



THINK ELECTRICAL

CATALOGUE **2025** | **26**

SINCE 1984

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Mario Maio
CEO



THINK ELECTRICAL



AUTOMATION

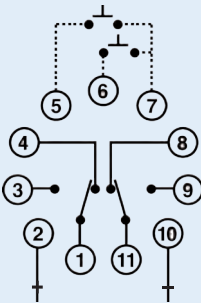
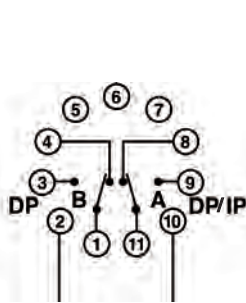
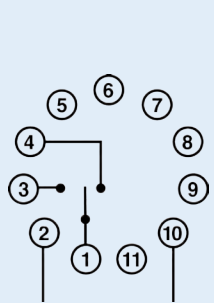
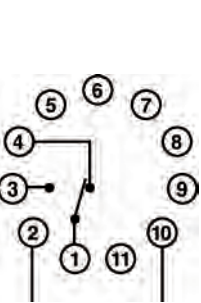
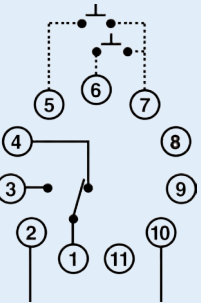
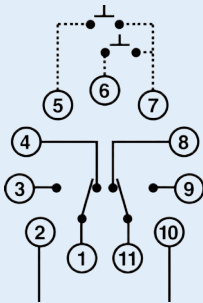
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Welcome to our advanced Automation product catalogue, where innovation meets efficiency to set new industry standards. Discover precision robotics, advanced control systems, and more, designed to streamline operations and boost productivity across sectors.

TIMERS

Type	Unequal Repeating & Two-Shot Timer		Delay On				Interval			Equal Repeating		Delay Off No Power		
Code	UP1/M UP1/MV	UP2/M UP2/MV	DP1*	DP2*	DP3*	DP4*	IP1*	IP2*	IP3	EP1*	EP2*	DDP1	DDP2	DDP3
Outputs	SPDT	DPDT	SPDT	DPDT	SPDT +INST	3 x c/o	SPDT	DPDT	SPDT +INST	SPDT	DPDT	SPDT	DPDT	SPDT +INST
Mode of Operation	Multi range timer Time Ranges: 0.15s to 10s 1s to 60s 1.5s to 100s 10s to 10m 1m to 60m 10m to 10hr Selectable by DIP switches 1, 2, 3 & 4 at rear of timer. Timing functions: Unequal repeating (off first) Unequal repeating (on first) Two-shot (off first) Two-shot (on first) Selectable by DIP switches 5 & 6 at rear of timer. UP1/MV & UP2/MV: Multivolt range 24-250VAC/DC		Upon application of the supply voltage the delay time period begins and the power LED lights up. On the expiry of the set time the relay LED will light up and the relay will operate and will not release until the supply voltage is disconnected. DP3: Output relay A is instantaneous.				Upon application of the supply voltage the relay operates, the power and relay LED lights up and the time period begins. On the expiry of the set time, the relay releases and will not operate again, until the supply is re-applied. IP3: Output relay A is instantaneous.			Upon application of the supply voltage the relay operates and the ON time period starts. After the ON period has expired the relay releases and an equal OFF time period starts. This equal operation continues until the supply voltage is disconnected.		No power required delay off function. Upon application of the supply voltage the relay operates. When the supply voltage is disconnected the time period starts and at the end of the time period the relay releases, the time is reset and the relay remains released until the supply voltage is reapplied. For time ranges above 600 sec there is a built-in battery. <i>This timer is not to be used for short pulses, as battery requires 24H to recharge. Use IAP1or 2.</i>		
Connection Diagram	UP1/M ONLY 11 Pin SPDT UP2/M ONLY 11 Pin DPDT SUPPLY VOLTAGE 11 Pin SPDT+INST A=Instantaneous Contact SUPPLY VOLTAGE 8 Pin SPDT SUPPLY VOLTAGE 8 Pin DPDT													
Supply AC Multi-Volt Supply DC	Galvanic isolation with internal transformer 12, 24, 48, 115, 230, 400, 525VAC ±15% (Test volts 2kV) 24 - 250VAC/DC (available only on models marked *) 12, 24, 48VDC													
Specification	Range accuracy: ±5% Repeatability: 1% Scale accuracy: ±5% Reset time: 300mSec Operating temperature: -20 to 70°C				Power consumption AC: 1.5VA DC: 100mA @ 12VDC Contact rating SPDT: 10A 250VAC DPDT: 5A 250VAC For external potentiometer: use 1MΩ									

