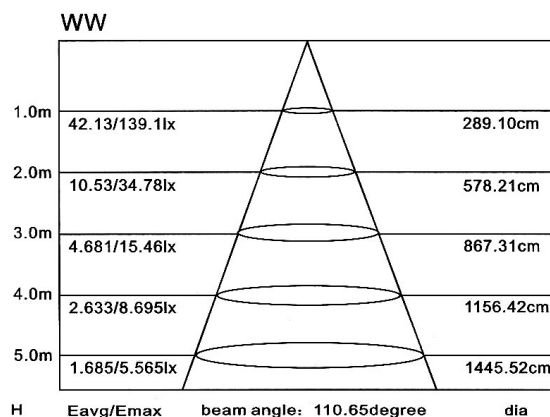
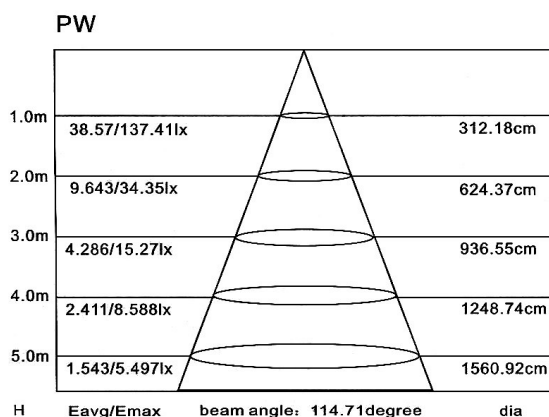
Environmental Temperature/使用温度: -20℃-40℃

Other Length/其他长度: 300mm/600mm/1200mm are available



Illumination map /照度图

GL-RHA60-PW-E/GL-RHA60-WW-E

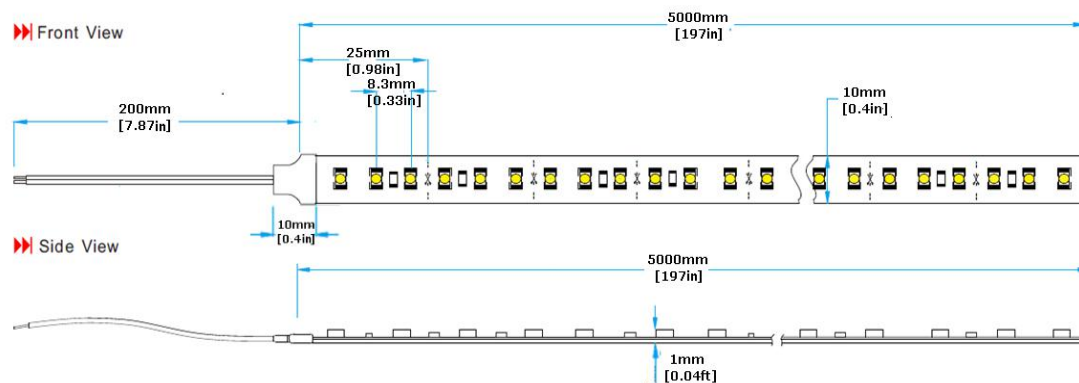
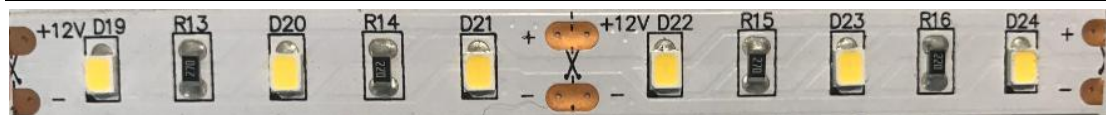


Note: Curve for the lamp under different light projection distance and the average intensity of regional

LED FLEXIBLE STRIP LIGHTING

Classical C.V. Series | 2835 LED | GL-12-F749

- Plus Series using top quality material such as Epistar/San'an chip, Intermax phosphor powder, ShinEtsu & Dow Corning glue, Heraeus 99.99% pure golden wire, pure copper & fresh plastic stand etc. as standard configuration.
- Classical C.V. (Constant Voltage) series is the most classical, popular and cost-effective product in the market.
- Decorating backlight and indirect lighting for showcase, shelf, cabinet, billboard, signage, hotel, garden, bridge, corridor, ceiling, stair, floor, cove, theatre, lift etc.



Part. No.	Dimension (L*W*H)	IP Rating	Lumen Flux±10% @CRI80&4000K	Light Eff. @CRI80&4000K	Lumen Flux±10% @CRI90&4000K	Lumen Flux±10% @CRI95&4000K
GL-12-F749N-A [GL-N2835XX-12-CV-120-F749]	5000*10*1mm [197*0.4*0.04in.]	IP20 [dry]	1460lm/M [450lm/ft.]	101lm/W	1240lm/M [380lm/ft.]	1240lm/M [380lm/ft.]
GL-12-F749C-B [GL-C2835XX-12-CV-120-F749]	5000*10*1.5mm [197*0.4*0.06in.]	IP54 [damp]	1460*90%lm/M [450*90%lm/ft.]	101*90%lm/W	1240*90%lm/M [380*90%lm/ft.]	1240*90%lm/M [380*90%lm/ft.]
GL-12-F749A-B [GL-A2835XX-12-CV-120-F749]	5000*12*4mm [197*0.48*0.16in.]	IP65 [wet]	1460*95%lm/M [450*95%lm/ft.]	101*95%lm/W	1240*95%lm/M [380*95%lm/ft.]	1240*95%lm/M [380*95%lm/ft.]
GL-12-F749B-B [GL-B2835XX-12-CV-120-F749]	5000*12*4mm [197*0.48*0.16in.]	IP67 [wet]	1460*90%lm/M [450*90%lm/ft.]	101*90%lm/W	1240*90%lm/M [380*90%lm/ft.]	1240*90%lm/M [380*90%lm/ft.]
GL-12-F749E-B [GL-E2835XX-12-CV-120-F749]	5000*12*4mm [197*0.48*0.16in.]	IP68 [wet]	1460*90%lm/M [450*90%lm/ft.]	101*90%lm/W	1240*90%lm/M [380*90%lm/ft.]	1240*90%lm/M [380*90%lm/ft.]
GL-12-F749K-B [GL-K2835XX-12-CV-120-F749]	5000*10*5mm [197*0.4*0.2in.]	IP54 Plus [damp]	1460*95%lm/M [450*95%lm/ft.]	101*95%lm/W	1240*95%lm/M [380*95%lm/ft.]	1240*95%lm/M [380*95%lm/ft.]
GL-12-F749H-B [GL-H2835XX-12-CV-120-F749]	5000*12*5mm [197*0.48*0.2in.]	IP67 Plus [wet]	1460*95%lm/M [450*95%lm/ft.]	101*95%lm/W	1240*95%lm/M [380*95%lm/ft.]	1240*95%lm/M [380*95%lm/ft.]
GENERAL PARAMETERS			PHOTOELECTRIC PARAMETERS			
Standard Length	5M [16.4ft] (power fed on one side)		Power±10%	14.4W/M [4.39W/ft.]		
Min. Unit & LED QTY	25mm [0.98in.] & 3 LEDs		Input Voltage	12VDC		
LED Type	SMD2835 white		LED Current	28~32mA/LED		
LED QTY	120LED/M [36LED/ft.]		LED CCT & Wavelength	2700K&3000K&3500K&4000K&5000K&6500K		
PCB Type	2oz white FPC, OSP		SDCM	ErP & ANSI Norm, 3 Step		
Operating Ambient	Ta: -20~45℃		CRI	Ra≥80 & 90 & 95		
Warranty	3 years		Beam Angle	120°		
Lifespan	36kh (L70B50@Tc<65℃, Tc is temperature of LED pin)		Dimming Method	PWM (dimmable driver like RF, Bluetooth, 0/1-10V, Triac, DALI, DMX, WIFI etc.)		
Certification	CE, UL, RoHS					

Note 1: Luminous flux for CCT 2700K is 10% lower, for CCT 3000K/3500K is 5% lower, for CCT 5000K/6500K is the same, compared with 4000K.

Note 2: Transmittance for IP54/IP67/IP68, 2700K/3000K is 95%, 3500K/4000K is 90%, 5000K/6500K is 80%; for IP65/IP54 Plus/IP67 Plus is 95%.

Note 3: Applying with extra heat sink is not necessary with self-cooling capacity.

Note 4: 3M 300LSE yellow adhesive tape attached on backside, is standard configuration of Plus Series.




Note 5: One end of 200mm red/white silicon cable or waterproof connector kit according to specific IP rating, is standard configuration of Plus Series.

Note 6: Transparent reel and silvery ESD bag, are standard configuration of Plus Series.

Note 7: Installation accessories such as clip, screw, plug etc. are all optional base on specific demand.

LPV SERIES Features

- Constant voltage mode
- LPV-60/100: 90~264VAC input
LPV-150: 180~305VAC input only
LPVL-150: 90~132VAC input only
- Withstand 300VAC surge input for 5 seconds (LPV-60/100)
- Fully encapsulated with IP67 level
- Isolation class II, no F.G.
- Class 2 power unit / Pass LPS (LPV-60-12/15/24/36/48 only)
- Type HL LED Driver for use in Class I, Division 2 hazardous location luminaires (LPVL-150 only)
- Economic, high reliability
- Suitable for LED-based decorative/architectural lighting, LED stage, theater lighting, and LED electronic displays
- Protections: Short circuit / Overload / Over voltage / Over temperature (LPV-150, LPVL-150 only)
- 2 years warranty

		LPV-60	LPV-100	LPV-150 LPVL-150
<div><div>INPUT</div><div><div>LPV-60/100</div><div>LPV/LPVL-150</div></div><div>OUTPUT</div><div><div>LPV-60/100</div><div>LPV/LPVL-150</div></div></div>				
AC input voltage range		90~264VAC; 127~370VDC		LPV-150: 180~305VAC; 254~431VDC LPVL-150: 90~132VAC
AC inrush current (max.)		Cold start, 60A at 230VAC	Cold start, 75A at 230VAC	LPV-150: Cold start, 60A at 230VAC LPVL-150: Cold start, 75A at 115VAC
Overload protection		110%~150% hiccup mode, auto-recovery		
Over voltage protection		115%~135% rated output voltage		
Withstand voltage		I/P-O/P: 3kVAC		
Working temperature		-30~+70°C	-25~+70°C	-25~+65°C
Vibration		10~500Hz, 2G 10 minutes /1 cycle, period for 60 minutes each along X, Y, Z axes		
Safety standards		UL879 (except for LPV-60-5), UL1310 (except for LPV-60-5), IEC62368-1, EAC TP TC 004 approved	UL8750, UL879, EAC TP TC 004 approved; IEC62368-1	
EMC standards		BS EN55032 class B, BS EN61000-3-2 class A, BS EN61000-3-3, BS EN61000-4-2,3,4,5,6,8,11, EAC TP TC 020 FCC part 15 for LPVL-150 only, BS EN55024		
Connection	Input	UL rated, 18AWGx2C (60cm)	UL rated, 18AWGx2C (30cm)	UL rated, SJTW 18AWGx2C (30cm)
	Output	UL rated, 16AWGx2C (60cm)	UL rated, 14AWGx2C (30cm)	UL rated, SJTW 14AWGx2C (30cm)
Dimension (LxWxH)(mm)		162.5x 42.5x 32	190x 52x 37	191x 63x 37.5

LPV-60 Series



Model No.	Output	Tol.	R&N	Effi.
LPV-60-5	5V, 0~8A	±8%	80mV	76%
LPV-60-12	12V, 0~5A	±5%	120mV	83%
LPV-60-15	15V, 0~4A	±5%	120mV	83%
LPV-60-24	24V, 0~2.5A	±5%	150mV	86%
LPV-60-36	36V, 0~1.67A	±5%	150mV	86%
LPV-60-48	48V, 0~1.25A	±5%	150mV	86%

LPV-100 Series



Model No.	Output	Tol.	R&N	Effi.
LPV-100-5	5V, 0~12A	±8%	80mV	80%
LPV-100-12	12V, 0~8.5A	±5%	120mV	85%
LPV-100-15	15V, 0~6.7A	±5%	120mV	87%

Model No.	Output	Tol.	R&N	Effi.
LPV-100-24	24V, 0~4.2A	±5%	150mV	88%
LPV-100-36	36V, 0~2.8A	±5%	150mV	88%
LPV-100-48	48V, 0~2.1A	±5%	150mV	89%

LPV/LPVL-150 Series



Model No.	Output	Tol.	R&N	Effi.
LPV-150-12	12V, 0~10A	±5%	200mV	87%
LPV-150-15	15V, 0~8A	±5%	200mV	88%
LPV-150-24	24V, 0~6.3A	±5%	200mV	89%
LPV-150-36	36V, 0~4.2A	±5%	200mV	89%
LPV-150-48	48V, 0~3.2A	±5%	200mV	90%

□ =Blank, L ;
Blank: AC input range 180~305VAC, L: AC input range 90~132VAC

POWER SUPPLY



LRS-35/50

■ LRS SERIES - Features

- **No load power consumption <0.2W for 35W/50W; <0.3W for 75W/100W**
- Universal AC input / Full range
- Withstand 300VAC surge input for 5 seconds
- **Ultra compact and 1U low profile**
- Withstand 5G vibration test
- High operating temperature up to 70°C
- Protections: Short circuit / Overload / Over voltage
- Cooling by free air convection
- **Compliance to IEC/EN60335-1(PD3) and IEC/EN61558-1,-2-16 for household appliances**
- Operating altitude up to 5000 meters
- High efficiency, long life and high reliability
- LED indicator for power on
- Low cost
- 3 years warranty

■ General Specification



Model No.		LRS-35	LRS-50	LRS-75	LRS-100
AC input voltage range		85~264VAC ; 120~370VDC			
AC inrush current (max.)		Cold start, 45A at 230VAC		65A at 230VAC	50A at 230VAC
DC adjustment range		±10% by potentiometer			
Overload protection	Range	110%~150%			
	Type	Hiccup mode, auto-recovery			
Over voltage protection	Range	115%~135% rated output voltage			
	Type	Shut down o/p voltage, re-power on to recover			
Withstand voltage		I/P-O/P: 4kVAC, I/P-FG: 2kVAC, O/P-FG: 1.25kVAC, 1 minute			
Working temperature		-30~+70°C (refer to output derating curve)			
Safety standards		UL62368-1,BS EN/EN62368-1,BS EN/EN61558-1, EN61558-2-16, BS EN/EN60335-1, CCC GB4943, BIS IS13252, BSMI CNS14336-1, EAC TP TC 004, AS/NZS 60950.1 KC K60950-1(12/24V only)approved			
EMC standards		BS EN/EN55032 class B, EN55014, EN61000-3-2, 3, EN61000-4,2,3,4,5,6,8,11 ; GB9254 ; CNS13438			
Connection		5P/9.5mm pitch terminal block			7P/9.5mm pitch terminal block
Dimension (LxWxH) (mm)		99x 82x 30		99x 97x 30	129x 97x 30

35W LRS-35

Model No.	Output	Tol.	R&N	Effi.
LRS-35-5	5V, 0~7A	±2%	80mV	82.0%
LRS-35-12	12V, 0~3A	±1%	120mV	86.0%
LRS-35-15	15V, 0~2.4A	±1%	120mV	86.0%
LRS-35-24	24V, 0~1.5A	±1%	150mV	88.0%
LRS-35-36	36V, 0~1A	±1%	200mV	88.0%
LRS-35-48	48V, 0~0.8A	±1%	200mV	89.0%

75W LRS-75

Model No.	Output	Tol.	R&N	Effi.
LRS-75-5	5V, 0~14A	±2%	100mV	86.5%
LRS-75-12	12V, 0~6A	±1%	120mV	89.0%
LRS-75-15	15V, 0~5A	±1%	120mV	89.0%
LRS-75-24	24V, 0~3.2A	±1%	150mV	90.0%
LRS-75-36	36V, 0~2.1A	±1%	200mV	91.5%
LRS-75-48	48V, 0~1.6A	±1%	200mV	91.5%

50W LRS-50

Model No.	Output	Tol.	R&N	Effi.
LRS-50-3.3	3.3V, 0~10A	±3%	80mV	80.0%
LRS-50-5	5V, 0~10A	±2%	80mV	83.0%
LRS-50-12	12V, 0~4.2A	±1%	120mV	86.0%
LRS-50-15	15V, 0~3.4A	±1%	120mV	88.0%
LRS-50-24	24V, 0~2.2A	±1%	150mV	88.0%
LRS-50-36	36V, 0~1.45A	±1%	200mV	89.0%
LRS-50-48	48V, 0~1.1A	±1%	200mV	90.0%

100W LRS-100

Model No.	Output	Tol.	R&N	Effi.
LRS-100-3.3	3.3V, 0~20A	±3%	100mV	84.5%
LRS-100-5	5V, 0~18A	±2%	100mV	86.0%
LRS-100-12	12V, 0~8.5A	±1%	120mV	88.0%
LRS-100-15	15V, 0~7A	±1%	120mV	88.5%
LRS-100-24	24V, 0~4.5A	±1%	150mV	90.0%
LRS-100-36	36V, 0~2.8A	±1%	200mV	90.5%
LRS-100-48	48V, 0~2.3A	±1%	200mV	91.0%

POWER SUPPLY



RSP SERIES - Features

- 1U low profile (41mm)
- Universal AC input / Full range
- Built-in active PFC function
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling by built-in DC fan
- High power density up to 25W/in³ (RSP-1600)
- Output voltage programmable
- Constant current level I_{cc} programmable (RSP-750/1600)
- Built-in current sharing up to 4 units (RSP-1000/2000) or 6 units (RSP-1600)
- Built-in remote sense and ON/OFF control
- Built-in auxiliary power, DC OK signal
- OTP alarm signal output (RSP-1600/2000)
- Optional conformal coating
- 5 years warranty