TIMERS

											
Multi-Range Multi-Function		Dual Timers			Forward Reverse Timer (Multi-Range)	Percentage Timer	Delay on Pulse Start		Interval Pulse Start		
MFMR	MFMRV	DP/DP	DP/DP/S/R	DP/IP	WM1/M	PP1	DAP1	DAP2	IAP1*	IAP2*	
DPDT		2 x SPDT			SPDT	SPDT	SPDT	SPDT	DPDT	SPDT	DPDT
Time Ranges: 0.02 to 1s; 0.15 to 10s 1s to 60s; 10s to 600s 1m to 60m; 10m to 10h 22m to 24h; 3h45m to 240h Selectable by DIP switches 1, 2 & 3 at rear of timer. Functions: Delay on (DP2) Delay on pulse start (DAP2) Interval timer (IP2) Interval timer pulse start (IAP2) Equal repeating timer (EP2) OFF first Equal repeating timer (EP2) ON first Selectable by DIP switches 4 & 5 at rear of timer. MFMRV: Multivolt supply 24-250VAC/DC External POT 100K		OUTSTANDING VALUE, TWO TIMERS IN ONE! DP/DP Two delay on timers sharing common power supply. Independently adjustable. DP/IP One delay on timer and interval timer sharing common power supply. Independently adjustable. DP/DP/S/R Dual Delay on Timers 1st Timer 60s 2nd Timer 10s			Function: When the power is applied the contact between 1 & 4 closes. The contact remains closed for an adjustable forward or ON time period. It then opens for an adjustable pause or OFF time period. After the pause delay, contacts 1 & 3 close and remain closed for a reverse or ON time (same as the forward time). After the reverse period the contact between 1 & 3 opens for the pause time. This cycle is repeated until supply is removed. DIP Switches 1 to 5: On Pause & Time Ranges: 0.15s to 10s 1.5s to 100s 1s to 1m 10s to 10m 10s to 10m 100s to 100m 1m to 1h 10m to 10h DIP switch 6: OFF. Pause period first. ON: on period first. External POT 100K	Upon application of the supply voltage the OFF time starts. At the end of the OFF time the relay operates and stays in operation for the remaining on time. Thereafter it returns to the OFF position. ie. The total OFF and ON period is equal to the full time. This recycling operation will continue until the supply voltage is removed.	Start switch between 5 & 7: Apply supply voltage. Upon the closure of switch 5 & 7 the timing period starts, irrespective of whether the start switch is closed or not. After the set time the relay will operate. To repeat this function supply voltage must be removed and re-applied again. Start switch between 6 & 7: Apply supply voltage. Upon closure of switch 6 & 7 nothing happens. The timing period will only start when the switch between 6 & 7 has opened, upon opening the timing period begins. After the set time the relay will operate.		Start switch between 5 & 7: Apply supply voltage. Upon the closure of switch between 5 & 7 the relay operates and the time period starts. When the set time has expired the relay releases irrespective of whether the start switch is still closed or not. Start switch between 6 & 7: Apply supply voltage. Upon closure of start switch between 6 & 7 the relay operates. The time period ONLY STARTS from the break of the switch.		
											
SUPPLY VOLTAGE		SUPPLY VOLTAGE			SUPPLY VOLTAGE	SUPPLY VOLTAGE	SUPPLY VOLTAGE SPDT	SUPPLY VOLTAGE DPDT			

Galvanic isolation with internal transformer 12, 24, 48, 115, 230, 400, 525VAC $\pm 15\%$ (Test volts 2kV)
 Multivolt 24-250VAC/DC (available only on models marked*).
 12, 24, 48VDC

Specification	Range accuracy:	$\pm 5\%$	Power consumption	AC:	1.5VA
	Repeatability:	1%		DC:	100mA @ 12VDC
	Scale accuracy:	$\pm 5\%$	Contact rating	SPDT:	10A 250VAC
	Reset time:	300mSec		DPDT:	5A 250VAC
	Operating temperature:	-20 to 70°C	For external potentiometer: use 1MΩ		

TIMERS

Type	Star-Delta Timer	One-shot Timer			Triac Flasher	Relay Flasher	Defrost Timer		Repeating Pulse				
Code	SDP1	OSP1	OSP1/S	OSP2	TFP1	TFP2	RFP1	RFP1/A	RFP2	DET1	DET1/F	RP1	RP1/R/PS
Outputs	SPDT	SPDT		DPDT	Triac Output		SPDT		DPDT	WITHOUT FAN DELAY	WITH FAN DELAY	SPDT	
Operation Mode	When supply voltage is applied connection between Pin 1 & Pin 4 is made. The time period starts for Star connection. After the Star set time has elapsed connection between Pin 1 & 4 is opened and stays in a neutral position for 100mS. After the 100mS pause connection is made between pin 1 & 3 for the Delta contactor.	LINK:5-6: Pulse on energisation LINK 6-7: Pulse on de-energisation. When the power is applied the relay operates for 0.5 sec. When power is de-energised the relay operates for 0.5 sec. OSP1/S High Speed Pulse Input.			TFP1 (230VAC only) Upon applying the supply the lamp will flash with an equal on and off time until the supply is removed. This on and off time is adjustable from 0.02 - 1 sec. TFP2 (230VAC only) Upon applying the supply, lamp 1 will switch on then switch off and then lamp 2 will switch on. This on and off time is adjustable from 0.02 - 1 sec. Triac: 1000W (4A) @ 250VAC		RFP1 On applying the supply, the lamp will flash with a fixed equal on and off time of 0.5 sec. This will continue until the supply is removed. Can be used to switch one lamp or two alternating lamp circuits. RFP1/A As per RFP1 except that the equal on and off time is adjustable from 0.02 to 3 sec. RFP2 Fixed 90F/M 2 c/o		Upon application of supply voltage, cooling cycle starts, (4, 6, 8 or 12 hrs) followed by defrost cycle (1-60min). LINK 5-6: As above except defrost cycle starts first. DET1/F: Is for freezer rooms and has additional relay for fan delay (6-360 Sec). LEDs "defrost on" "fan on". Dip switch selection: cycle times ☐ 4 hour ☐ 6 hour ☐ 8 hour ☐ 12 hour		Upon application of the supply voltage the delay period begins. On expiry of the set time, the relay pulses on for 0.5 sec and a new time period begins. This repeating pulse continues until the supply voltage is disconnected. RP1/R/PS With Remote Potentiometer		
Connection Diagram													
Supply AC	Galvanic isolation with internal transformer 12, 24, 48, 115, 230, 400, 525VAC ±15% (Test volts 2kV)												
Supply DC	12, 24, 48VDC												
Specification	Output Rating: SPDT: 10A @ 250VAC DPDT: 5A @ 250VAC Triac: 1000W (4A) @ 250VAC						Power Consumption: AC 1.5VA DC 100mA @ 12VDC						

See Page 1.6 for Time Ranges

PROCESS CONTROLS

FAILSAFE
DESIGN



Type	Alarm Relay 3I/P / 3O/P	Thermistor Relay	Single & Dual Alarm Relay		Differential Relay		Signal Converter	
Code	AL3	TH1	SAR1	DAR2	DIR	DIRV	SIC1†	SIC2†
Outputs	4 x SPST	SPDT	SPDT	DPDT	SPDT		4-20mA	0-10V
Operation Mode	On closing of any input contact, the corresponding output relay and hooter will energise. By using a common flasher connect to Pin 11 lamp 1 will flash. By pressing the accept button the lamp will steady and remain on until the fault is removed, and the hooter will stop. More alarms can be added by merely commoning up more modules with no restriction. Pins to be common when expanding; 11, 10, 9, 7 and common of hooter.	The relay is normally energised, when one of the thermistors reaches tripping temperature the relay de-energises. The relay will energise when the temperature drops to below trip level. Latch facility Link Pins 7-9. Relay remains de-energised after tripping. To reset, break supply voltage or operate N/C external reset device connected to Pins 7-9.	SAR1: Single trip point DAR2: Two trip point (2 relay outputs independently adjustable) The relay is normally de-energised and will energise when the input signal reaches the set level, set by a potentiometer. The relay will de-energise when the input signal drops below the set level by 3% The second alarm relay operates the same but set at a different trip level.		This module provides a relay output with high and low set points from an analogue instrument signal. The output relay will energise on the high set point and de-energise on the low setpoint offering a wide adjustable differential. When more than one unit is used in series and the supply is DC, an isolator must be used for each unit: ISO-12VDC ISO-24VDC		The Signal Converter modules convert various input signals to a 4-20mA or 0-10V DC signal. They are intended for use with all PLC and other instrumentation systems. †Input selection A: 0-5 Amps AC/DC B: 0-1 Amps AC/DC R: Ohms V: Voltage range AC/DC Calibration: For field calibration, energise module and set input to maximum. Adjust SPAN until output is 20mA/10V. Set input to minimum requirement and adjust ZERO until output is 4mA/0V. Calibration is complete. Red LED: Power on.	
Connection Diagram								
Specification	Lamp test Pin 7 Alarm accept Pin 9 Hooter Pin 8 To be utilised with relay flasher RFP1 to Pin 11	Tripping resistance 1.2kΩ No. of thermistors to be connected in series not to exceed 1kΩ	Input signal: 4 - 20mA 0 - 20mA or 0 - 5VDC 1 - 5VDC		Input signal: 4 - 20mA 0 - 20mA or 0 - 5VDC 1 - 5VDC } DIR } DIRV		Inputs: SIC*A: 0-5 Amps, AC/DC SIC*B: 0-1 Amps, AC/DC SIC*R: 1-20kΩ SIC*V 10V: 0-10V, AC/DC SIC*V 150V: 0-150V, AC/DC SIC*V 300V: 0-300V, AC/DC SIC*V 600V: 0-600V, AC/DC * 1: for 4-20mA. 2: 0-10V output	
Power Consumption	DC: 600mA @12VDC	AC ± 1.5VA						
Supply AC	Not Available	Galvanic isolation with internal transformer 12, 24, 48, 115, 230, 400, 525VAC ±15% (Test volts 2kV)						
Supply DC	12, 24VDC, 48VDC	12, 24, 48VDC						
Contact Rating	SPDT: 10A @ 250VAC DPDT: 5A @ 250VAC							

PROCESS CONTROLS

FAILSAFE
DESIGN



FAILSAFE
DESIGN



Type	Namur Sensor Relay	Pivot Shut Down Relay	Centre Pivot Shut Down	Three Start Attempt Relay	Pulse Counter	Signal Isolator (Transducer)
Code	NS1	VCT1	EVCT1	TSAP1	CO1	COT1
Outputs	SPDT	SPDT	SPDT	Start: SPDT Alarm: SPDT	SPDT	4-20mA 4-20mA
Mode of Operation	The Namur sensor relay converts the changing current of an Inductive or Capacitive Namur sensor into a relay switching. The sensor can be connected between 5 & 6 to energise the relay when the sensor is activated, or between 6 & 7 to energise the relay when the sensor is deactivated. See pages 15.20 or 15.24 for Namur sensors.	For use with centre pivot irrigation systems to prevent overwatering of the field. On application of voltage, the output relay energises for the adjustable start up delay period. Once running, if the pivot arm motors do not draw a minimum adjustable current within an adjustable time (usually 3 minutes for 20% watering), the output contact de-energises, switching off the Pump Start circuit.	Popular VCT1 11 Pin Plug in module mounted in an easy connect box. Add on kit to the existing centre pivot control panel to prevent overwatering should the pivot arm get stuck or the percentage timer malfunction. Supplied with CT-5 with flying leads for simple installation.	Upon application of the supply voltage, the 'start' relay operates for a set 'on' duration followed by a set 'dwell' cycle. After the relay has operated for the no. of starts as per the dip switches and the supply voltage is still present, the 'alarm' relay will operate and this condition will prevail until the supply voltage is removed. Dip switch setting: 3-6 starts Start time: 0.5-30sec adjustable.	When the supply voltage is applied the relay remains OFF. The Pulse count is incremented on each closure (pulse) of switch 6-7. When the preset number of pulses is reached the relay switches on. At the next closure of switch 6-7 the relay is reset and the count cycle starts again. No. of Pulses 4 Link 9-11 5 Link 5-11 6 No link COT1 Pulse Counter + Time Delay	4-20mA 0-10V All outputs are galvanically isolated from inputs. Output: 4-20mA into 0-600 ohms load. Isolation between IP/OP and Mains = 600V
Connection Diagram						
Specification	Sensor current: 8mA Open voltage: 8.5V	For use with DIN type CT-5 current transformer (see page 11.5) (Input 0-4V)	Supply Voltage: 9-30VDC standard Other Voltages available			
Power Consumption	AC: ±1.5VA DC: 100mA @ 12VDC					1.5VA
Supply AC	Galvanic isolation with internal transformer 24, 48, 115, 230, 400, 525VAC ±15% (Isolation test volts 2kV)					
Supply DC	-	-	-	-	12, 24, 48VDC	-
Contact Rating	SPDT: 10A @ 250VAC DPDT: 5A @ 250VAC					

PROCESS CONTROLS

ACCESSORIES



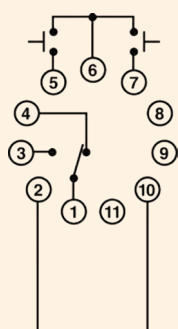
Coincidence Relay

CS1

SPDT

External contacts A and B typically are pushbuttons mounted 1m + apart on a press or guillotine. The operator must press both buttons, keeping his hands safely away, before the machine operates. Apply the supply voltage. The contacts A & B must be actuated within 0.5s in order to make the relay operate. If one of the contacts is interrupted the relay will immediately release.