General Specification



(RSP-1600) (except for RSP-750)

Model No.		RSP-750	RSP-1000	RSP-1600	RSP-2000
AC input voltage range		90~264VAC; 127~370VDC			90~264VAC; 127~320VDC
AC inrush current (max.)		Cold start, 40A at 230VAC		Cold start, 35A at 230VAC	Cold start, 50A at 230VAC
DC adjustment range		Vo: ±10% by potentiometer, or to 40%~110% of rated output voltage by 2~5.5VDC external control signal Icc : to 40%~110% of rated output current by 2~5.5VDC external control signal	Vo: ±10% by potentiometer, or to 40%~110% of rated output voltage by external resistor or by 2~5.5VDC external control signal	Vo: -1%~+22.5% by potentiometer, or to 40%~125% of rated output voltage by 1~5VDC external control signal Icc: to 20%~100% of rated output current by 1~5VDC external control signal	Vo: ±10% by potentiometer, or to 40%~115% of rated output voltage by 1~4.7VDC external control signal
Overload protection	Range	105%~125%	105%~125%	105%~115%	105%~125%
	Type	Constant current limiting, auto-recovery		Constant current limiting, shut down o/p voltage after 5 sec. , re-power on to recover	
Over voltage protection	Range	115%~145%	115%~135%	130%~155%	120%~145%
	Type	Shut down O/P voltage, re-power on to recover			
Withstand voltage		I/P-O/P: 3kVAC, I/P-FG: 2kVAC, O/P-FG: 0.5kVAC (O/P-FG: 1.5kVAC for RSP-1600)			
Working temperature		-30~+70°C	-20~+60°C	-30~+70°C	-35~+70°C
Safety standards		UL62368-1, TUV BS EN/EN62368-1, EAC TP TC 004, BSMI CNS14336-1 approved			
EMC standards		BS EN/EN55032 class B for RSP-750, class A for RSP-1000/1600/2000; EN61000-3-2,3; EN61000-4-2,3,4,5,6,8,11, EN61204-3			
Connection	Input	3P / 10mm pitch terminal block with cover			
	Output	M5x12 screw terminal		Bus bars	M5x12 screw terminal
Dimension (LxWxH) (mm)		250x127x41	295x 127x 41	300x 85x 41	295x 127x 41

750W RSP-750

Model No.	Output	Tol.	R&N	Effi.
RSP-750-5	5V, 0~100A	$\pm 2\%$	150mV	82.0%
RSP-750-12	12V, 0~62.5A	$\pm 1\%$	150mV	87.0%
RSP-750-15	15V, 0~50A	$\pm 1\%$	150mV	89.0%
RSP-750-24	24V, 0~31.3A	$\pm 1\%$	150mV	90.5%
RSP-750-27	27V, 0~27.8A	$\pm 1\%$	150mV	90.5%
RSP-750-48	48V, 0~15.7A	$\pm 1\%$	150mV	92.0%

1000W RSP-1000

Model No.	Output	Tol.	R&N	Effi.
RSP-1000-12	12V, 0~60A	$\pm 1\%$	150mV	83%
RSP-1000-15	15V, 0~50A	$\pm 1\%$	150mV	85%
RSP-1000-24	24V, 0~40A	$\pm 1\%$	150mV	88%
RSP-1000-27	27V, 0~37A	$\pm 1\%$	150mV	88%
RSP-1000-48	48V, 0~21A	$\pm 1\%$	150mV	90%

1600W RSP-1600

Model No.	Output	Tol.	R&N	Effi.
RSP-1600-12	12V, 0~125A	$\pm 1\%$	150mV	89.0%
RSP-1600-24	24V, 0~67A	$\pm 1\%$	200mV	91.5%
RSP-1600-27	27V, 0~59A	$\pm 1\%$	200mV	92.0%
RSP-1600-36	36V, 0~44.5A	$\pm 1\%$	250mV	92.0%
RSP-1600-48	48V, 0~33.5A	$\pm 1\%$	300mV	93.0%

2000W RSP-2000

Model No.	Output	Tol.	R&N	Effi.
RSP-2000-12	12V, 0~100A	$\pm 2\%$	150mV	87.0%
RSP-2000-24	24V, 0~80A	$\pm 1\%$	200mV	90.5%
RSP-2000-48	48V, 0~42A	$\pm 1\%$	300mV	92.0%

PILOT LAMP

PILOT LAMP/指示燈 22Φ/25Φ

Model Designation:

型號說明

NPL-GA
1 2 3

1. Series(系列)

NPL	Normal(Round Head) 凸頭圓形
NLD	Simple(Flush Head) 平頭圓形

2. Cap Color(顏色)

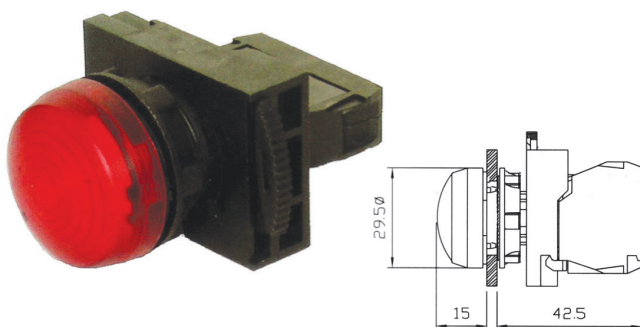
R	Red 紅色	Y	Yellow 黃色
G	Green 綠色	S	Blue 藍色
W	White 白色		

3. Voltage Rating(電壓)

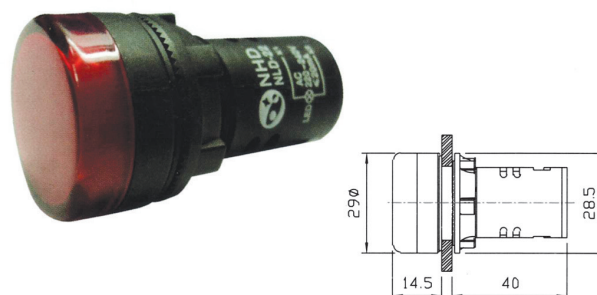
NPL		NLD	
A	AC.DC 24V	A	AC.DC 24V
E	AC.DC 100~120V	D	DC 110V
I	AC.DC 220~240V	E	AC 100~120V
		G	DC 220V
		I	AC 220~240V
		M	AC 380~440V

SPECIFICATION

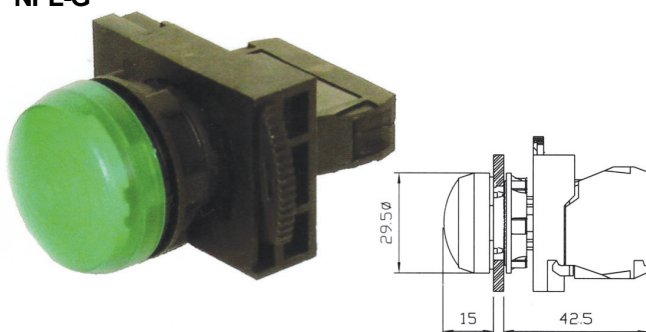
NPL-R



NCD-R



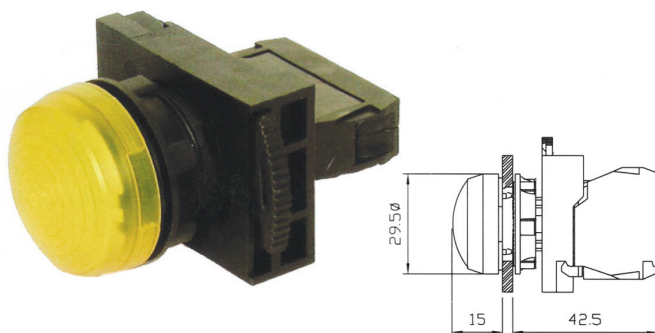
NPL-G



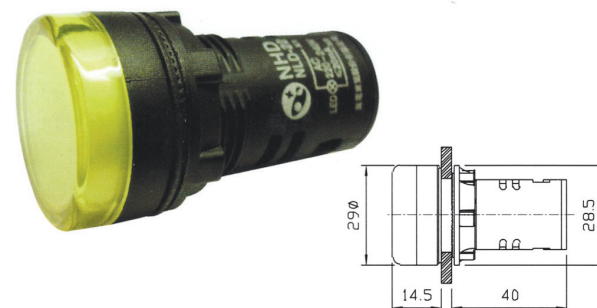
NCD-G



NPL-Y



NLD-Y



PUSH BUTTON SWITCHES

PUSH BUTTON SWITCHES / 按鈕開關 22Φ/25Φ

(NON-ILLUMINATED & ILLUMINATED) / 無照光按鈕與照光式按鈕

Model Designation:

型號說明

NPB-F11GA
1 2 3 4 5

1. Series(系列)

NPB	Non-Illuminated 無照光式按鈕
NLB	Illuminated 照光式按鈕

2. Type(型式)

NPB			NLB	
F	Flush Head 平頭	B	F	Flush Head 平頭
E	Elevation Head 凸頭		P	Flush Head (Rubber cap) 平頭附防塵套
P	Elevation Head (Rubber cap) 凸頭附防塵套	R	L	Elevation Head (Protect the ring) 凸頭附保護環
L	Elevation Head (Protect the ring) 凸頭附保護環	V	M	Mushroom Head 大頭(40 Φ)
M	Mushroom Head 大頭(40 Φ)	S	R	Reset Mushroom Head 大頭連鎖式(40 Φ)
K	Mushroom Head (With key) 大頭附鎖(40 Φ)	D	D	Double Push Button 兩點式按鈕

3. Contact Blocks(接點)

10	1a	21	2a1b
01	1b	12	1a2b
11	1a1b	22	2a2b

4. Cap Color(顏色)

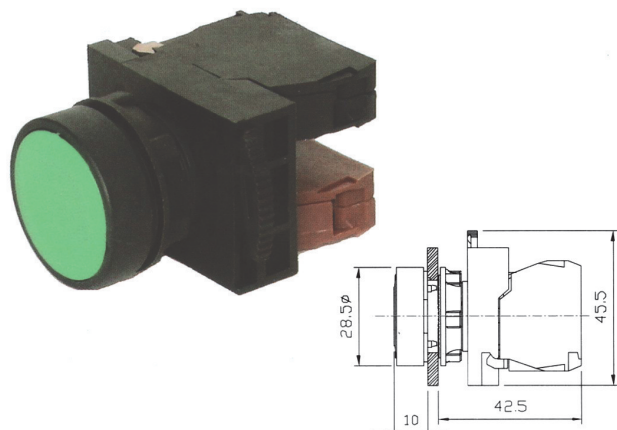
NPB		NLB	
R	Red 紅色	R	Red 紅色
G	Green 綠色	G	Green 綠色
Y	Yellow 黃色	Y	Yellow 黃色
S	Blue 藍色		
B	Black 黑色		

5. Voltage Rating(電壓)

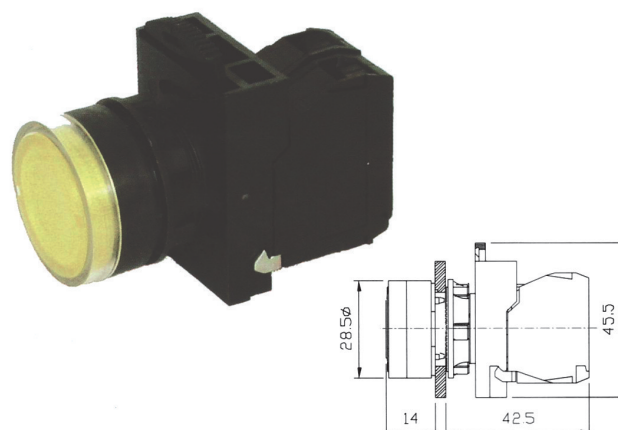
NLB	
A	AC/DC 24V
E	AC/DC 100~120V
I	AC/DC 220~240V

SPECIFICATION

NPB-F



NLB-F



備註：NPB 系列型式L、K、B、V、S、D及 NLB 系列型式E、L、D等9種，尚在開發中。

MICROPROCESSOR PID CONTROLS



FY900

FY800

FY700

FY400

Excellent Anti-Interference Ability

Adopt new anti-interference algorithm and pass the highest level of EMC verification in CE certification. It can resist electromagnetic interference in heavy noise environment.



High Speed Sampling and High Accuracy

Both loops can perform high-speed sampling for 50ms, enabling stable control and response. Built-in 18-bit high resolution ADC circuit provides up to 0.1% accuracy.



Customize Function Key

It can be quickly executed the event by A/M key.
Ex: auto/manual switch, run/stop switch etc.



Status Indicator Light

Real time monitor the status of output(OUT1/OUT2) , alarm(AL1/AL2/AL3), auto-tuning(AT), manual output(MAN) and program execute(PRO).



Ultra Low Temperature Drift



Any operating conditions have been considered in the design, even if in temperature variety ambience it also not affects PV AND control performance.

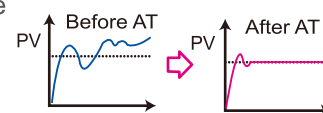
IP65 Proof

IP65 dust & water proof is available for all models (optional function).



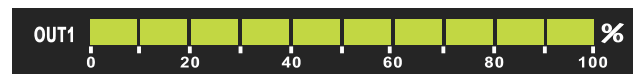
Autotuning(AT)

AT Function can calculate the optimize PID value for your control system, without trying.

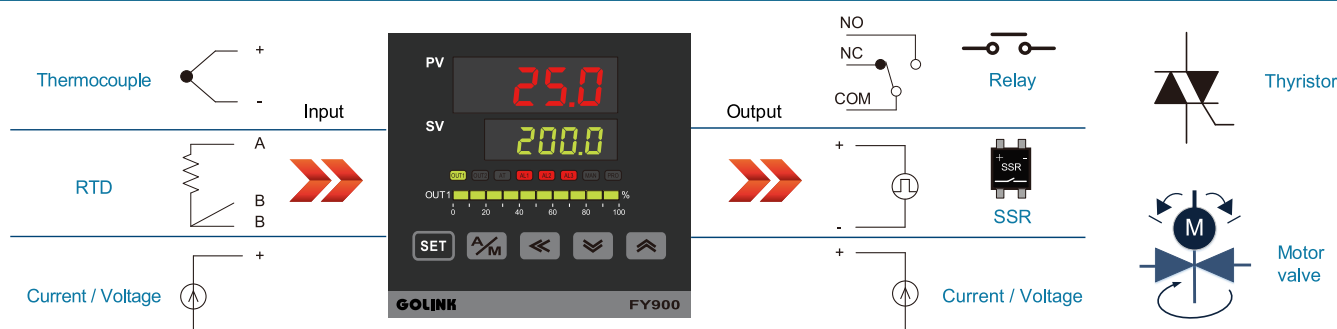


Bar-Graph

The output percentage is directly displayed on the panel with a bar-graph indicator 10 LED's corresponding to every 10% differential in output (0~100%) (except FY400).



Various I/O Types

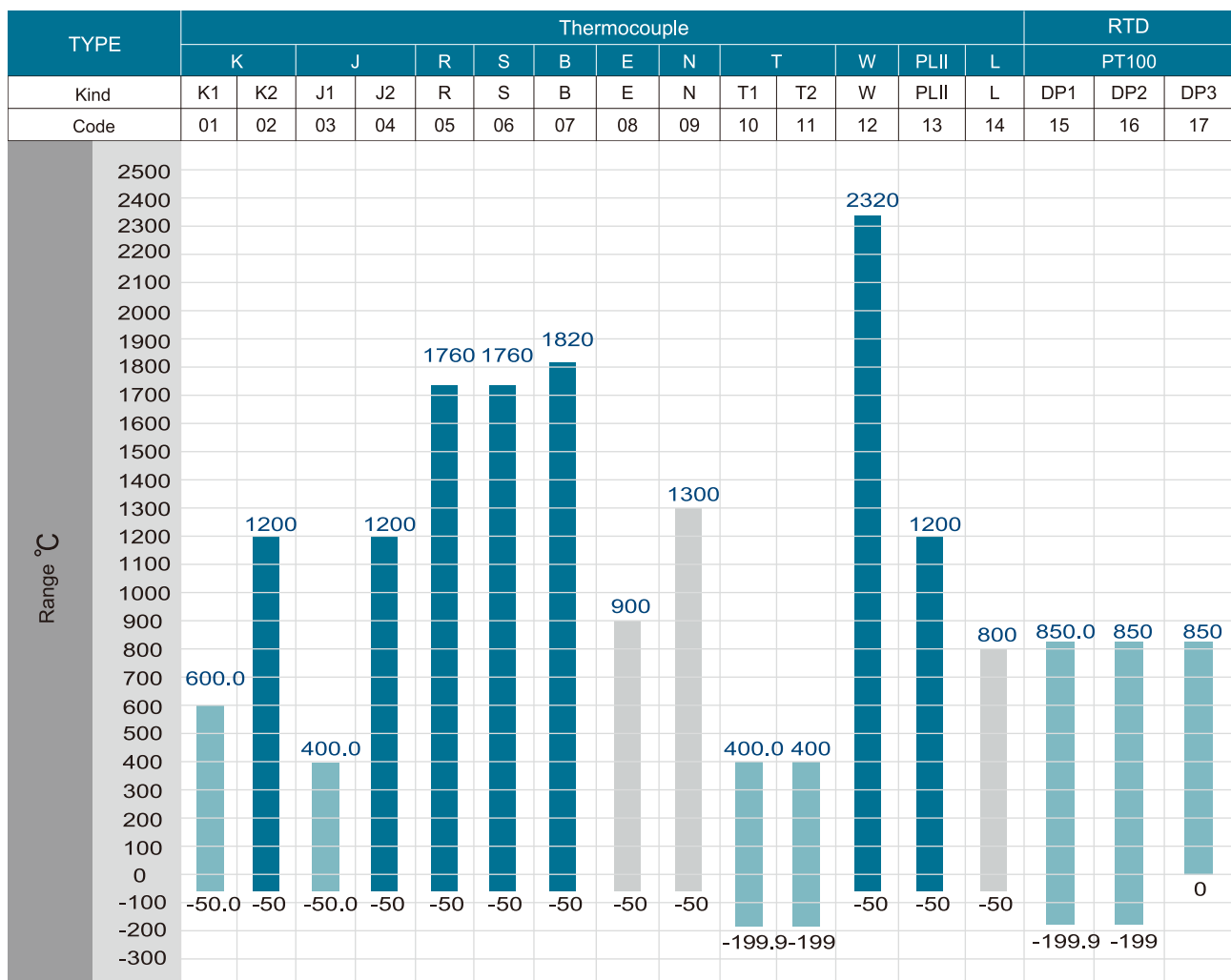


MICROPROCESSOR PID CONTROLS

Model	Output 1	Output 2	Alarm	TRS	Remote	COMM	Input type	Power	Accessories
FY900 (Red/Green light) FY900H (Blue/White light) PFY900 (Program) FY400 48x48mm FY600 96x48mm FY700 72x72mm FY800 48x96mm FY900 96x96mm PFY400 / 400H 48x48mm PFY600 / 600H 96x48mm PFY700 / 700H 72x72mm PFY800 / 800H 48x96mm PFY900 / 900H 96x96mm	1 0 None 1 Relay 2 Voltage Pulse (SSR Drive) 3 4-20mA 4 0-20mA A 0-5V B 0-10V C 1-5V D 2-10V 5 1 ϕ SCR zero cross control 6 3 ϕ SCR zero cross control 7 Motor valve control 8 1 ϕ SCR phase angle control	0 0 None 1 Relay 2 Voltage Pulse (SSR Drive) 3 4-20mA 4 0-20mA A 0-5V B 0-10V C 1-5V D 2-10V	1 0 None 1 1Set 2 2Sets 3 3Sets A HBA B HBA+AL2 C HBA+AL2+AL3	0 0 None 1 4-20mA 2 0-20mA A 0-5V B 0-10V C 1-5V D 2-10V	0 0 None 1 4-20mA 2 0-20mA A 0-5V B 0-10V C 1-5V D 2-10V M Motor valve control feedback	0 0 None 3 TTL B RS-485	01 See input type table code	A A AC 85-265V D DC 24V	N N None T Terminal Cover W IP65 R Terminal Cover +IP65

※ HBA :Heater Break Alarm
(HBA must use AL 1 as alarm relay)

Input Type Table



TYPE	LINEAR											
	AN1	AN2				AN3	AN4					
Code	18	19	20	21	22	23	24	25	26	27	28	29
Range	0~25mV	0~50mV	0~20mA	0~1V	0~2V	0~5V	0~10V	0~70mV	4~20mA	10~50mV	1~5V	2~10V
4 kinds of choices : -1999~9999 -199.9~999.9 -19.99~99.99 -1.999~9.999												

MINI CIRCUIT BREAKERS

MCB

YDZ47-60



YDZ47

YDZ47 is an all new high performance current limiting device with the ability to disconnect short circuits of up to 10kA. And the most economy which is the newest model in the 21st Century. YDZ47 MCB has many merits of high protective grade (up to IP20) high breaking capacity, good reliability of sensitive action, convenient multi-pole assorting, long using life etc.

They are mainly used for overload and short circuit protection within the circuit of AC 50Hz, 230V in single pole 400V in two, three and four poles of lighting distribution systems in industrial and commercial. They are also used in turning on and off electric apparatus and lighting circuits under the normal condition.



YDZ47-60 2P



YDZ47-63 1P

PROPERTIES					
CHARACTER	STANDARD	RATED CURRENT (A)	POLES (P)	RATING VOLTAGE (V)	BREAKING CAPACITY (A)
B C D	IEC-898	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 60A	1	230 / 240	10000
			2, 3, 4	400 / 415	6000
	IEC-947-2	1, 2, 3, 4, 5, 6, 10, 16, 20, 25, 32, 40, 50, 60A	1	130	20000
				230 / 240	10000
			2, 3, 4	400 / 415	3000
				230 / 240	20000
				400 / 415	10000
				440	6000

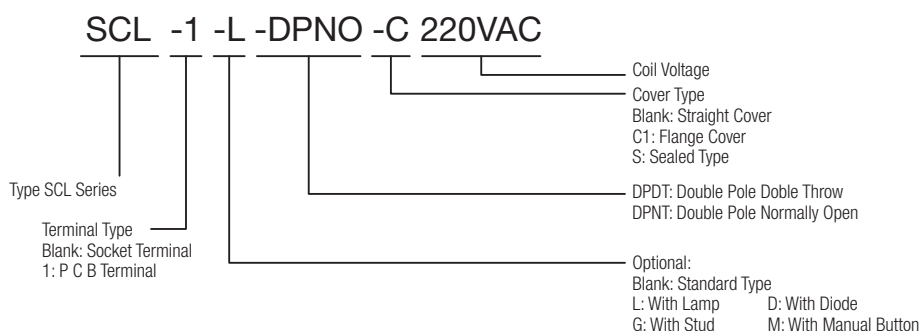
SCL/SCL-1 RELAYS

FEATURES



- Epoxy sealed type and flux free.
- Multiple choice with Lamp, Stud, Diode, Flashed contact, and Flange cover.
- Contact rating up to 12A/250VAC (DPNO).
- High Reliability/Long life expectancy.
- Socket and PCB terminal available.

ORDERING INFORMATION



CONTACT RATING

LOAD TYPE	DPDT	DPNO
RESISTIVE LOAD	10A/28VDC	10A/28VDC
MOTOR (UL CSA ONLY)	1/2 HP 250VAC, 1/3 HP 125VAC	1/2 HP 250VAC, 1/3 HP 125VAC
GEN, USE	10A/240VAC	15A/240VAC (UL CSA Only)

COIL DATA SCL (DC)

RATED VOLTAGE (V)	RATED CURRENT ± 10% AT 25°C (mA)	COIL RESISTANCE ± 10% AT 25°C (Ω)	MAX. CONTINUOUS VOLTAGE AT 25°C	PICK UP VOLTAGE (MAX) AT 25°C	DROP OUT VOLTAGE (MIN) AT 25°C	POWER CONSUMPTION AT RATED VOLTAGE
6	150	40	110% Of Rated Voltage	75% Of Rated Voltage	10% Of Rated Voltage	Approx. 0.9W
12	75	160				
15	60	250				
24	37	650				
48	19	2600				
60	15	4000				
110	10	11000				
120	11	11000				

COIL DATA SCL (AC)

RATED VOLTAGE (V)	COIL RESISTANCE ± 10% AT 25°C (Ω)	MAX. CONTINUOUS VOLTAGE AT 25°C	PICK UP VOLTAGE (MAX) AT 25°C	DROP OUT VOLTAGE (MIN) AT 25°C	POWER CONSUMPTION AT RATED VOLTAGE
12	40	110% Of Rated Voltage	85% Of Rated Voltage	30% Of Rated Voltage	Approx. 1.2VA
24	160				
110	3400				
115	3400				
120	3400				
220	13600				
230	13600				
240	13600				

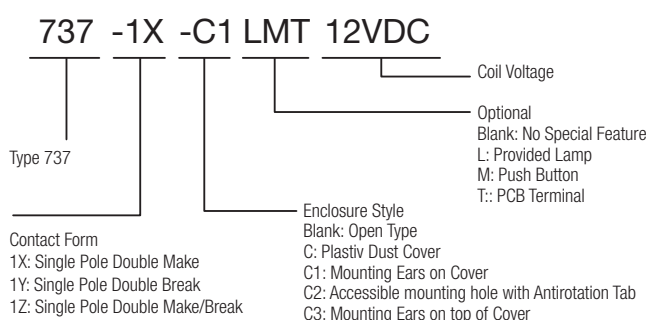
737 RELAYS

FEATURES



- Multiple enclosure style.
- Indicator Lamp and push-to-test button option available.
- Plug-in version or PCB terminals.
- High rating 30A 300VAC/28VDC, 15A 600VAC. General Purpose Power relays.
- Available HP ratings 1 HP 120VAC, 1.5 HP 200-600V.

ORDERING INFORMATION



CONTACT RATING

RESISTIVE LOAD	30A/300VAC, 30A/28VDC, 15A/600VAC
MOTOR	1 HP 120VAC, 1.5 HP 200-600VAC

COIL DATA SCL (AC)

	RATED VOLTAGE (V)	RATED CURRENT ± 10% AT 25°C (MA)	COIL RESISTANCE ± 10% AT 25°C (Ω)	MAX. CONTINUOUS VOLTAGE AT 25°C	PICK UP VOLTAGE (MAX) AT 25°C	DROP OUT VOLTAGE (MIN) AT 25°C	POWER CONSUMPTION AT RATED VOLTAGE
1X 1Y	6	188	32	110% Of Rated Voltage	80% Of Rated Voltage	10% Of Rated Voltage	Approx. 1.5W
	12	100	120				
	24	51	472				
	48	27	1800				
	110	11	10000				
	125	12.5	10000				
1Z	6	250	24				
	12	125	96				
	24	63	384				
	48	31	1536				
	110	11.5	9600				
	125	13	9600				

COIL DATA 737 (AC)

Rated Voltage (V)	Coil Resistance ± 10% at 25°C (Ω)	Max. Continuous Voltage at 25°C	Pick Up Voltage (Max) at 25°C	Drop Out Voltage (Min) at 25°C	Power Consumption at rated Voltage
6	4.2	110% Of Rated Voltage	85% Of Rated Voltage	30% Of Rated Voltage	Approx. 3.4VA
12	18				
24	72				
110	1580				
120	1700				
220	5500				
240	7200				

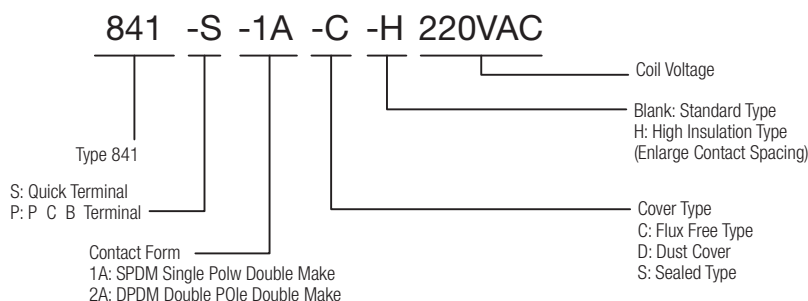
841 RELAY

FEATURES



- Industry Standard Octal-Type Termination for quick installation.
- Contact arrangements from 1 form A to 3 form C.
- Indicator lamp and push-to-test button option available.
- Anti-sticking contact midget.

ORDERING INFORMATION



CONTACT RATING

LOAD TYPE	1A (SPDM)	2A (DPDM)
RATED LOAD (RESISTANCE)	30A/22VAC	25A/220VAC
MAX. SWITCHING CURRENT	30A	25A
MAX. SWITCHING VOLTAGE	277VAC	277VAC
MAX. SWITCHING CAPACITY	6600VAC	5500VAC

COIL DATA SCL (DC)

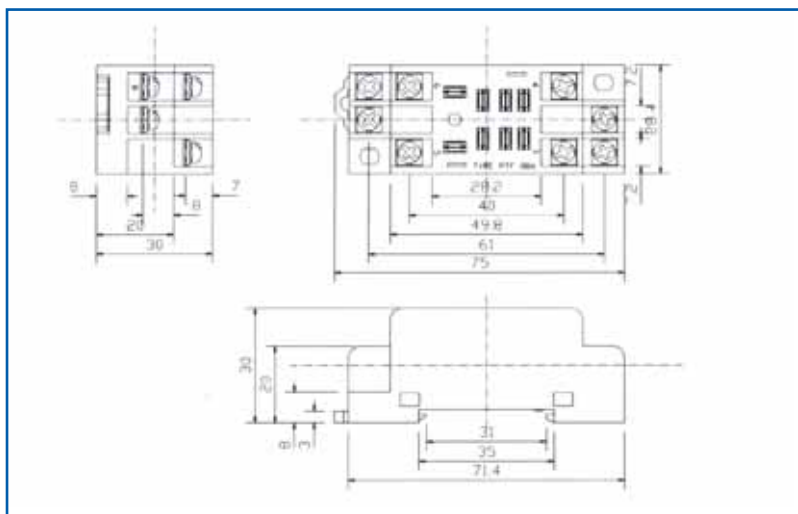
RATED VOLTAGE (V)	RATED CURRENT ± 10% AT 25°C (mA)	COIL RESISTANCE ± 10% AT 25°C (Ω)	MAX. CONTINUOUS VOLTAGE AT 25°C	PICK UP VOLTAGE (MAX) AT 25°C	DROP OUT VOLTAGE (MIN) AT 25°C	POWER CONSUMPTION AT RATED VOLTAGE
3	638	4.7	110% Of Rated Voltage	75% Of Rated Voltage	10% Of Rated Voltage	Approx. 1.92W
6	319	18.8				
12	160	75				
24	80	300				
48/50	40/411.6	1200				
100	19.2	5200				
110	17.4	6300				
200	9.5	21000				

COIL DATA (AC)

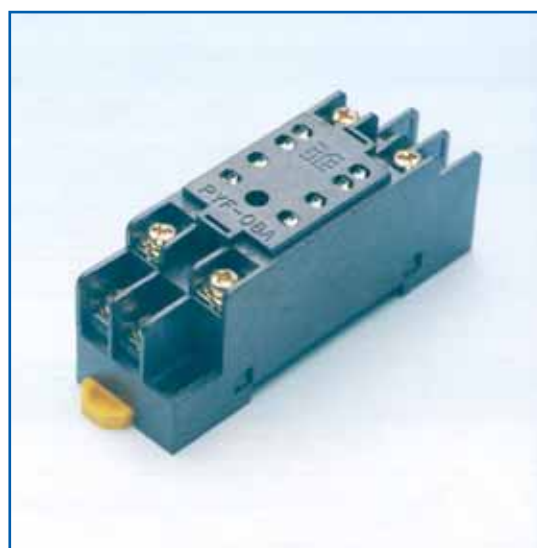
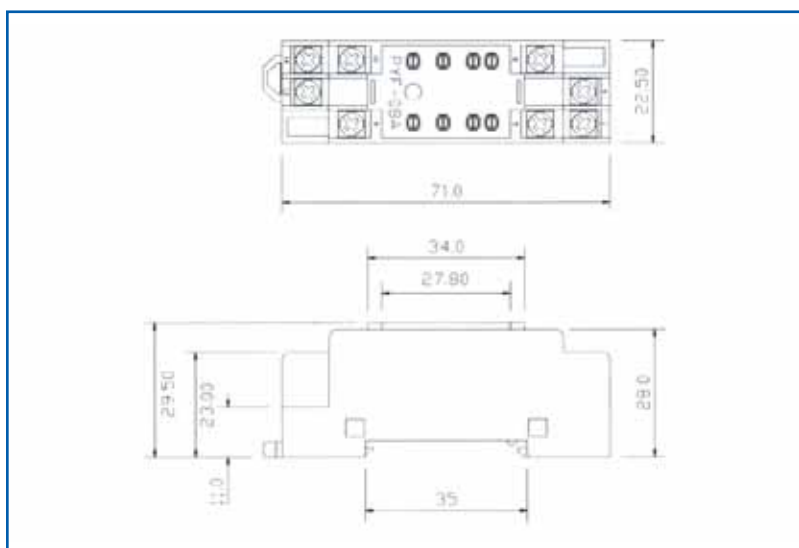
Rated Voltage (V)	Coil Resistance ± 10% at 25°C (Ω)	Max. Continuous Voltage at 25°C	Pick Up Voltage (Max) at 25°C	Drop Out Voltage (Min) at 25°C	Power Consumption at rated Voltage
6	275	110% Of Rated Voltage	80% Of Rated Voltage	10% Of Rated Voltage	Approx. 1.7VA ~ 2.7VA
12	138				
24	74				
48/50	39/40				
100/120	18.7/22.1				
200,240	9.1/10.8				