Ideal for use in machine safety guard systems.



SUPPLY VOLTAGE



Over/Under Speed & Tacho Relay

TM1

TM4 TM4/R

SPDT

The Tacho relay connects to a PNP,NPN or Namur inductive or capacitive sensor **Under Speed:** Link 5 & 11 The relay energises if input speed drops below the set limit.

Over Speed: No link 5 & 11 The relay energises when the speed exceeds the set limit **DIP SW:** SW1 ON: NPN SW1 OFF: PNP

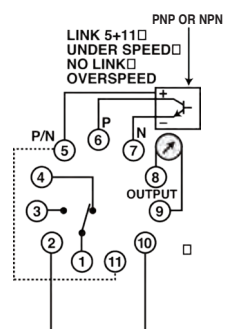
Output TM4:

SW2 ON: 4-20mA

SW2 OFF: 0-20mA

Ranges:

Posn	RPM	Posn	RPM
1	2-20	6	100-1k
2	5-50	7	200-2k
3	10-100	8	500-5k
4	20-200	9	1k-10k
5	50-500	10	2k-20k



SUPPLY VOLTAGE

TM1 - 1mA Output
TM4 - 4-20mA Output
TM4/R - Remote 1MV pot
Hysteresis: 3% fixed
Namur connect 6-7
NPN/PNP connect 5-6-7



Temperature Relay for T/C: J & K

TRJ2

TRJ4

SPDT

SPDT

0 to 200°C 0 to 400°C

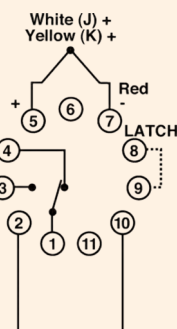
TRJ2 & TRJ4 for J type thermocouple

TRK2 & TRK4 for K type thermocouple

The temperature relay connects to a temperature sensor. The relay energises when the temperature exceeds the set limit. The relay de-energises when the temperature drops below the set limit.

Remote control available on request.

AC Supply Only



SUPPLY VOLTAGE

Control: On/Off
Proportional on request
Latch: Pin 8 & 9
Hysteresis 3% fixed
Faulty thermocouple Indication: Flashing LED

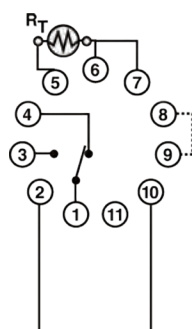


Temperature Relay for T/C: PT100

SPDT	-20 to +80°C	TR1
SPDT	0 to 100°C	TR2
SPDT	+50 to 150°C	TR3
SPDT	+50 to 200°C	TR4

Link 8 & 9: (under temp)
The temperature relay connects to a temperature sensor PT100. The relay energises when the temperature exceeds the set limit. The relay de-energises when the temperature drops below the set limit.

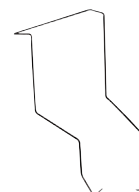
NO Link 8 & 9: (over temp).
The relay energises on application of power and will de-energise when the temp. exceeds the set value.



SUPPLY VOLTAGE

Overtemp: No link between Pins 8 & 9
Undertemp: Link 8 & 9
Hysteresis: 0 - 100%

For Plug-In Modules

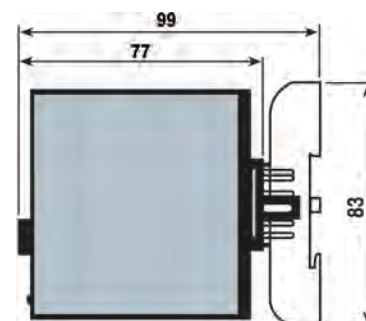


RC



BC

Accessories	Code
Timer box - Black	A1024BK
Retaining clip	RC
11 Pin base cover	BC
Remote pot. 1MΩ	POT 1MEG
Remote pot. 10kΩ	POT 10K



External dimensions (mm) A1024BK

Standard Time Ranges

0.02 - 1 sec	0.05 - 30 min
0.05 - 3 sec	1 - 60 min
0.20 - 10 sec	2 - 120 min
0.50 - 30 sec	3 - 180 min
1 - 60 sec	0.08 - 5 hours
3 - 180 sec	0.1 - 6 hours
6 - 360 sec	0.13 - 8 hours
10 - 600 sec	0.26 - 16 hours
0.25 - 15 min	0.4 - 24 hours

All timers, 11 Pin & 8 Pin,
above 360 seconds: prices differ.

8-pin Plug-In Timers

The following 8-pin timers are available:
DP1, DP2, DP3, IP2, IP3, EP1, EP2, UP1, UP2, DDP1, DDP2, DDP3, DAP1, IAP1, SDP1, PP1, TSP1 & OSP1.

AC: ±1.5VA DC: 100mA @ 12VDC

Galvanic isolation with internal transformer 12, 24, 48, 115, 230, 400, 525VAC ±15%
(Isolation test volts 2kV)

12, 24, 48VDC

SPDT: 10A @ 250VAC DPDT: 5A @ 250VAC

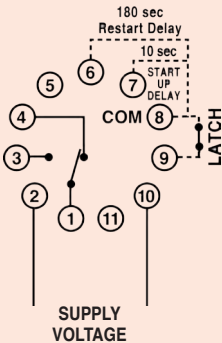
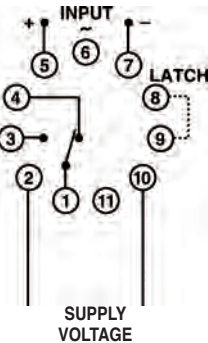
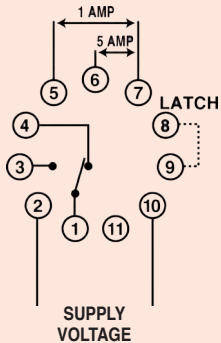
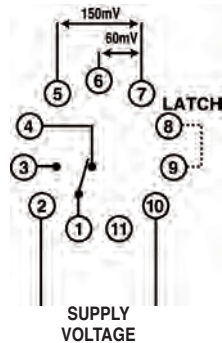
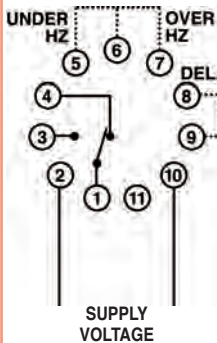
POWER MONITORS