SOCKETS

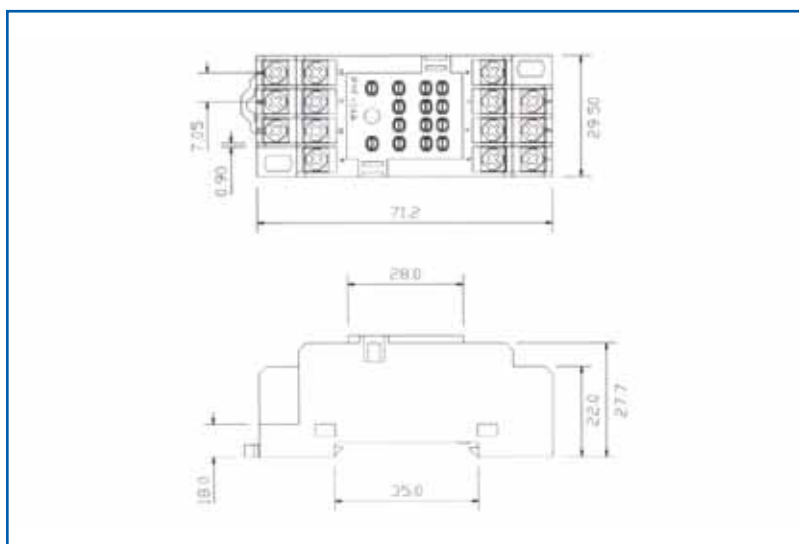
STF-08A to fit SCL-SCLA



PYF-08A to fit SCLB-W



SYF-14A to fit SCLD-W






SOLID STATE RELAYS

FEATURES

SERIES	MODEL NO.	MAX. LOAD CURRENT	LOAD VOLTAGE	BLOCKING VOLTAGE	INPUT CONTROL VOLTAGE	MUST TURN OFF VOLTAGE
	KB20C02A	02A, 03A, 04A, 0A	24 – 280VAC	600VAC PEAK	3 – 32VDC	1VDC
	KB40C04A	04A, 06A	24 – 480VAC	1200VAC PEAK		
	10-2-20C02A	1 / 2 / 4 / 8 PORTS 02A, 04A	24 – 280VAC	600VAC PEAK	3 – 32VDC	1VDC
	10-4-40C02A	1 / 2 / 4 / 8 PORTS 02A, 04A	24 – 480VAC	1200VAC PEAK		
	KD20C25AX	10A, 25A, 40A, 50A, 75A, 90A, 100A	24 – 280VAC	600VAC PEAK	4 – 32VDC	1VDC
	KD40C75AX	10A, 25A, 40A, 50A, 75A, 90A, 100A	48 – 480VAC	1200VAC PEAK	4 – 32VDC	1VDC
	KF0602D KF0604D	2A 4A	3 – 60VDC	80VDC	3 – 32VDC	1VDC
	10-2-0602D	1 / 2 / 4 / 8 PORTS 02A	3 – 60VDC	80VDC	3 – 32VDC	1VDC
	10-2-0604D	1 / 2 / 4 / 8 PORTS 04A	3 – 60VDC	80VDC		
	KG1005D	05, 12, 25, 40, 50, 75	5 – 120VDC	140VDC	3 – 32VDC	
	KG2075D	10, 25, 40, 50, 75	5 – 240VDC	300VDC		
	KL20C40AX	10A, 25A, 40A, 50A, 75A, 90A, 100A	24 – 280VAC	600VAC PEAK	80 – 280VAC	10VAC
	KL40C90AX	10A, 25A, 40A, 50A, 75A, 90A, 100A	48 – 480VAC	1200VAC PEAK	80 – 280VAC	10VAC
	KR2025AX	10A, 25A, 40A	24 – 280VAC	600VAC PEAK	BR500KΩ	PHASE CONTROL
	KR4040AX	25A, 40A	48 – 480VAC	1200VAC PEAK	VR1MΩ	ANALOG SWITCHING

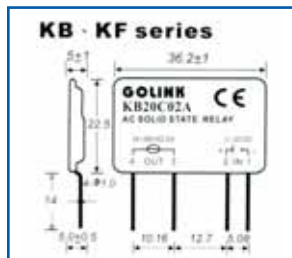
3 PHASE – SOLID STATE RELAY

SERIES	MODEL NO.	LOAD CURRENT	LOAD VOLTAGE	BLOCKING VOLTAGE	CONTROL VOLTAGE	MUST TURN OFF VOLTAGE
	K3PH20C25DA	25A, 40A, 50A, 75A, 90A, 100A	24 – 280VAC	600VAC	6 – 32VDC	3VDC
	K3PH40C75DA	25A, 40A, 50A, 75A, 90A, 100A	48 – 480VAC	1200VAC	12 – 32VDC	9.5VDC
	K3PH20C025AA	25A, 40A, 50A, 75A, 90A, 100A	24 – 280VAC	600VAC	80 – 280VAC	10VAC
	K3PH40C75AA	25A, 40A, 50A, 75A, 90A, 100A	48 – 480VAC	1200VAC	80 – 280VAC	10VAC
	K3PI20C25DA	25A, 40A, 50A, 75A, 90A, 100A	24 – 280VAC	600VAC	6 – 32VDC	3VDC
	K3PI40C40DA	25A, 40A, 50A, 75A, 90A, 100A	48 – 480VAC	1200VAC	12 – 32VDC	9.5VDC
	K3PI20C75AA	25A, 40A, 50A, 75A, 90A, 100A	24 – 280VAC	600VAC	80 – 280VAC	10VAC
	K3PI40C90AA	25A, 40A, 50A, 75A, 90A, 100A	48 – 480VAC	1200VAC	80 – 280VAC	10VAC

SOLID STATE RELAYS & ACCESSORIES

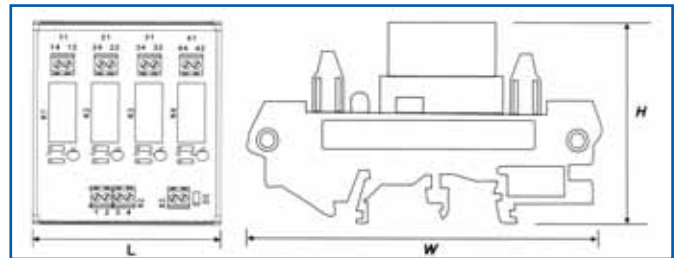
KB-KF SERIES

10-X SERIES



NOTE X= 2PORT/4PORT/8PORT

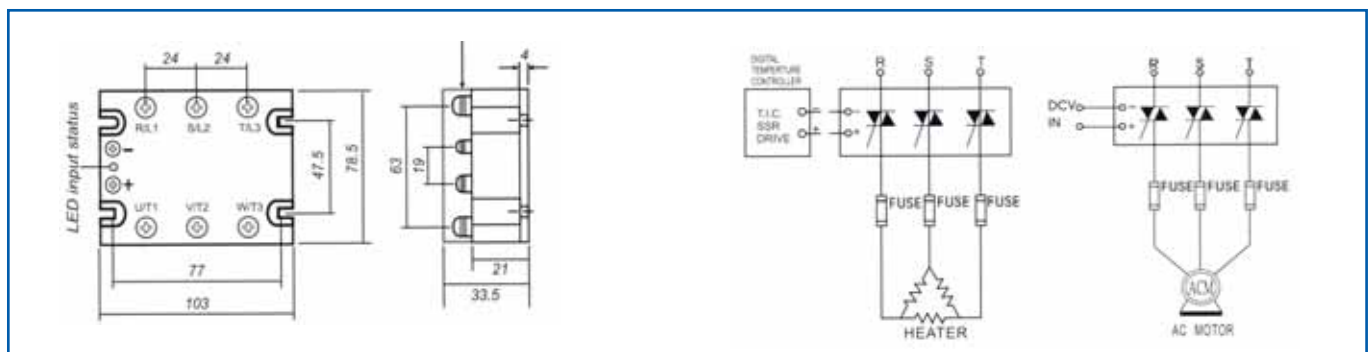
MODEL NO.	DIMENSION
IO-2-20C04A	34 x 85 x 51
IO-4-20C04A	64 x 85 x 51
IO-8-20C04A	124 x 85 x 51
IO-2-20C04D	34 x 85 x 51
IO-4-20C04D	64 x 85 x 51
IO-8-20C04D	124 x 85 x 51



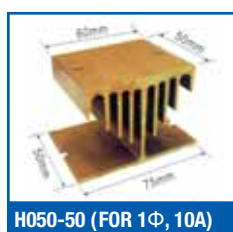
KD-KG-KL-KR SERIES




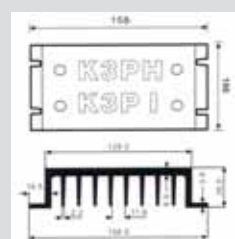
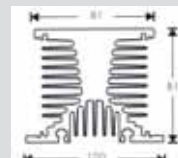
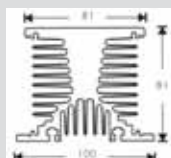
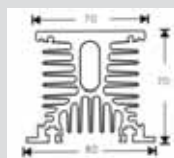
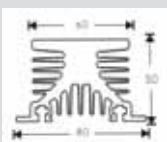
KD-KG-KL-KR SERIES



KD-KG-KL-KR SERIES



MODEL NO.	FOR 1Φ SSR	MODEL NO.	FOR 1Φ SSR	MODEL NO.	FOR 1Φ SSR	MODEL NO.	FOR 1Φ SSR	MODEL NO.	FOR 1Φ SSR
H060 – 50	10A – 15A	H080 – 50	25A	H100 – 45	10A	H104 – 104	25A – 40A	H197 – 100	25A, 40 A
H060 – 80	25	H080 – 100	40A	H100 – 70	25A	H104 – 104F	40A – 50A		
H060 – 100	40A	H080 – 150	50A	H100 – 100	40A	H104 – 120F	50A – 75A		
H060 – 120	50A			H100 – 120	50A	H104 – 150F	75A – 100A		
H060 – 150	75A			H100 – 150	75, 100A	"F" with fan (110V or 220VAC)			



DELAY ON MAKE TIMER

FEATURES

- All Solid State, no moving contacts.
- Operating voltage 19 – 299V AC or DC
- 0.1 to 8 minutes time adjustable by knob with dial
- Digital Timing Circuit
- Good Repeat Accuracy
- Two Terminal Series Connection
- Epoxy Encapsulated

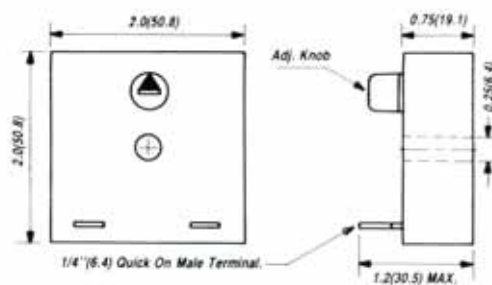


SPECIFICATIONS

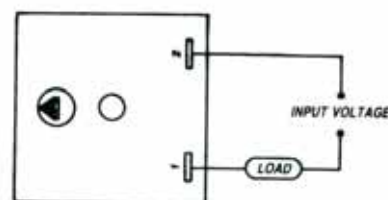
TIME	
RANGE	0.1 to 8min (Knob adjustable with dial)
REPEAT ACCURACY	± 2% (Under fixed conditions)
RECYCLE TIME	40mx Max. (After timing)
VOLTAGE	
RANGE	19 to 288 Volts AC or DC
FREQUENCY	DC or AC 60Hz/50Hz
OUTPUT	
TYPE	Solid State
MAX. CURRENT	1 Amp steady state, 10 Amps in-rush at 55°C
MIN. CURRENT	40 mA
VOLTAGE DROP	Typical 2.5V at 1 Amp current
PROTECTION	
INTERNAL VARISTOR	
MIN.	1500 Vrms Dielectric Breakdown
MAX.	100MΩ insulation resistance (Test at 500VDC)
TEMPERATURE	
OPERATING TEMP.	-20°C to +70°C
STORAGE TEMP.	-30°C to +80°C

Upon application of input voltage, the load de-energizes and the time delay is initiated. At the end of the delay time, the load energizes. Reset is accomplished by removing input voltage.

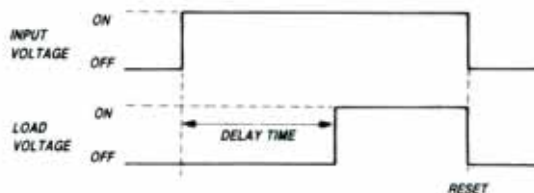
DIMENSIONS



CONNECTION



TIMING DIAGRAM

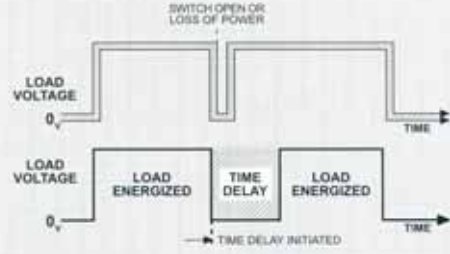





ORDER NUMBER

M D U V 480
1 2 3 4 5

1. OPERATION MODE M – Delay On Make
2. CIRCUIT TYPE D – Digital Circuit
3. OPERATING VOLTAGE U – Universal Range 19 - 288V
4. ADJUSTMENT TYPE V – Variable Resistor Built-in
5. TIME RANGE 480 – Delay Time Max. 480 Sec.

DELAY ON BREAK TIMER

DELAY ON BREAK TIMERS				
APPLICATION	TIMING DIAGRAM		MODE OF OPERATION	
<p>"Anti-short Cycle" "OFF delay on break"</p> <p>Helps to protect air conditioning, refrigeration and heat pump equipment from damage which may be caused by the rapid short cycling of compressors.</p>			<p>Upon application of power, the load is energized. When the thermostat or other switch opens, or there is a loss of power, the load is de-energized and the delay period begins. The compressor will not start again during the delay period. Restart occurs after the delay period.</p>	
ICM CONTROL	SERIES	FEATURES/APPLICATIONS	SPEC	REPLACES
	ICM200 ICM200F ICM201 ICM201F	<ul style="list-style-type: none"> Higher 1.5 Amp Rating Compressor lockout/anti-shock cycle timer Helps to protect compressors from damage caused by rapid short cycling Simple, 2-wire hookup Compact, 2" x 2" package F suffix denotes 6" wire leads (shown at left) ICM200 has 3min. delay ICM201 has 5min. delay 	<ul style="list-style-type: none"> 18 – 30VAC 1.5 Amps 15 Amp inrush 3 or 5min. fixed time delays Voltage Drop: 3.5V Typical 4.5V Max Frequency: 50/60Hz Requires 40mA holding current 	<ul style="list-style-type: none"> Diversified: ASC-500, 501 ASC-502 ASC-505-5 Gemline: IC321 IC322 Watsco: EAC-500 EAC-501-180-W EAC-501-300-W
	ICM203 ICM203F	<ul style="list-style-type: none"> Universal Voltage Operation Higher 1.5 Amp power rating Compressor lockout/anti-shock cycle timer Helps to protect compressors from damage caused by rapid short cycling Simple, 2-wire hookup Compact, 2" x 2" package F suffix denotes 6" wire leads Works with anitcipator-type thermostats 	<ul style="list-style-type: none"> 18 – 240VAC 1.5 Amps 15 Amp inrush Knob-adjustable delays .03-10 min. (1.8 – 600 sec.) Voltage Drop: 3.5V Typical 4.5V Max Frequency: 50/60Hz Requires 40mA holding current 	<ul style="list-style-type: none"> Diversified: ASC-500, 501 ASC-502 ASC-505-5 Gemline: IC320 Mars: 32392 Robertshaw: 3310-072 Supco: TD-73 Watsco: EAC-500 EAC-501-180-W EAC-501-300-W
DELAY ON BREAK TIMERS - ULTRA LOW COST				
ICM CONTROL	SERIES	FEATURES/APPLICATIONS	SPEC	REPLACES
	ICM207 ICM208 ICM209	<ul style="list-style-type: none"> Universal Voltage Operation Higher Voltage Operation Help prevent scroll compressor reversal Fast response time: 16 ms. Eliminates relay chatter due to thermostat bouncing or tampering Works with anitcipator-type thermostats Compact, epoxy-encapsulated package ICM207 has 3 min. delay ICM208 has 5 min. delay ICM209 has 10 min. adjustable delay 	<ul style="list-style-type: none"> 18 – 240VAC 1 Amps 1 Amp inrush 3 or 5min. fixed or 10min. Voltage Drop: 2.5V at 1 Amp Frequency: 50/60Hz Requires 40mA holding current 	N/A

AH3-□ SERIES

FEATURES

- Two LED's provides status indication, for power ON and time UP.
- Wide variety of type-14 ranges (0.1 sec. to 10 hrs.)
- Standard surface mounting could be easily converted into flush mounting by adding a special adaptor. (Type Y-40)

TYPE	AH3-□	AH3-□+(Y-40) Adaptor
W x H x D mm (Dimensions)	40 x 50 x 58	45 x 54 x 59

AVAILABLE TYPES

		TYPE		
MOUNTING	Surface Mounting	AH3-1	AH3-2	AH3-3
	Flushing Mounting	Y-40	Y-40	Y-40
CONTROL OUTPUT	Time-Limit Contact	SPDT (SA)	DPDT (SA)	SPDT (SA)
	Instantaneous Contact	—	—	SPST-NO (SA)
CONNECTION & TIMING CHART		1.	2.	3.

SPECIFICATIONS

OPERATING VOLTAGE	AC: 85 ~ 110% of rated voltage DC: 80 ~ 110% of rated voltage
RATED VOLTAGE	AC: 110V, 220V, 240V, 50/60Hz DC: 12V, 24V
CONSUMED POWER	About 2VA for AC: About 2W for DC
CONTROL METHOD	Time-Limit Operating Self-resetting
CONTACT RATING	AC: 120V 5.A. (p.f. = 1)
AMBIENT TEMP	-10°C ~ +55°C
AMBIENT HUMIDITY	45 ~ 85%

CHARACTERISTICS

REPEAT ACCURACY		Less than $\pm 1\%$ of full scale
EFFECT OF VOLTAGE		Less than $\pm 1\%$
EFFECT OF TEMPERATURE		Less than $\pm 2\%$ at 20°C
SETTING ACCURACY		Less than $\pm 10\%$ of full scale
RESET TIME		0.1 , Less than 0.1 Sec.
INSULATION RESISTANCE		Over 50M Ω (DC500V)
DIELECTRIC		AC 2000V one Min.
WEIGHT		Approximately 160g
SHOCK RESISTANCE		Incorrect Operate 10G
LIFE	MECHANICAL	5,000,000 Operations
	ELECTRICAL	100,000 Operations at rated load
VIBRATION RESIS-TANCE		Incorrect Operate 10.55Hz 0.5mm Durability 10.55Hz 0.5mm

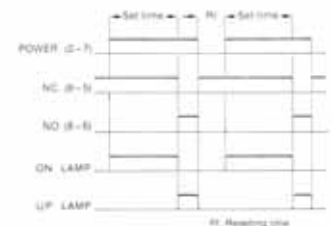
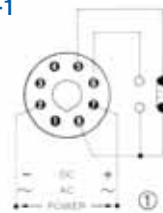


TIME RANGE

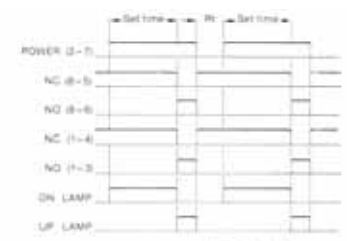
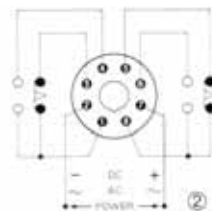
RATED TIME	TIME SETTING RANGE	OPERATING VOLTAGE
1S	0.1S ~ 1S	
3S	0.3S ~ 3S	
6S	0.6S ~ 6S	
10S	1S ~ 10S	DC 12V
30S	3S ~ 30S	DC 24V
60S	6S ~ 60S	AC 110V 50/60Hz
3M	10S ~ 100S	
6M	20S ~ 6M	AC 120V 50/60Hz
10M	0 ~ 10M	
30M	2M ~ 30M	AC 220V 50/60Hz
60M	3M ~ 60M	
3H	10M ~ 3H	AC 240V 50/60Hz
6H	20M ~ 6H	
10H	30M ~ 10H	

CONNECTION DIAGRAM OPERATION TIME CHART

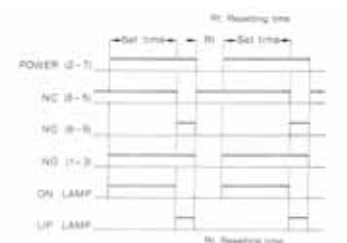
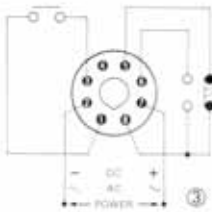
AH3-1



AH3-2



AH3-3



SCR POWER CONTROLLERS

THYRISTOR POWER REGULATOR

W5 – SERIES



NOTE

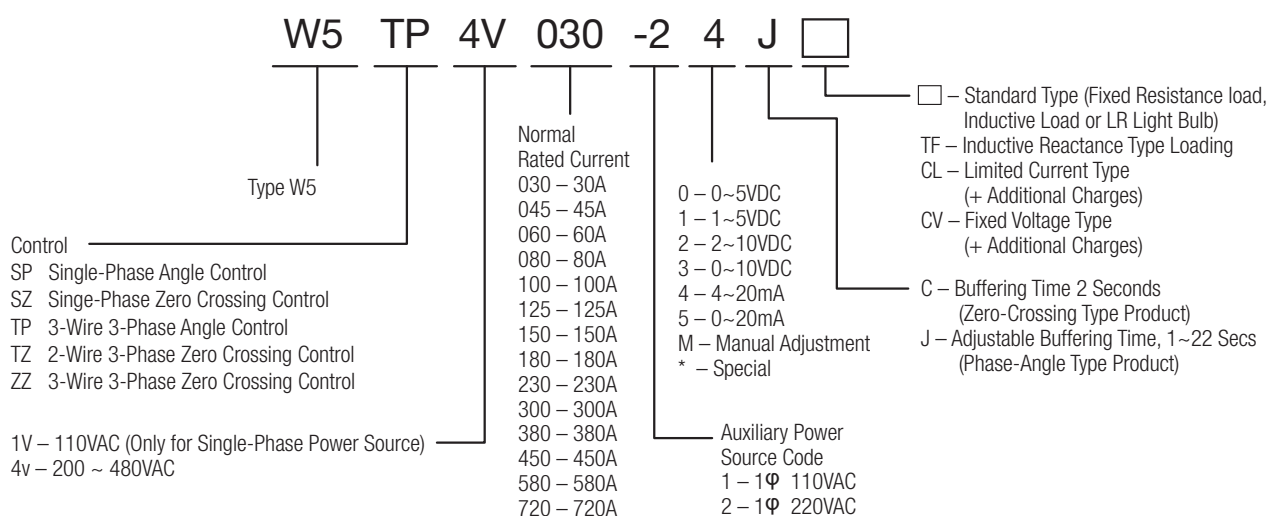
W5-Series has no included potentiometer (VR), the VR parts are option as following part numbers.

- 1) Part No. Scale/0~100% (Sticker for Scale Range 0~100%)
- 2) Part No. KB-RN99D (Knob)
- 3) Part No. VR-RV24YN-20S/B103 (TOCOS Potentiometer 24Ø 10KΩ)

DESCRIPTION OF THE CONNECTORS

SP · SZ · TZ CONNECTOR NO.	TP · ZZ CONNECTOR NO.	DESCRIPTION	NOTES
F5		Detection of the fuse burn down	The Connection from power to loading must be connected back to the FS Side
	•	Empty	Do Not Connect
M	M	+ 5VDC	Only for this control board, not for other use Positive Control Signal Input
+	+	Positive Control Signal Input	The Default Setting is 4 ~ 20mA when the Sticker is not marked
-	-	Standard Analog Signal Voltage	
E3	E3	Connected to the VR 3rd pin of the Outside Potentiometer	Adjustable Output 0 ~ 100%, Please eliminate the shorted Copper Wire between E3 and E2 when using the Outside Potentiometer with (2 ~ 10KΩ)
E2	E2	Connected to the VR 2nd pin of the Outside Potentiometer	
E1	E1	Connected to the VR 1st pin of the Outside Potentiometer	
NC	NC	Alarm Connector Output (Normal Close)	Connector Capacity : 227VAC/2A 125VAC/2A 30VAC/2A
COM	COM	Alarm Connector Output (Common Point)	
NO	NO	Alarm Connector Output (Normal Open)	
AC1	AC1	Auxiliary Power Source	Please refer to the stick for the auxiliary power and voltage
AC2	AC2		

W5TP4V030-24J



SWITCHES

CURRENT SWITCHES

RIBXK SERIES – CURRENT SENSOR – ENCLOSED SOLID CORE CURRENT SENSORS



SPECIFICATIONS

OPERATING TEMPERATURE -30 to 140°F

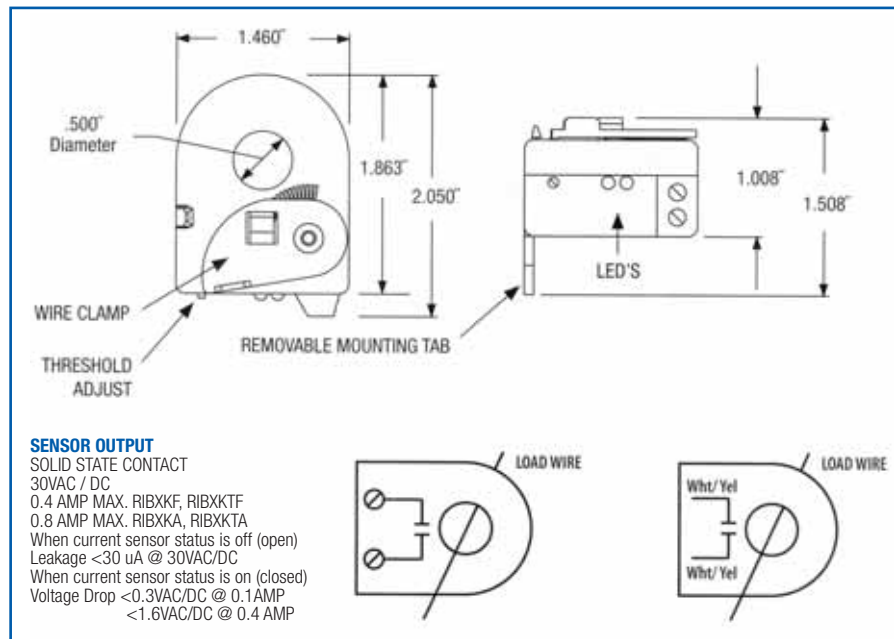
MAX SENSE VOLTAGE 600 VAC

APPROVALS UL Listed, UL916, UL864, C-UL, CE

HOUSING RATING Plenum, NEMA 1

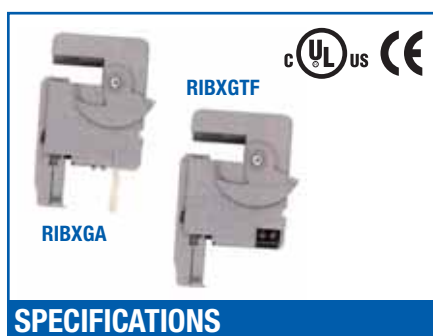
MOUNTING/ Removable mounting tab provided.

INSTALLATION The wire clamp locks against the load wire, securing the unit in place.



MODEL NO.	RANGE	TYPE	THRESHOLD	OUTPUT	LED 1	LED 2
RIBXKF	.25 – 150 Amp	SOLID CORE	FIXED	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .4 AMPS MAX (WHT/YEL 16" 18 AWG WIRE LEADS)		
RIBXKTF	.25 – 150 Amp	SOLID CORE	FIXED	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .4 AMPS MAX (TERMINAL STRIP, ACCEPTS #14-22 AWG WIRE)		
RIBXKA	.50 – 150 Amp	SOLID CORE	ADJUSTABLE	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .8 AMPS MAX (WHT/YEL 16" 18 AWG WIRE LEADS)	OVER TRIP POINT	UNDER TRIP POINT
RIBXKTA	.50 – 150 Amp	SOLID CORE	ADJUSTABLE	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .8 AMPS MAX (TERMINAL STRIP, ACCEPTS #14-22 AWG WIRE)	OVER TRIP POINT	UNDER TRIP POINT

RIBXG SERIES – CURRENT SENSOR – ENCLOSED SPLIT CORE CURRENT SENSORS



SPECIFICATIONS

OPERATING TEMPERATURE -30 to 140°F

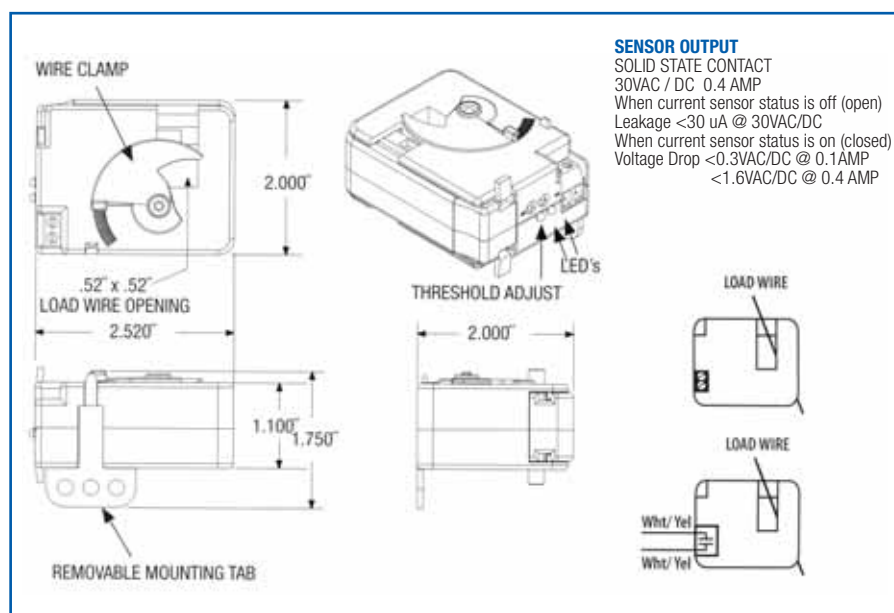
MAX SENSE VOLTAGE 600 VAC

APPROVALS UL Listed, UL916, UL864, C-UL, CE

HOUSING RATING Plenum, NEMA 1

MOUNTING / Removable mounting tab provided

INSTALLATION The wire clamp locks against the load wire, securing the unit in place.



MODEL NO.	RANGE	TYPE	THRESHOLD	OUTPUT	LED 1	LED 2
RIBXGF	.35 – 150 AMP	SPLIT CORE	FIXED	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .4 AMPS MAX (WHT/YEL 16" 18 AWG WIRE LEADS)		
RIBXGFL	.75 – 150 AMP	SPLIT CORE	FIXED	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .4 AMPS MAX (WHT/YEL 16" 18 AWG WIRE LEADS)	OVER TRIP POINT	
RIBXGTF	.35 – 150 AMP	SPLIT CORE	FIXED	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .4 AMPS MAX (TERMINAL STRIP, ACCEPTS #14-22 AWG WIRE)		
RIBXGFL	.75 – 150 AMP	SPLIT CORE	FIXED	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .4 AMPS MAX (TERMINAL STRIP, ACCEPTS #14-22 AWG WIRE)	OVER TRIP POINT	
RIBXGA	.75 – 150 AMP	SPLIT CORE	ADJUSTABLE	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .4 AMPS MAX (WHT/YEL 16" 18 AWG WIRE LEADS)	OVER TRIP POINT	UNDER TRIP POINT
RIBXGTA	.75 – 150 AMP	SPLIT CORE	ADJUSTABLE	SOLID STATE SWITCH SPST ; 30 VAC/DC ; .4 AMPS MAX (TERMINAL STRIP, ACCEPTS #14-22 AWG WIRE)	OVER TRIP POINT	UNDER TRIP POINT




SWITCHES

TOGGLE SWITCHES

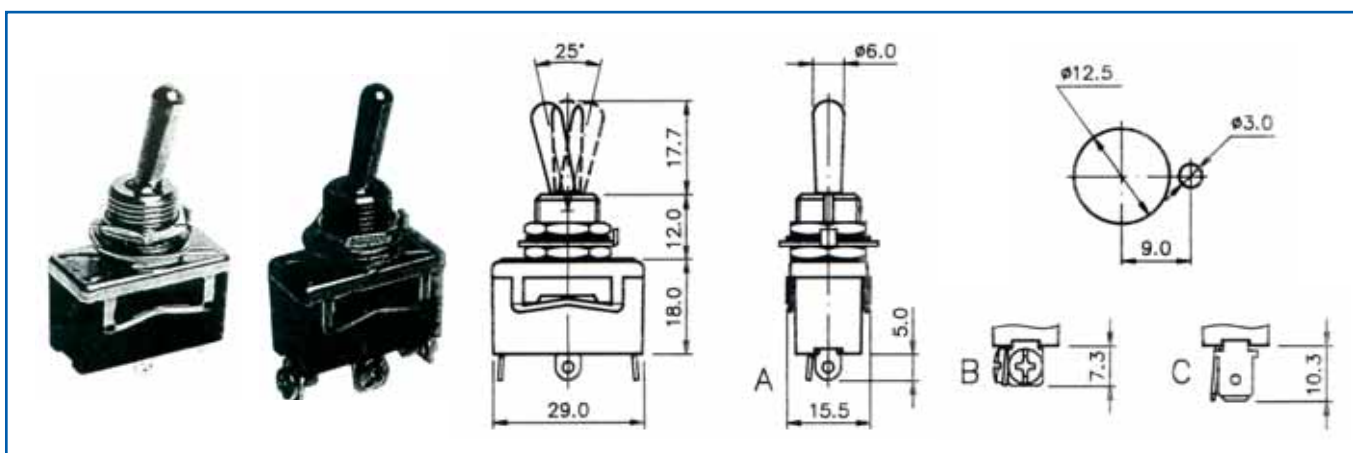
SPECIFICATION

TERMINAL'S TYPE	
A	SOLDER TERMINAL
B	SREW TERMINAL
C	QUICK TERMINAL

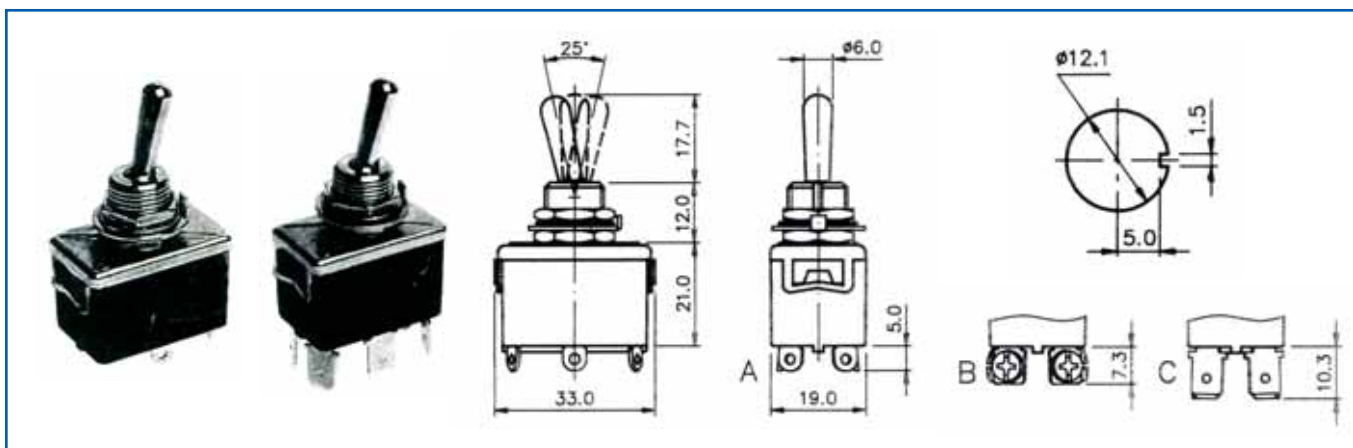
1. RATING 20A 250VAC.
2. INSULATION RESISTANCE
DC 500V 200MO or more
3. CONTACT RESISTANCE
DC 2 – 4V 1A 20MO or less
4. WITHSTAND VOLTAGE
AC 1500V or more