Type	Phase Failure & Sequence Relay	Phase Failure & Sequence Relay	Supply Protection Relay	Over & Under Voltage Three Phase
Code	SMP1 1000	SMP1 SMP1/N	SPR3	TWCP1
Outputs	SPDT	SPDT	SPDT	SPDT
Mode of Operation	This three phase (3 wire) unit monitors the supply voltage for all systems between 525 and 1000V. The output relay energises if the phases are all present and in the correct sequence. The relay de-energises when any phase is lost or the phase sequence is incorrect. The unit is housed in a DIN rail mounting housing suitable for 1000V connections.	This three phase (3 or 4 wire) unit monitors the supply voltages. The output relay energises if the phases are all present, in the correct sequence and each voltage is within 5-15% range (adjustable) of each other. The relay de-energises on: - A phase voltage imbalance exceeding the adj limit (5-15%). - Total failure of one or more phases. - Incorrect phase sequence. - Supply exceeds 15% under/over nominal voltage (Link 2-10 options). Built-in optional facilities (SMP1 & SMP1/N only) 180 sec fault restart delay. 15% fixed over/under voltage. These facilities can be utilised by connecting external links as per the diagram below.	SPR3: 3 Phase (3 wires) SPR3/N: 3 Phase + N (4 wires) This three phase (3 or 4 wire) unit monitors the supply voltage and combines the protection features of the SMP1 and TWCP1. The output relay energises if the phases are all present, in the correct sequence and each voltage is to within the adjustable over and undervoltage limits. The relay de-energises on: - Phase voltage imbalance exceeding the 10% (preset) - Total failure of one or more phases. - Incorrect phase sequence. - Any phase falling outside the set voltage range. Built-in optional facilities: - External latch N/C 10 sec start up delay 180 sec fault restart delay These facilities can be utilised by connecting external links as per the diagram below.	TWCP1: 3 Phase (3 wires) TWCP1/N: 3 Phase + N (4 wires) This three phase (3 or 4 wire) window voltage comparator monitors the supply voltage. The output relay energises if the voltage level is within the adjustable over and undervoltage limits and de-energises when the voltage is outside this range. Built-in optional facilities: - External latch 10 sec start up delay 180 sec fault restart delay These facilities can be utilised by connecting external links as per the diagram below.
Connection Diagram		N: FOR SMP1/N ONLY	N: FOR SPR3/N	N: FOR TWCP1/N
Specification	For any 3 phase system with a nominal voltage from 525 to 1000V. LED: Supply healthy – Green DIN mounting housing	SMP1 & SMP2 – 3 Phase SMP1/N & SMP2/N – 3Phase + N Phase imbalance: 5-15% ADJ. SMP1 & SMP1/N only Link 8 & 9 180sec fault restart delay Link 2 & 10 for SMP1 only 15% fixed over/under voltage protection. LED: Supply healthy – Green Available for 110, 230, 400V and 525V systems	Link 8 & 9 External latch Link 9 & 10 10 sec start up delay Link 9 & 11 180 sec fault restart delay. Phase imbalance: 10% fixed Overvolts 0 - 20% ADJ. Undervolts 0 - 20% ADJ. LEDs: Over/Undervolt – Red Phase rotation – Red x2 Supply healthy – Green	Link 8 & 9 Ext. Latch N/C Link 9 & 10 10 sec start up delay Link 9 & 11 180 sec fault restart delay Overvolts 5 - 20% ADJ. Undervolts 5 - 20% ADJ. LEDs: Over voltage – Red Undervoltage – Red Supply healthy – Green
Hystersis	2% Fixed	2% Fixed	2% Fixed	2% Fixed
Supply AC	525-1000VAC	115*, 230*, 400 & 525VAC	400 & 525VAC	115*, 400 & 525VAC
Supply DC	-	-	-	-
Contact Rating	SPDT: 10A @ 250VAC	DPDT: 5A @ 250VAC	DPDT: 5A @ 250VAC	DPDT: 5A @ 250VAC

* For Use with VT's Only

POWER MONITORS

									
Over & Under Voltage Single Phase	Voltage Monitor		Over Current Monitor		Under Current Monitor	Over & Under Current Monitor	Over & Under Frequency Monitor		
WCPT1	VCP1	VCP1/M	OCP1	OCP1/R	OCP1/D	UCP1 UCP1/E	UCP1/D UCP1/R	CWP1	FR1
SPDT	SPDT		SPDT		SPDT	SPDT		SPDT	SPDT
This new single phase window voltage comparator replaces WCPT1 and monitors the supply voltage. The output relay energises if the voltage level is within the adjustable over and undervoltage limits and de-energises when the voltage is outside this range. Built-in optional facilities: 1. External latch 2. 10 sec start up delay 3. 180 sec fault restart delay These facilities can be utilised by connecting external links as per the diagram below.	The output relay is energised when the voltage peak (peak voltage on AC) overshoots the level selected on the front face potentiometer. It de-energises when voltage falls below the normal voltage U_e by 5-50% or when supply breaks. The hysteresis is adjustable and its selection does not change the chosen voltage level.		OCP1 - 1A/5A AC/DC OCP1/R - As OCP1 with Remote Potentiometer OCP1/D - 60mV/150mV AC/DC Trip Point - The relay de-energises when the input current rises above the set point and energises when the input current falls a certain percentage (hysteresis) below the set point. Hysteresis - The difference between the trip level and the set level.		UCP1 - 1A/5A AC/DC UCP1/R - As UCP1 with Remote Potentiometer UCP1/E - As UCP1 But no Delay UCP1/D - 60mV/150mV AC/DC Trip Point - The relay de-energises when the input current drops below the set point and energises when the input current rises a certain percentage (hysteresis) above the set point. Hysteresis - The difference between the set trip level and the recovery level.	CWP1 - 1A/5A AC/DC The relay senses the input current and the relay will energise, if the current is within the set overcurrent and undercurrent. The relay will de-energise if the current rises above the overcurrent setpoint or drops below the under-current set point. LEDs: Over current – Red Under current – Red Supply on – Green	The unit senses the supply frequency and the relay will energise if the frequency is within the set over frequency limits. The relay will de-energise if the frequency rises above the over frequency setpoint or drops below the under frequency set point. Link 6 & 5: Under Hz Link 6 & 7: Over Hz		
									