SWITCH FUNCTION				
MODEL NO.				OPERATIONS
7011	ON	—	OFF	SPST
7012	ON	—	ON	SPDT
7013	ON	OFF	ON	SPDT
7014	(ON)	OFF		SPST
7015	ON	—	(ON)	SPDT
7016	(ON)	OFF	(ON)	SPDT
7017	ON	OFF	(ON)	SPDT
7021	ON	—	OFF	DPST
7022	ON	—	ON	DPDT
7023	ON	OFF	ON	DPDT
7024	(ON)	OFF		DPST
7025	ON	—	(ON)	DPDT
7026	(ON)	OFF	(ON)	DPDT
7027	ON	OFF	(ON)	DPDT

701X SERIES



702X SERIES



SWITCHES

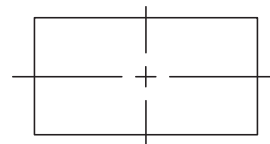
ROCKER SWITCHES

RH SERIES

SINGLE POLE ROCKER SWITCHES UP TO 20A 125VAC – ROUND OR SQUARE LEN ILLUMINATED



PANEL CUT-OUT
SNAP-IN MOUNTING

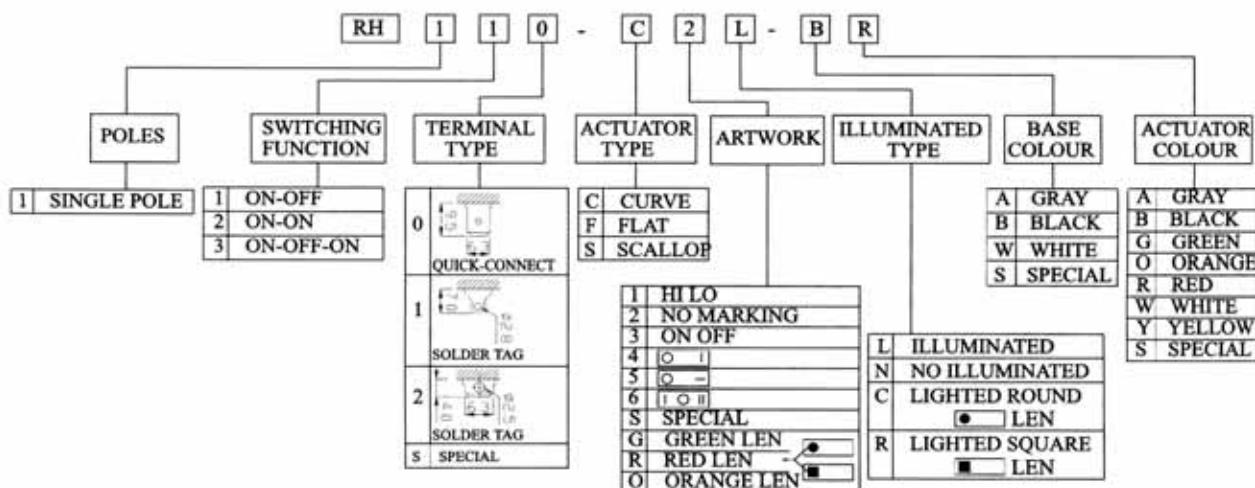


PANEL CUT-OUT (X = PANEL THICKNESS)

X	Y	DIM.Z
0.75 TO 1.25MM	30.0+0/-0.1	11.0+0.1/-0
1.25 TO 2MM	30.2+0/-0.1	11.0+0.1/-0
2 TO 3MM	30.5+0/-0.1	11.0+0.1/-0

SPECIFICATIONS

- 16A 125VAC 1/4HP (UL CSA)
- 16A 250VAC 1/4HP (UL, CSA)
- 20A 125VAC 3/4HP (UL)
- 16(4) 250V~T85 1E4 , 10(2)A 250V~5E4 (VDE, SEMKO, DEMKO, NEMKO, FIMKO, SEV)
- **INITIAL CONTACT RESISTANCE** 20m Ω max.
- **INSULATION RESISTANCE** 100m Ω min, at 500VDC
- **DIELECTRIC STRENGTH** 1,000VAC for 1 minute
- **ELECTRIC LIFE** 16(4) A 250VAC : 10,000 cycles
10(2) A 250VAC : 50,000 cycles
- **TEMPERATURE RANGE** -20°C to + 85°C
- Switch for Class II appliances
- **BASE** Nylon 66, UL rated : 94V-2 min
- **ACTUATOR** Nylon 66/PC, UL rated 94V-2 min
- **SPRING** Piano Wire
- **CONTACT** Silver-Cadmium Alloy
- **LAMP** Neon, Fluorescent for AC; Tungsten bulb for DC
Illuminated types offer only ON-OFF function
- Scallop-shaped types offer only ON-OFF, ON-ON for non-illumination, ON-OFF for full illumination (Lens unavailable)



SWITCHES

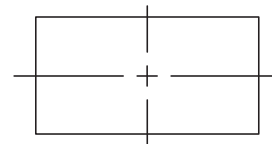
ROCKER SWITCHES

R SERIES

DOUBLE POLE ROCKER SWITCHES UP TO 20A 125VAC – ROUND OR SQUARE LEN ILLUMINATED



PANEL CUT-OUT
SNAP-IN MOUNTING

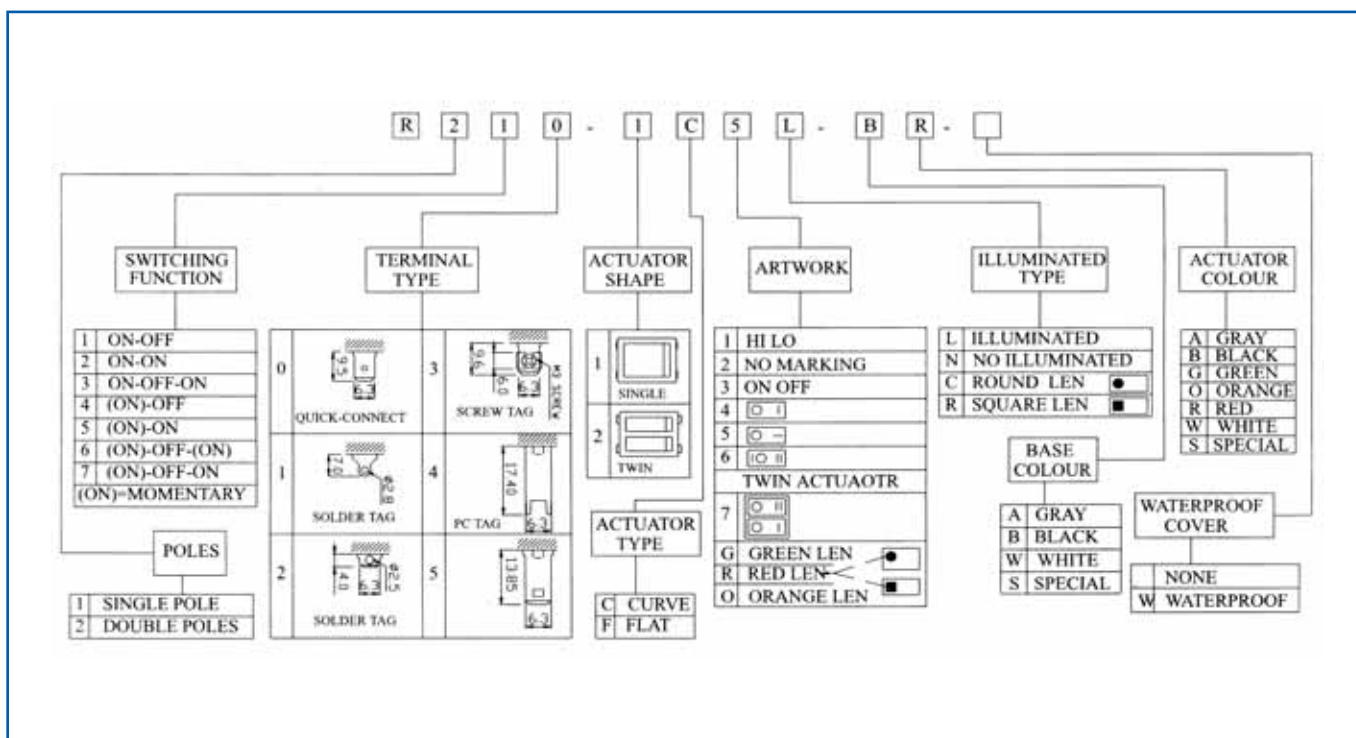


PANEL CUT-OUT (X = PANEL THICKNESS)

X	Y	DIM.Z
0.75 TO 1.25MM	30.0+0/-0.1	22.0+0.15/-0
1.25 TO 2MM	30.2+0/-0.1	22.0+0.15/-0
2 TO 3MM	30.5+0/-0.1	22.0+0.15/-0

SPECIFICATIONS

- 16A 125VAC 1/4HP (UL CSA)
- 16A 250VAC 1/4HP (UL, CSA)
- 20A 125VAC 3/4HP (UL)
- 16(4) 250V~T85 1E4 , 10(2)A 250V~5E4 (VDE, SEMKO, DEMKO, NEMKO, FIMKO, SEV)
- **INITIAL CONTACT RESISTANCE** 20m Ω max.
- **INSULATION RESISTANCE** 100m Ω min, at 500VDC
- **DIELECTRIC STRENGTH** 1,000VAC for 1 minute
- **ELECTRIC LIFE** 16(4) A 250VAC : 10,000 cycles
10(2) A 250VAC : 50,000 cycles
- **TEMPERATURE RANGE** -20°C to + 125°C
- Switch for Class II appliances
- **BASE** Nylon 66, UL rated: 94V-2 min
- **ACTUATOR** Nylon 66/PC, UL rated 94V-2 min
- **SPRING** Piano Wire
- **CONTACT** Silver-Cadmium Alloy
- **TERMINALS** Silver Plated Copper
- **LAMP** Neon, Fluorescent for AC; Tungsten bulb for DC
Illuminated types offer only ON-OFF function
- Flat actuator offers only full-illumination (no Len)



FLOW SWITCHES

LIQUID FLOW SWITCH

TYPE FF81

- Casing in shock-proof thermoplastic with self-retaining screws
- Threaded brass connection G1 Nylon cable gland G 3/8
- AISI 301 stainless steel blades from G1 to G4
- Protection class 2

- Protection Class 1
- AISI 301 Stainless Steel Blades from G1 to G10
- Electric connections on Faston 6.3 (provided)
- SPDT Single-pole Switching Microswitch

ELECTRIC SPECIFICATIONS

RATED INSULATION VOLTAGE U_i 380V~

CONTINUOUS DUTY RATED CURRENT LTH 10A

RATED OPERATING CURRENT IE 220V~ 250V~

RESISTANCE LOAD AC-12 10A

INDUCTIVE LOAD AC-15 3A

DIRECT CURRENT DC-13 0,2A



TYPE FF84

- Stainless steel case
- Threaded brass connection G1
- Nickel-plated brass cable gland G 3/8

TYPE		PIPE DIAMETER	MINIMUM CALIBRATION VALUE (dm/sec) WITH FLOW:		MAXIMUM CALIBRATION VALUE (dm/sec) WITH FLOW:		MAXIMUM OPERATING PRESSURE	TEMPERATURE RANGE	MAXIMUM AMBIENT TEMPERATURE	PROTECTION LEVEL
			INCREASING	DECREASING	INCREASING	DECREASING				
FF84	FF81	G1	0,26	0,16	0,58	0,53	10 BAR	-20 TO 110°C	50°C	IP54
		G2	0,8	0,6	1,7	1,6				
		G3	1,7	1,2	3,2	3				
		G4	2,2	1,7	5,1	4,8				
		G6	4,7	3,4	9	8,5	10 BAR	-20 TO 110°C	50°C	IP54
		G8	12,9	10,7	26	25,2				
		G10	26,5	22	43,5	41				

LIQUID FLOW SWITCH

- Casing in shock-proof thermoplastic AISI 301 stainless steel blades for pipes from G1" to G8"
- Direct fixing by threaded connection G1"

ELECTRIC SPECIFICATIONS

RATED INSULATION VOLTAGE U_i 380V~

CONTINUOUS DUTY RATED CURRENT LTH 10A

RATED OPERATING CURRENT IE: 220V~ 250V~

RESISTANCE LOAD AC-12 16A

INDUCTIVE LOAD AC-15 6A

DIRECT CURRENT DC-13 0.2A



TYPE	PIPE DIAMETER	PADDLE LENGTH	MINIMUM CALIBRATION VALUE (dm/sec) WITH FLOW:		MAXIMUM CALIBRATION VALUE (dm/sec) WITH FLOW:		TEMPERATURE RANGE	PROTECTION LEVEL
			INCREASING	DECREASING	INCREASING	DECREASING		
FF82	G1	35	1	0,5	2	1,9	-20 TO 110°C	IP65
	G1 1/4	35	1,2	0,7	2,9	2,7		
	G1 1/2	58	1,6	1	3,9	3,6		
	G2	58	2,9	2,1	6,1	5,7		
	G2 1/2	89	4	2,7	7	6,5		
	G3	89	6,1	4,3	11,4	10,7		
	G4	89	14,7	11,3	28,9	27,6		
		167	7,9	6,1	18,4	17,3		
	G5	89	28,3	22,8	55,5	5,3		
		167	12,8	9,2	26,7	2,5		
	G6	89	43	35,8	85	81,6		
		167	16,8	12,2	32,5	30,5		
	G8	89	85	72,4	172,3	165,5		
		167	46,4	38,5	94	90,7		

PRESSURE SWITCHES

PRESSURE SWITCH FOR PRESSURE UP TO 28 BAR

- Sensitive element with Stainless Steel membrane, laser welded
- Metallic frame
- Shock-proof Thermoplastic Cover
- Adjustable differential
- Maximum temperature of controlled fluid: 120°C
- Compliance with standards CEI EN 60947-1 & 60947-5-1
- The storage and transport temperature corresponds to the pressure switch body admissible temperature

ELECTRIC SPECIFICATIONS

RATED INSULATION VOLTAGE U_i 415V~
 CONTINUOUS DUTY RATED CURRENT I_{th} 16A
 RATED OPERATING CURRENT I_E :
 220V~ 380/415V~
 RESISTANCE LOAD AC-1 — 16A
 INDUCTIVE LOAD AC-3 — 6A
 DIRECT CURRENT DC-13 0,2A —

* The differential is subtracted from the scale value



	RANGE	DIFFERENTIAL *	MAXIMUM PRESSURE OF SENSITIVE ELEMENT	CONNECTION	PRESSURE SWITCH BODY ADMISSIBLE TEMPERATURE •	PROTECTION LEVEL
B12CN	-0,2 TO 8 BAR	0,6 TO 3 BAR	9 BAR	G 1/4 FEMALE	-35 to 60°C	IP40
B12DN	5 TO 16 BAR	1 TO 3,5 BAR	18 BAR	G 1/4 FEMALE	-35 to 60°C	IP40
B12EN	8 TO 28 BAR	2 TO 6 BAR	32 BAR	G 1/4 FEMALE	-35 to 60°C	IP40
B12CRN	-0,2 TO 8 BAR	0.6 TO 3 BAR	9 BAR	SAE 1/4"	-35 to 60°C	IP40
B12ERN	8 TO 28 BAR	2 TO 6 BAR	32 BAR	SAE 1/4"	-35 to 60°C	IP40

PRESSURE SWITCH FOR PRESSURE UP TO 300 BAR

- Piston sensitive element, brass connection
- Metallic frame
- Shock-proof thermoplastic cover
- Adjustable differential
- Maximum temperature of controlled fluid: 80°C
- Compliance with standards CEI EN 60947-1 & 60947-5-1
- The storage and transport temperature corresponds to the pressure switch body admissible temperature

ELECTRIC SPECIFICATIONS

RATED INSULATION VOLTAGE U_i 415V~
 CONTINUOUS DUTY RATED CURRENT I_{th} 16A
 RATED OPERATING CURRENT I_E :
 220V~ 380/415V~
 RESISTANCE LOAD AC-1 — 16A
 INDUCTIVE LOAD AC-3 — 6A
 DIRECT CURRENT DC-13 0,2A —

*The differential is subtracted from the Range value



	RANGE	DIFFERENTIAL *	MAXIMUM PRESSURE OF SENSITIVE ELEMENT	CONNECTION	PRESSURE SWITCH BODY ADMISSIBLE TEMPERATURE •	PROTECTION LEVEL
B12FN	12 TO 50 BAR	6 TO 15 BAR	60 BAR	G 1/4 MALE	-35 TO 60°C	IP40
B12GN	25 TO 150 BAR	12 TO 40 BAR	180 BAR	G 1/4 MALE	-35 TO 60°C	IP40
B12HN	60 TO 300 BAR	40 TO 80 BAR	350 BAR	G 1/4 MALE	-35 TO 60°C	IP40

PRESSURE SWITCH UP TO 10 BAR

- Metallic bellows sensing element, not suitable for corrosive liquids
- Metal frame
- Shock-proof thermoplastic cover
- Low adjustable differential
- Maximum temperature of controlled fluid: 100°C
- Compliance with standards CEI EN 60947-1 & 60947-5-1
- The storage and transport temperature corresponds to the pressure switch body admissible temperature

ELECTRIC SPECIFICATIONS

RATED INSULATION VOLTAGE U_i 415V~
 CONTINUOUS DUTY RATED CURRENT I_{th} 16A
 RATED OPERATING CURRENT I_E :
 220V~ 380/415V~
 RESISTANCE LOAD AC-1 — 16A
 INDUCTIVE LOAD AC-3 — 6A
 DIRECT CURRENT DC-13 0,2A —