Link 8 & 9 External latch N/C Link 8 & 7 10 sec start up delay. Link 8 & 6 180 sec fault restart delay. Overvolts 5 - 30% ADJ. Undervolts 5 to 30% ADJ. LEDs: Over voltage – Red Under voltage – Red Supply healthy – Green	VCP1/M: Multi voltage inputs: Connect: 5-8 0-10VAC(RMS)/DC 6-8 0.4-40VAC(RMS)/DC 7-8 4-400VAC(RMS)/DC 11-8 6-600VAC(RMS)/DC (For detailed wiring diagram, see www.acdc.co.za)		UCP1 OCP1 CWP1 Input: AC: 0 - 1A 0 - 5A Pins 5 +7 Pins 6 +7 Startup delay: 10 seconds For external pot use 10kV		UCP1/D OCP1/D DC: 0 - 150mV Pins 5 +7 0 - 60mV Pins 6 +7	Response delay: 1 sec Over: 52 - 58Hz adjustable Under: 48 - 42Hz adjustable LEDs: Over frequency – Red Under frequency – Red Supply on – Green			
2% Fixed	5 - 50% Adjustable		5 - 50% Adjustable			2% Fixed		2% Fixed	

Galvanic isolation with internal transformer 12, 24, 48, 115, 230, 400, 525VAC $\pm 15\%$ (Isolation test volts 2kV)

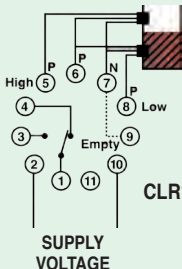
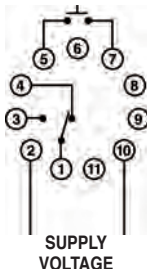
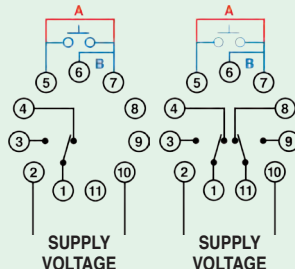
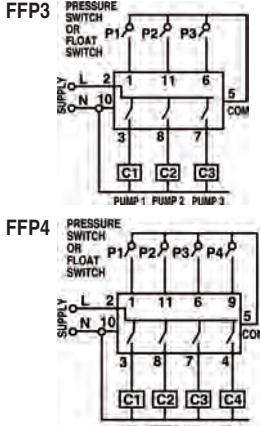
12, 24, 48VDC (110VDC for **VCP1**) (**WCPT1** Not available in 12VDC)

SPDT: 10A @ 250VAC DPDT: 5A @ 250VAC

LEVEL & PUMP CONTROL

FAILSAFE
DESIGN



Type	Capacitive Level Relay		Flip-Flop Relay Pulse Start			Flip-Flop Mains Controlled		Pump Sequence Control Relay	
Code	CLR1	CLR2	FNCP1	FNCP2	FFCP1	FFP1	FFP2	FFP3	FFP4
Outputs	SPDT		SPDT	DPDT	SPDT	SPDT	DPDT	3 Pumps	4 Pumps
Mode of Operation	CLR1 Using NPN Probe Filling: The relay energises when the level drops below the lower level sensor and de-energises when it reaches the high level sensor. Emptying: As above with opposite function. Link 7 & 9. Using PNP Probe Functions reverse. NPN Sensor: SD10G-ARN1 Page 2.4 NPN Sensor: CS-09 page15.30 CLR2 2 Wire Probe connection: Probe 1 5(+) 6(-) Probe 2 7(+) 6(-) Probes VR1A or VR1B page 2.4 Single Probe connection: Probe 5(+) 7(-)		For alternating pumps FNCP1 (No memory) Closing of contact across 5 & 7 the relay will energise. Closure of contact again, the relay will de-energise. When the relay is in the ON position and the supply voltage is removed, the relay will reset. (No memory). FFCP1 (With memory) Closure of contact across 5 & 7, the relay will energise. On closure of the contact again the relay will de-energise. The relay remains in this position even on removal of supply. (with memory).			Mains controlled: Change on removal of supply. The relay is initially in any state, on or off, apply supply voltage. The relay keeps its state. Remove the supply voltage. The relay will now change state and will keep its state without the supply. Apply & remove the supply again for the next change in state. Mains controlled: Change on application of supply. Link pins 5 and 7 (Link A). Apply supply voltage. The relay changes state. Remove supply. The relay keeps its state. Pulse controlled. Link pins 6 & 7 (Link B). The relay is initially in any state, apply supply voltage. The relay keeps its state. When the contact between pins 5 & 7 closes, the relay will change state. Remove the supply voltage. The relay will keep its state without the supply. Minimum time supply connected for relay to react: 1 second.		Float or Pressure switches are connected to pins 1, 11, 6 and common on 5. When the first switch closes, relay 1 energises. When the second and third switches close, the second and third relays energise. There will always be as many relays energised as there are input switches closed. When 1, 2 or 3 pressure switches open, 1, 2 or 3 relays will de-energise. The positions of the pressure switches do not matter, only how many are switched on at a time. When all switches open and no relays are energised, and a switch closes again, then relay 2 will be the primary relay, that is the first relay to energise, then relay 3, and then relay 4 or 1. Every time the first switch closes, the next relay will be the first to energise. The supply must be connected for the relays to energise. The currently selected primary relay is stored in non-volatile memory. The relay will remember which relay to energise first, even if the supply is disconnected.	
Connection Diagram	 Response time: 500mS Sensor connections NPN: Pin 5 (P) H Level - Black Pin 6 (P) Common - Brown Pin 7 (N) Common Blue Pin 8 (P) L Level - Black Use SD10G-ARN1 or CS09 page15.30		 FFCP1: Not available in 12VDC			 Response time: 0.2S Not available in 12VDC		NB: Voltage Free Inputs 	
Power consumption	AC: ± 1.5VA DC: 100mA @ 12VDC								
Supply AC	Galvanic isolation with internal transformer 12, 24, 48, 115, 230, 400, 525VAC ±15% (Isolation test volts 2kV)								
Supply DC	12, 24, 48VDC								
Contact Rating	SPDT: 10A @ 250VAC DPDT: 5A @ 250VAC								