* The differential is subtracted from the Range value

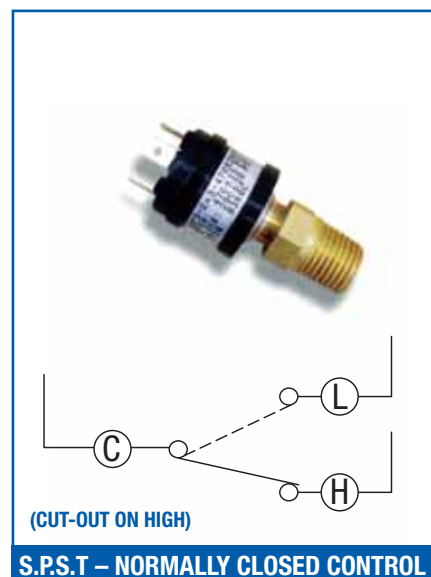
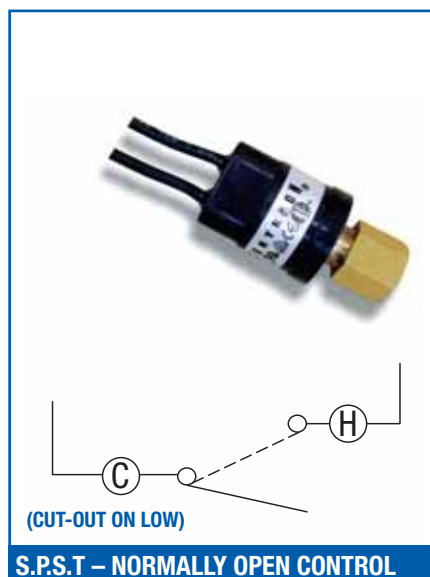
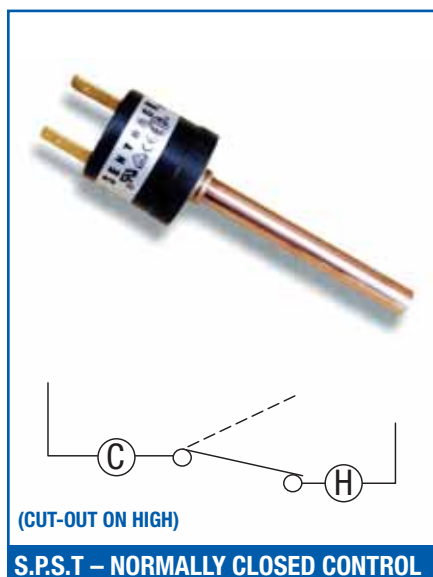


	RANGE	DIFFERENTIAL *	MAXIMUM PRESSURE OF SENSITIVE ELEMENT	CONNECTION	PRESSURE SWITCH BODY ADMISSIBLE TEMPERATURE •	PROTECTION LEVEL
B13CN	0.3 TO 4 BAR	0,1 TO 0.5	6 BAR	G 1/4 MALE	-35 TO 60°C	IP40

SWITCHES

AUTOMATIC RESET PRESSURE CONTROL

ILPS/IHPS SERIES



SPECIFICATIONS

FEATURES

- Snap-acting stainless steel, hermetically sealed sensor
- Corrosion resistant stainless steel crimp-ring
- Gold plated contacts are also available
- Wide variety of fittings and electrical connections
- Available in environmentally sealed or vented switch
- Excellent set-point repeatability/stability

APPLICATION

- Residential and commercial air-conditioning, refrigeration & heat pump applications.
- Service equipment including recovery and recycling machines.

OPERATION

As the system pressure reaches above or below a preset value, the snap-acting stainless steel diaphragm reverses its curvature, opening or closing a set of electrical contacts through a transfer pin. The control automatically resets when the pressure falls within the factory preset pressure values.

DESIGN SPECIFICATIONS

CONFIGURATION	SPST or SPDT NO or NC Contacts
FACTORY PRESET PRESSURE RANGE	0 to 700 PSIG (0 to 48,2 Bar)
PROOF PRESSURE	250 PSIG (17,2 Bar) for set-point < 100 PSIG (<6,9 Bar) 600 PSIG (41,4 Bar) for set-point < 500 PSIG (<34,4 Bar) 800 PSIG (55,2 Bar) for set-point < 500 PSIG (<34,4 Bar)
BURST PRESSURE	5,000 PSI (344,8 Bar)
LIFE AT RATED LOAD	100,000 cycles
ELECTRICAL RATING	24 VAC – 125 VA Pilot Duty 120/240 VAC – 375 VA Pilot Duty 120/240 VAC – 6 FLA, 36 LRA
DIELECTRIC STRENGTH	750 Vrms Open Contacts 1,550 Vrms Terminals to Fitting
TEMPERATURE RATING	AMBIENT -20 F to 176 F (-30 C to 80 C) FLUID -60 F to 275 F (-50 C to 135 C)
WIRE LEADS	18 AWG, 600 V, 105 C, 1/32" insulated PVC 18 AWG, 600 V, 125 C, 1/16" insulated XLP * Other leads are also available

THERMOSTATS

ROOM THERMOSTATS

ELECTROMECHANICAL ROOM THERMOSTAT WITH VAPOUR EXPANSION



- Sensitive element with electrically welded stainless steel capsule containing saturated vapour.
- Vapour pressure operation.
- Base, cover and knob in thermoplastic.
- Connection to the user with only 2 wires.
- Numerous signal and control variants.
- Snap action SPDT microswitch with AgNi contacts
- Contact rating: 10(2.5)A 250 VAC.

SPECIFICATIONS

	RANGE	DIFFERENTIAL *	ADMISSIBLE THERMOSTAT BODY TEMPERATURE •	MAXIMUM AMBIENT TEMPERATURE	PROTECTION LEVEL
C16	10 to 30°C	0,8 K	-10 to 50°C	45°C	IP20 (normal pollution)
TC16	Frame for mounting on: round box 60mm, screw fixing round box with clips (not supplied) round box distance between centres 75mm				

- * The differential is subtracted from the Range value. The differential values refer to a thermal gradient of 4K/hour in air.
• The storage and transport temperature corresponds to the thermostat body admissible temperature.

CONTROL AND SIGNALLING VARIANTS

	DESCRIPTION
C16L	With Pilot Light
C16I	With "ON-OFF" Switch
C16IL	With "ON-OFF" Switch and Pilot Light
C16EH	With "Summer-Winter" Switch
C16EHL	With "Summer-Winter" Switch and Pilot Light

ELECTRONIC WEEKLY PROGRAMMABLE ROOM THERMOSTAT



- C57 weekly programmable thermostat + CH173D actuator for RF wireless control of heating/cooling system
- Operation modes: AUTO/COMFORT/ECONOMY/ANTIFREEZE
- Two operation types: SUMMER/WINTER for switching between heating & cooling
- Customizable day & time temp settings
- Compliance with standards EN 60730-1 & EN60730-2-9
- C57 requires 2 x AA batteries of 1.5v
- Contacts rating: 5(3)A 250Vac
- Actuator power supply 230Vac 50Hz
- Reception range 30 meters indoors

SPECIFICATIONS

	RANGE	DIFFERENTIAL *	POWER SUPPLY	MAXIMUM AMBIENT TEMPERATURE	PROTECTION LEVEL
CR7RFR	2-62°C	0.25 K	2X AA + 230V - 50Hz	45°C	IP20 (normal pollution)

- * The differential values refer to a thermal gradient of 4K/hour in air.

ELECTRONIC ROOM THERMOSTAT FOR FAN COILS - 3 SPEEDS



- CH130 wall mounted room thermostat + CH172DRF actuator for RF wireless control
- Control of 2 or 4 pipe installations & also a 3 speed fan coil motor
- SUMMER/WINTER mode for controlling heating or air conditioning systems.
- COMFORT/ECONOMY temp mode
- Manual selection of one of the three Fan speeds.
- Compliance with standards CEI EN 60730-2-9
- CH130 requires 2 x AA batteries of 1.5v
- Actuator Power Supply 230V ~ 50Hz
- Remote actuator with 5 output relay
- Contact rating 5(3)A 250 V~.
- Reception range of 30 meters

SPECIFICATIONS

	RANGE		POWER SUPPLY	MAXIMUM AMBIENT TEMPERATURE	PROTECTION LEVEL
CH130RFR	2-40°C		2 x AA batteries+ 230v	45°C	IP20 (normal pollution)

THERMOSTATS

TEMPERATURE CONTROLS

THERMOSTAT WITH CAPILLARY AND BULB FOR REMOTE MOUNTING



- Liquid expansion operation.
- Wall mounting of thermostat body.
- The bulb with capillary can be mounted at a distance and provided with seal caps or copper sheath with Gc 1/2 connection.
- Sensitive element with stainless steel diaphragm.
- Copper bulb and capillary, tinned for type C04C and C04D.
- Base, cover and knob in shock-proof self-extinguishing thermoplastic V0.

- Compliance with standards CEI EN 60947-5-1.
- IP65 waterproof execution C04..Y.

ELECTRIC SPECIFICATIONS				
Rated Insulation Voltage			Ui 380V~	
Continuous Duty Rated Current			Ith 15A	
Rated Operating Current ie:			220V~	250V~ 380V~
Resistive Load	AC-12	—	15A	10A
Inductive Load	AC-15	—	2.5A	1.5A
Direct Current	DC-13	0.2A	—	—

SPECIFICATIONS

	RANGE	DIFFERENTIAL *	CALIBRATION ACCURACY	ADMISSIBLE THERMOSTAT BODY TEMPERATURE •	MAXIMUM BULB TEMPERATURE	CAPILLARY LENGTH	PROTECTION LEVEL
C04A3	10 to 90°C	6 ± 1 K	±3°C	85°C	150°C	1 mt	IP40
C04B3	50 to 300°C	8 ± 2 K	±3°C	85°C	310°C	1,5 mt	IP40
C04C3	-20 to 40°C	2 ± 0,5 K	±2°C	85°C	80°C	1,5 mt	IP40
C04D3	-35 to 20°C	2 ± 0,5 K	±2°C	85°C	80°C	1,5 mt	IP40
C04E3	40 to 120°C	6 ± 2 K	±3°C	85°C	150°C	1 mt	IP40

* The differential is subtracted from the Range value. The differential values refer to a thermal gradient of 1K/hour in liquid and 5K/hour in air.

• The storage and transport temperature corresponds to the thermostat body admissible temperature.

THERMOSTAT WITH SPIRAL CAPILLARY



- Liquid expansion operation.
- The ambient temperature is determined by the spiral capillary
- Wall mounting of thermostatic body
- Sensitive element with stainless steel diaphragm.
- Tinned copper spiral capillary.
- Base and cover in shock-proof self-extinguishing thermoplastic V0.
- Compliance with standards CEI EN 60947-5-1.

- Two directions microswitch of instant action with manual reset AGcdO contacts
- IP65 waterproof execution C10..Y.

ELECTRIC SPECIFICATIONS				
Rated Insulation Voltage			Ui 380V~	
Continuous Duty Rated Current			Ith 15A	
Rated Operating Current ie:			220V~	250V~ 380V~
Resistive Load	AC-12	—	15A	10A
Inductive Load	AC-15	—	2.5A	1.5A
Direct Current	DC-13	0.2A	—	—

SPECIFICATIONS

	TEMP RANGE	DIFFERENTIAL	ADMISSIBLE THERMOSTAT BODY TEMPERATURE •	MAXIMUM BULB TEMPERATURE	PROTECTION LEVEL
C10A2	0-60°C	2±0.5K	80°C	80°C	IP40
C10AZ	0-60°C	2±0.5K	80°C	80°C	IP65

• The storage and transport temperature corresponds to the thermostat body admissible temperature.

POSITIVE SAFETY CONTROL AND LOCKOUT IMMERSION BITHERMOSTAT



- Liquid expansion operation.
- Direct immersion mounting of the bulb via threaded sheath Gc 1/2 (included).
- The bi-thermostat is composed of a C03A and a C06AM in a single cover and one sheath.
- Sensitive element with stainless steel diaphragm.
- Copper sheath with Gc 1/2PN10 connection.
- Base and cover in shock-proof self-extinguishing thermoplastic V0.
- Maximum bulb temperature 130°C

- Admissible body temperature 120°C
- Compliance with standards CEI EN 60947-5-1.
- Two directions microswitch of instant action with manual reset AGcdO contacts

ELECTRIC SPECIFICATIONS				
Rated Insulation Voltage			Ui 380V~	
Continuous Duty Rated Current			Ith 15A	
Rated Operating Current ie:			220V~	250V~ 380V~
Resistive Load	AC-12	—	15A	10A
Inductive Load	AC-15	—	2.5A	1.5A
Direct Current	DC-13	0.2A	—	—

SPECIFICATIONS

	TEMP RANGE	DIFFERENTIAL *	CUT-OFF TOLERANCE	LOCKOUT ACTION TOLERANCE	CALIBRATION ACCURACY	PROTECTION LEVEL
C07A3M	10 to 90°C	6±-1 K	±0 / - 6°C	100°C	+3°C	IP40

* The differential is subtracted from the Range value. The differential values refer to a thermal gradient of 1K/hour.

THERMOSTATS

CAPILLARY THERMOSTATS

- Used within different fields for controlling temperatures, they are perfect for applications requiring reliability and accuracy.
- Depending on the application requirements they are available in versions with two or three contacts and in versions with liquid or gas filled sensing element.

TG200 - Control thermostat, pin adjustment

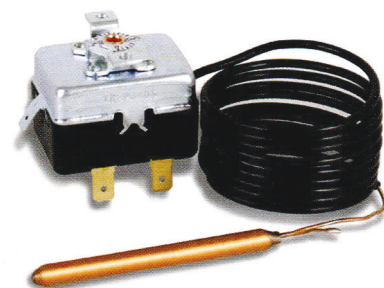


- "Compensated" versions available on request
- Contact Rating 16(4)A 250Vca, with gold plated contacts 100mV \pm 0,3A.
- Gas filled sensing element versions available on request (TG200-Z).
- Gold-plated contact versions available on request.

ADJUSTMENT RANGE/ CALIBRATION [°C]	CONTACTS		BULB		CAPILLARY		CODE
	SPST	SPDT	dimensions (mm)	material	length (mm)	material	
-35 ÷ 35		•	Ø 6,5 x 83	Cu	1500	Cu + PVC	711-F1338-00A
0 ÷ 40		•	Ø 6,5 x 100				711-51338-00A
0 ÷ 90		•	Ø 6,5 x 73				711-11338-00A*
0 ÷ 120		•					711-71338-00A
0 ÷ 210		•	Ø 5 x 80			Cu	711-G1339-00A
0 ÷ 300		•	Ø 3 x 190	Stainless steel	Stainless steel	711-H1337-00A	
KIT - THERMOSTAT COMPLETED WITH FRAME, KNOB, SCREWS, KNOB BLOCKING SPRING - SINGLE PACKED							
0 ÷ 90		•	Ø 6,5 x 73	Cu	1500	Cu + PVC	711-11338-04A*
0 ÷ 120		•					711-71338-03A
SPECIAL VERSIONS FOR HOT WATER CLEANERS - WITH M14X1 CONNECTOR							
OFF/90		•	Ø 6 x 75	Cu	1500	Cu + PVC	711-X1338-02A
OFF/120		•					711-71338-02A
OFF/150		•					711-X1338-01A
SPECIAL VERSION FOR FRYER MACHINES - WITH G 1/4 CONNECTOR							
0/210	gold plated		Ø 5 x 100	Stainless steel	1000	Stainless steel	713-G1227-01A
SPECIAL VERSION 62 ÷ 82 - WITH G 1/4 CONNECTOR							
62 ÷ 82		•	Ø 6 x 80	Cu	1000	Cu + PVC	711-X7328-03A

* ISPEL approved

TG200 - Control thermostat, screwdriver adjustment



- "Compensated" versions available on request.
- Contact Rating 16(4)A 250Vca.
- Gas filled sensing element versions available on request (TG200-Z).
- Gold-plated contact versions available on request.

ADJUSTMENT RANGE/ CALIBRATION [°C]	CONTACTS		BULB		CAPILLARY		CODE
	SPST	SPDT	dimensions (mm)	material	length (mm)	material	
0 ÷ 90		•	Ø 6,5 x 73	Cu	1500	Cu + PVC	712-10338-00A*

* ISPEL approved

DTB-0071-2 FOR BOTTLE CABINETS

OPERATING TEMPERATURE CHARACTERISTICS

C P	COLD	NORMAL	WARM	---
ON	(5.0)	(5.0)	5.0 ± 1.3	---
OFF	(-10.0)	(-6.0)	- 2.0 ± 1.3	---
OFF	---	---	---	---

1. Formal Operating Temperature Characteristics are based on second operating.
2. ()... Reference Value.
3. Capillary Tube should be so installed that minimum 150mm, tube end can sense the controlled temperature.