LEVEL & PUMP CONTROL

PHASE ANGLE RELAYS



2-Level Liquid Level Relay

3-Level Liquid Level Relay

Submersible Pump Seal Monitor

Pump & Motor Protection Phase Angle Relays

TE101

TE201

DLR

DLRA

SPSM1

SPSM2

SPSM1-5K

TE01 / TE01/S

TE02 / TE03

SPDT

DPDT

DPST

SPDT

DPDT

SPDT

Filling: Link 7 & 8. The relay energises when the level drops below the low level probe and de-energises when it reaches the high level probe. Top and bottom probes are interchangeable.

Emptying: No link between 7 & 8. The relay energises when the level reaches the high probe and de-energises when it drops below the low probe.

- For single level sensing connect pins 5 & 6 (Probes 5 & 7).
- 1s response time to limit effect of water ripple. Longer times manufactured to order.

TE101: Filling or Emptying

TE201: Emptying Only

TE101B: Dual voltage 230/400V

TE101LE: Long Distance Emptying 150-200m 230V and 400V only- For Probes, see Pg. 2.2

DLR

For alternating pumps

There are two relay outputs with flip-flop action each cycle for alternating duty of pumps. Relay is connected to four probes.

Filling: Link 7 & 8. Pump 1 starts when the level drops below the start level probe. Pump 2 will start if the level drops to the second probe. Both pumps run until tank is full. The next cycle pump 2 first then pump 1.

Emptying: No link between 7 & 8. Function as above but reversed.

DLRA

For one pump & alarm

Output relay energises and de-energises between 2 levels like **TE101**. When extreme level is reached, the alarm output energises (2nd Relay). Alarm can be used for high or low function.

For Probes, see Pg. 2.2

For protection of submersible motors against damage caused by the ingress of water.

Terminals 5 & 7 connect to the monitoring terminals on the submersible motor.

The output relay energises upon application of power. The relay will de-energise if probe current is more than 20 μ A or if probe resistance is less than 1Mohm. The relay will energise if probe current is less than 15 μ A or if probe resistance is more than 1,4Mohm.

SPM1-5K: 5K Ω Sensitivity Potentiometer

- Supply Voltage: Single Phase: 230VAC $\pm$ 20% Three Phase: 400VAC, 415VAC (**TE02 & TE03**) or 525VAC $\pm$ 20%
- Power Consumption: $\pm$ 2VA
- Calibration: Manual or Automatic (Model dependant)
- Dry Trip Level: 10% of calibrated phase angle / current 2s delay
- Dry Restart Delay: 15 minutes to 5 hours adjustable
- Output Relay: SPDT 250VAC/10A
- Voltage Trip Level: 10% of calibrated voltage, 2 second delay (**TE02/TE03**)
- Current Trip Level: 20% of calibrated current, 1 second delay (**TE02/TE03**)
- Rapid start cycle: 3 per 15 minutes maximum (**TE03** only)

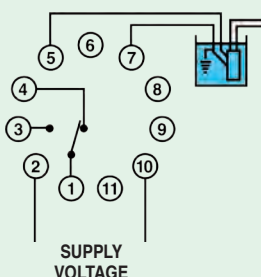
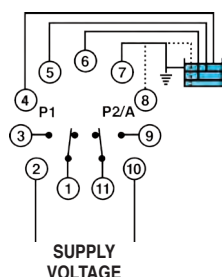
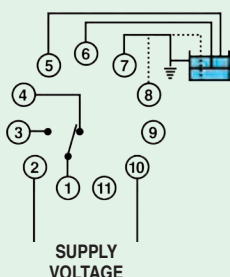
LED Status Indication TE02/TE03

Green	Amber	Red	Condition
ON	OFF	OFF	Normal pumping
FLASH	OFF	OFF	Dry-timing or phase failure/reversal
OFF	ON	OFF	Supply voltage low/high
OFF	FLASH	OFF	Rapid cycle
OFF	OFF	ON	Motor overload or phase failure
ON	ON	ON	TE02/3 uncalibrated
FLASH	FLASH	FLASH	TE02/3 calibrating
OFF	OFF	OFF	Unable to calibrate

Selection Guide

Code	TE01*	TE02*	TE03*
11 Pin Plug In	•	•	•
Running dry- Under load blocked in/outlet	•	•	•
Overcurrent		Auto	Auto
Phase Failure / Reversal		•	•
Over / Under voltage		•	•
Star / Delta or Soft Start	•••	•	•
Locked Rotor		•	•
Shunt Required	•		
Rapid pump start protection			•
Cut-out over 12 starts/hour			•
LED Status Indication		•	•
Calibration	Manual	Auto	Auto
Tank Control (float switch)			•

*Add to Code: 230V (230VAC), 400V (400VAC), 415V (415VAC), 525V (525VAC) **TE01/S version only



Level sensor:
Probe volts 5 VAC @ 1.5mA
Adjustable sensitivity: 0 - 50 k Ω

Max Voltage on probe = 24VDC
Max Current through probe = 120 μ A = 0.12mA.
LEDs:
Power on – Red
Seal healthy – Green

AC: $\pm$ 1.5VA DC: 100mA @ 12VDC

Galvanic isolation with internal transformer 12, 24, 48, 115, 230, 400, 525VAC $\pm$ 15% (Isolation test volts 2kV)