ELECTRICAL RATING

(A) RATED AMPS		RATED VOLTAGE (V)		POWER FACTOR	AC	
				COSØ	125V	250V
NON-INDUCTIVE CURRENT		F.L.A	C I L	1	1~8	0.5~4
INDUCTIVE CURRENT	F.L.A			0.75	1~6	0.5~3
	F.L.A			0.45	1~24	0.5~12
NON-INDUCTIVE CURRENT		F.L.A	C I H	1	---	---
INDUCTIVE CURRENT	F.L.A			0.75	---	---
	F.L.A			0.45	---	---

TYPE

TYPE OF CONTACT	(S.P.S.T.) ARROW MARK INDICATES TEMP. RISE
CONTACT RESISTANCE	Less than 50mΩ
INSULATION RESISTANCE	More than 100MΩ at DC 500V Megger
DIELECTRIC STRENGTH	Withstand AC 1500V for one minute.
TEMPERATURE CONDITION IN ACTUAL USE	Ts > Tb Ts : Ambient Temperature at Switch Body Tb : Ambient Temperature at Sensing Bulb
CHARGE	G – Charge
FOLLOW UP CHARACTERISTICS OF SENSING BLUB	Controlled Fluid : Liquid Temperature Change Rate : More than 1°C / 1 min
MAX. ALLOWABLE TEMPERATURE	Switch Body : 70°C Sensing Bulb : 80°C
MOUNTING OF SENSING BULB	In any position
CONTACT LIFE	200,000 Cycles
NOTE	1. Cam-Shaft rotating torque cold~warm = 0.2~3.5 Kgf - cm

SOLENOID VALVES

DIRECT ACTING SOLENOID VALVE BODIES

SPECIFICATIONS

	ORIFICE DIAMETER mm	FEMALE UNION	KV m³/h	MAXIMUM DIFFERENTIAL PRESSURE		TEST PRESSURE (DIN 2401) PN BAR	OPERATING TEMPERATURE
				Vn BAR	0.85Vn BAR		
M20B3	3	G 1/4	0,27	16	10	25	-10 to 140
M20C5	5	G 3/8	0,612	6	2	25	-10 to 140
M20D5	5	G 1/2	0,612	6	2	25	-10 to 140
M20E7	7	G 3/4	1	2,5	1,8	25	-10 to 140

Kv = flow rate in m³/h of water with difference in downstream and upstream pressures of 1 bar (1 bar = 100 kPa)
For IM21 bi-frequency coils used at 60 Hz, the values indicated are reduced by an average of 12%.

SOLENOID VALVES with test certificates issued by the Study and Experience Centre of the MINISTRY OF THE INTERIOR Fire-Prevention Service Rome Capannelle.

	24V	CONTROL COIL 110/115V	230V	CONNECTOR	ORIFICE mm	UNION	KV m³/h	WORKING PRESSURE BAR
M20C5	IM21F	IM21H	IM21M	1578501	5	G 3/8	0,612	0 to 2
M20D5	IM21F	IM21H	IM21M	1578501	5	G 1/2	0,612	0 to 2
M20E7	IM21F	IM21H	IM21M	1578501	7	G 3/4	1	0 to 2
M20C51	IM22F	—	—	1578501	5	G 3/8	0,612	0 to 2
M20D51	IM22F	—	—	1578501	5	G 1/2	0,612	0 to 2
M20E71	IM22F	—	—	1578501	7	G 3/4	1	0 to 2



- Solenoid valves suitable for water, air, fuel-oil, inert gases and other fluids non-corrosive for copper alloys, with viscosity up to 2° Engler 2-way normally closed.
- Direct action
- With the coil energized, the valve opens immediately to allow fluid to pass.
- Closing time 10 msec.
- Stamped brass valve body.
- Stainless steel internal parts (17%CR).
- VITON seals (fluoroelastomer).
- Test Pressure PN (DIN 2401):25 bar
- With coil in dc the pressure indicated is reduced by 60%
- Coils supplied separated from the body.

SERVO-ASSISTED DIAPHRAGM NORMALLY CLOSED VALVE BODIES

SPECIFICATIONS

	ORIFICE DIAMETER mm	FEMALE UNION	KV m³/h	CLOSING TIME DP DI OF 1 BAR	MINIMUM OPERATING PRESSURE BAR	MAXIMUM DIFFERENTIAL PRESSURE	TEST PRESSURE (DIN2401) PN-BAR
M23C13	13	G 3/8	3	1	0,1	20	25
M23D13	13	G 1/2	3	1	0,1	20	25
M23E20	20	G 3/4	8,4	1,5	0,1	20	25
M23F25	25	G 1	9,6	1,5	0,1	20	25
M23G35	35	G 1 1/4	25,2	2,5	0,1	10	16
M23H40	40	G 1 1/2	30	3	0,1	10	16
M23I50	50	G 2	37,2	3,5	0,1	10	16



- Solenoid valves suitable for large flow capacity, suitable for water, air, fuel-oil, inert gases and other fluids non-corrosive for copper alloys, with viscosity up to 2° Engler
- 2-way normally closed
- Indirect operation with servo-diaphragm blocked.
- Minimum operating pressure between upstream and downstream must be 0.1 bar
- Stamped brass valve body
- Stainless steel internal parts (17% CR)
- NBR seals (BUNAN)
- With coil in dc the maximum pressure indicated in the table is reduced to 60%
- Coils supplied separated from the body
- Closing time : 10 msec
- Press-forged brass body
- Internal parts in stainless steel (17% CR).
- Gaskets in NBR (buna N)
- With DC coil indicated pressure values must be reduced to 60%.
- Gasket in Viton available on request only for sizes up to G1"

SERIES 55

DIRECT ACTING SOLENOID VALVE BODIES

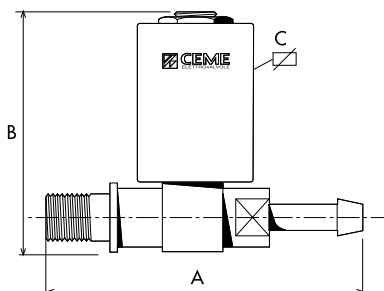


HIGHLIGHTS

- 2/2 way direct acting N.C
- 0 – 17 bar
- Suitable for inflammable Gas
- Body sealing seat in Stainless Steel
- Seals/Tenuta: NBR – EPDM – FKM – HNBR
- Fluids: Water- Air – Steam – Inflammable Gas – Inert Gas

PRODUCT DESCRIPTION

Solenoid valve 2/2 way , normally closed.
The body valve is made in brass as well as the core tube, this valve is not serviceable.
This valve is particularly suitable for interception of inflammable Gas, besides many other fluids.
Some models are particularly indicated for Welding Industry (5532-5534-5540-5541-5543-5544-5545-5584).
The mounting position with the coil downwards is not recommended.
Certain model have been submitted for the testing required from the EEC directive CEE 90/396
(Gas Aparatus and their components) and comply to the requirements of class A valves
according to UNI EN 161 (5510, 5511, 5512, 5540, 5543, 5584)



GENERAL FEATURES / CARATTERISTICHE GENERALI

Body material / Materiale corpo	Brass		
Seal material / Materiale di tenuta	EPDM	NBR	FKM
Temp. °C	140°	90°	140°
Tube material / Materiale tubo	Brass		
Working fluids / Applicazioni fluidi	Air, water, steam, Inflammable Gas, Inert Gas		
Electrical connect. / Connes. elettrica	6,3 x 0,8 fast-on terminal - UNI ISO 6952		
Insulation class / Classe di isolamento	H		
Coil voltage / Voltaggio	220-230VAC 50-60Hz	100-120VAC 60Hz	12-24 VDC
Coil power / Potenza bobina	13,5 VA	14 VA	10 W
Ambient temp. / Temp. ambiente	120°C	80°C	80°C
Fluid temp. / Temp. fluido	140°C	145°C	140°C

SPECIFICATIONS / CARATTERISTICHE

CONNECTION	ORIFICE Ø (mm)	KV m³/h	M.O.P.D. (bar)		DIMENSIONS (mm)			CODE
			AC	DC	A	B	C	
1/8 NPT	1,5	0.065	17	8	31	48	40	5503
Hose Barb (*)	2,0	0.090	13	7	66	54	40	5504
1/4 NPT	1,5	0.065	17	8	38	56	40	5505
G 1/8	2,8	0.160	7	2	31	56	40	5509
G 1/8	1,5	0.065	17	8	31	54	40	5510
G 1/8	2,0	0.090	13	7	31	54	40	5510
G 1/8	2,5	0.150	9	2	31	54	40	5510
G 1/8	2,7	0.160	8	2	31	54	40	5510
G 1/8	3,3	0.190	4	1	31	54	40	5510
G 1/8	1,5	0.065	17	8	31	48	40	5511
G 1/8	2,0	0.090	13	7	31	48	40	5511
G 1/8	2,7	0.160	8	2	31	48	40	5511
G 1/8	3,3	0.190	4	1	31	48	40	5511
G 1/4	1,5	0.065	17	8	38	56	40	5512
G 1/4	2,0	0.090	13	7	38	56	40	5512
R 1/8 – HB (*)	2,0	0.090	13	7	49	45	40	5522
R 1/8 – HB (*)	2,7	0.160	8	2	49	45	40	5522
R 1/8 – HB (*)	2,0	0.090	13	7	35	44	40	5523
R 1/8 – HB (*)	2,0	0.090	13	7	35	44	40	5524
R 1/8 – HB (*)	2,0	0.090	13	7	32	61	40	5525
Hose Barb (*)	2,0	0.090	13	7	63	54	40	5532
1/4 - HB (*)	2,2	0.105	10	3	56	54	40	5534
M12x1 HB (*)	2,0	0.090	13	7	70	51	40	5535
Hose Barb (*)	2,0	0.090	13	7	66	54	40	5536
G 1/8	2,0	0.090	13	7	26	51	40	5537
G 1/8	2,5	0.150	9	2	26	48	40	5537
G 1/8	2,0	0.090	13	7	39	54	40	5540
1/4 - HB (*)	1,5	0.065	17	8	58.5	51	40	5541
1/4 - HB (*)	2,0	0.090	13	7	58.5	51	40	5541
G1/8 – M8X1	2,0	0.090	13	7	31	54	40	5543
1/8 NPT	2,0	0.090	13	7	26	48	40	5545
1/8 NPT	3,0	0.175	5	1	26	48	40	5545
1/8 NPT	2,0	0.090	13	7	26	51	40	5546
Hose Barb (*)	2,3	0.090	10	3	70	47	40	5572
Hose Barb (*)	2,3	0.090	10	3	70	47	40	5573

(*) See schedule "BARBED HOSE CONNECTORS" / vedi tabella "ATTACCHI PORTAGOMMA"

(*) BARBED HOSE CONNECTORS ATTACCHI PORTAGOMMA

2/2 WAY NC				
	IN	OUT	IN	OUT
5504	PG	PG		
5522 5523 5524 5525	R 1/8"	PG	-	
5532	PG	PG		
5534	1/4"	PG	-	
5535	PG/M12X1	M12X1/PG		
5536	PG	PG		
5541	1/4"	PG	-	
5572 5573	PG	PG		

SERIES 5

REFRIGERATION SOLENOID VALVE



HIGHLIGHTS

- 2/2 way direct acting N.C
- 0 – 28 bar
- Refrigeration and Air Conditioning
- Very compact design
- Seals/Tenuta: PTFE – (Optional: neoprene)
- ED 100%

PRODUCT DESCRIPTION

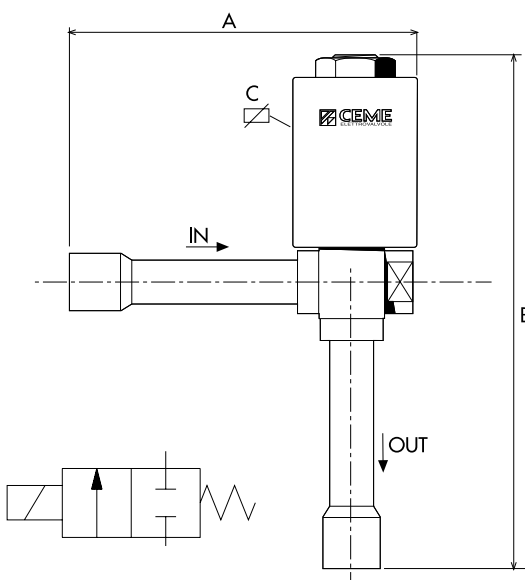
Solenoid valve 2/2 way, normally closed, designed for refrigeration applications. The extremely compact size together with the high performance make this series 59 unique on the refrigeration market. Available with different Kv factors, and different connections, including the versions with double and even triple outlets allowing reduction of cost and installation time.

GENERAL FEATURES / CARATTERISTICHE GENERALI

Body material / <i>Materiale corpo</i>	Brass		
Seal material / <i>Materiale di tenuta</i>	PTFE	NEOPRENE	
Temp. °C	-45 / +125	-35 / +100	
Tube material / <i>Materiale tubo</i>	Brass		
Working fluids / <i>Applicazioni fluidi</i>	All type of refrigerant fluids except ammonia (NH3)		
Electrical connect. / <i>Connes. elettrica</i>	6,3 x 0,8 fast-on terminal - UNI ISO 6952		
Insulation class / <i>Classe di isolamento</i>	H		
Coil voltage / <i>Voltaggio</i>	220-230VAC 50-60Hz	100-120VAC 60Hz	12-24 VDC
Coil power / <i>Potenza bobina</i>	13,5 VA	14 VA	10 W
Ambient temp. / <i>Temp. ambiente</i>	120°C	60°C	80°C
Approvals / <i>Approvazioni</i>	VDE: CE	UL	CE

SPECIFICATIONS / CARATTERISTICHE

CONNECTION	ORIFICE Ø (mm)	KV m³/h	M.O.P.D. (bar)		DIMENSIONS (mm)			CODE
			AC	DC	A	B	C	
ODF 6 mm	1.5	0.080	25	15	107	48	40	5906
ODF 1/4	2.5	0.160	18	5	107	48	40	5907
ODF 6 mm	1.5	0.080	25	15	59	86.5	40	5925
ODF 6 mm	2.0	0.120	25	8	59	86.5	40	5925
ODM 5 mm	1.5	0.065	28	15	116	114	49	5934
ODM 5 mm	1.5	0.065	28	15	122	114	53.5	5935



HYDRAULIC CONNECTION

2/2 WAY NC

IN/OUT ODF	IN/OUT ODF	IN/OUT ODM	IN/OUT ODM
5925	5906 / 5907	5934	5935

SERIES 68

REFRIGERATION SOLENOID VALVE



HIGHLIGHTS

- 2/2 way direct acting N.C
- 0 – 25 bar
- Seals/Tenuta: PTFE – NEOPRENE (6806 – 6812)
- Screw and mounting bracket
- All type of refrigerant fluids except ammonia (NH3)
- ODF Brazing connection and SAE Flare
- 3 pole connector IP65 included - UNI ISO 4400 (DIN 43650A)

PRODUCT DESCRIPTION

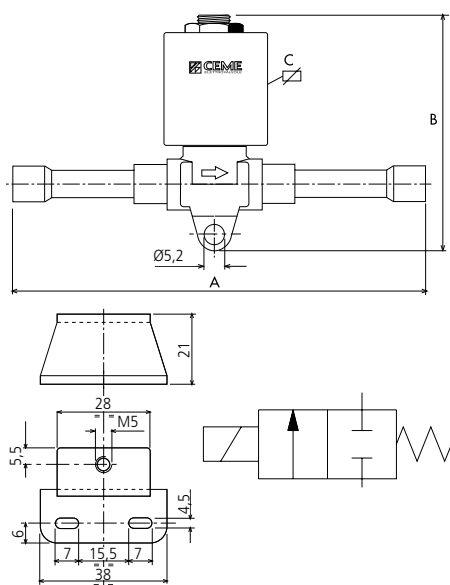
Solenoid valve 2/2 way, normally closed. The valve body is made in Brass as well as the core tube, while all the other internal components are in stainless steel. The design of the valve is able to assure an outstanding performance in terms of Maximum Opening Pressure Difference. The valve can be installed on all the most common refrigeration applications and is compatible with all the main refrigerant fluids. Available with kit for moisture protection. Valve supplied with three pole connector IP65 - UNI ISO 4400 (DIN 43650A) and mounting bracket (excl 6825).

GENERAL FEATURES / CARATTERISTICHE GENERALI

Body material / Materiale corpo	Brass	
Seal material / Materiale di tenuta	PTFE	NEOPRENE
Fluid Temp. °C / Temp. fluido °C	-45 / +125	-35 / 100
Tube material / Materiale tubo	Brass	
Ambient temp. °C / Temp. ambiente °C	-30 / +80	
Working fluids / Applicazioni fluidi	All type of refrigerant fluids (Except Ammonia – NH3)	
Electrical connect. / Connes. elettrica	6,3 x 0,8 fast-on terminal - UNI ISO 4400	
Insulation class / Classe di isolamento	H	
Model / Modello	6806 – 6807 – 6812 – 6825	6810 – 6811 – 6813
	Coil Power / Potenza bobina	
220-230 VAC 50-60Hz - Approvals: CE; VDE	17 VA	30 VA
100-120 VAC 60Hz - Approvals: CE; UL	22 VA	22 VA
12-24 VDC - Approvals: CE	16 W	21 W

SPECIFICATIONS / CARATTERISTICHE

CONNECTION	ORIFICE Ø (mm)	KV m³/h	M.O.P.D. (bar)		DIMENSIONS (mm)			CODE
			AC	DC	A	B	C	
ODF 6 mm	2.5	0.170	25	17	111	67	47	6806
ODF 1/4	2.5	0.170	25	17	111	67	47	6807
ODF 10 mm	3.0	0.230	25	17	116	78	60	6810
ODF 3/8	3.0	0.230	25	17	116	78	60	6811
SAE FLARE 1/4	2.5	0.170	25	17	65	67	47	6812
SAE FLARE 3/8	3.0	0.230	25	17	71	78	60	6813
ODF 6 mm	2.5	0.170	25	17	105	136	47	6825



HYDRAULIC CONNECTION

2/2 WAY NC				
IN/OUT ODF	IN/OUT ODF	SAE FLARE 1/4	SAE FLARE 3/8	IN/OUT ODF
6806-6807	6810-6811	6812	6813	6825

Let us put you in Control



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