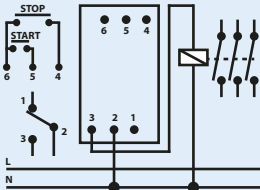
12, 24, 48VDC

SPDT: 10A @ 250VAC DPDT: 5A @ 250VAC

DIGITAL POWER MONITORS

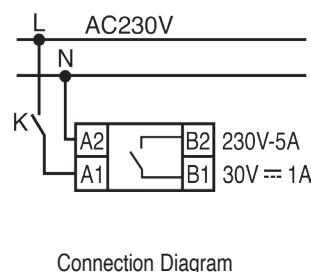
Type	Digital 3-Phase Voltage Relay	Digital Frequency Relay
Code	AEVR-YH (400VAC) AEVR-Y4 (400VAC+N)	AEFR-Y
Output	Relay 5A @ 250VAC	Relay 5A @ 250VAC
Mounting	8 PIN plug-in/Flush mount	8 PIN plug-in/Flush mount
Specification	- Over and Under Voltage detection which is adjustable. - Over and Under Voltage Trip Delay adjustable 0.1-10 sec. - Phase Loss Detection. - Phase Sequence detection. - Phase Imbalance. - Manual/Auto Reset with 1-5 sec trip delay. - Cutout Size: 62 x 50mm. - Voltage Display 0-999.	- Over Frequency: 50Hz-99Hz. - Under Frequency: 10Hz-60Hz. - Trip Delay: 1-10sec. - Manual/Auto Reset with 1-5 sec trip delay. - Cutout Size: 62 x 50mm. - Frequency Display 0-99.9. - Supply Voltage: 230VAC.
Connection Diagram	SUPPLY VOLTAGE AEVR-YH no neutral AEVR-Y4 with neutral	

DIGITAL TIMERS

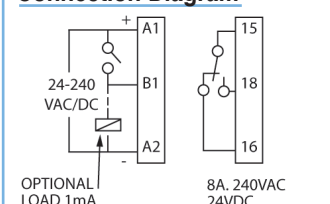
Digital Timer Switch	8 Function	18 Function
	Multifunction 	
MCB200	V0DDTS	V0DDTS1
1 C/O 6A@230VAC	1 C/O 8A @ 250VAC	
DIN/Base	DIN/Base	
• With triggering function. • Independant self supply from internal battery • Supply Voltage: 230VAC. Triggering Input Functions • Delay • OFF Delay • Pulse • Asymmetrical Flasher • Symmetrical Flasher Time Ranges • 0,2-9999s / 0,1-9999 min	• Supply Voltage: 24-240VAC/DC 50Hz • Display: 3 Digit LCD • Time Range: 0.1s - 999h • Reset Time: 200ms • LED Indication: Red-Relay On • Dimensions: 17.5 x 89 x 76 V0DDTS - Functions • ON Delay • Cycle Off/On • Cycle On/Off • Signal On/Off • Signal Off Delay • Interval • Signal Off/On • One Shot V0DDTS1 - Functions • ON Delay • Cycle Off/On • Cycle On/Off • Impulse On/Off • Accumulative Delay on Signal • Accumulative Delay on Inverted Signal • Accumulative Impulse on Signal • Signal On Delay • Inverted Signal ON Delay • Signal Off Delay • Impulse On/Off • Signal Off/On • Leading Edge Impulse 1 • Leading Edge Impulse 2 • Trailing Edge Impulse 1 • Trailing Edge Impulse 2 • Delayed Impulse • Inverted Signal ON Delay Display 8.8.8 RUN TIME	
		

DIN Timers

Description	Time Range	Code
Delay on Timer	0.1-10secs	NTE8-10B
	10-120secs	NTE8-120B
	0.5-8mins (480secs)	NTE8-480B
Pulse Start Interval Timer	0.5-8mins (480secs)	NTE8-480A
Output	N/O 5A @ 230VAC	
Supply Voltage	230VAC	



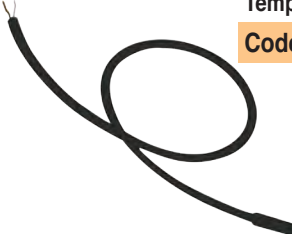
Connection Diagram



MINI DIN TIMERS, STAIRCASE TIMERS & DIMMERS

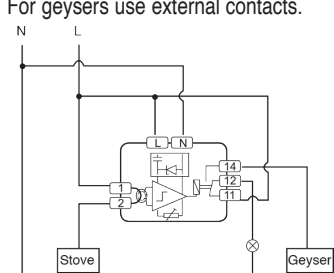
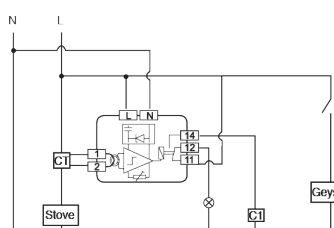
Type	Multi-functional Timer	Multi-functional Timer	Delay On Timer	Delay OFF (Internal)	Delay OFF (no power) or Delay ON		
Operating Temp: -20 to 60°C							
Code	PCM-04*	PCM-10*	PCM-01*	PCM-01/U (12-240VAC/DC)	PCM-02*	PCM-02/U (12-240VAC/DC)	PCM-06/U
Output Relay	1 C/O - 16A	1 C/O - 16A	1 C/O - 16A	1 C/O - 16A	1 C/O - 16A		2 C/O 8A
Function	This multi-function timer has 10 independent operating modes. Wide time adjustment 0.1sec to 10 days. • Delay ON operate. • Delay OFF (Interval). • Repeating starting with OFF. • Repeating starting with ON • Delay pulse on 0.5 secs • Interval pulse start on rising edge. • Interval pulse start on falling edge. • Bistable relay with time delay • Switch ON/OFF delay. • Interval pulse start with retriggering.	This multi-function timer has 10 independent operating modes. Wide time adjustment 0.1sec to 100 days. • Unequal repeating OFF first. • Unequal repeating ON first. • Two shot timer ON first. • Two shot timer OFF first. • Permanent switch ON mode. • Permanent switch OFF mode. • Switch ON pulse start T1 and pulse OFF T2 delay. • Pulse start interval T1, second pulse T2. • ON pulse OFF starts T1 & T2	The one mode time relay has a delayed switch on function. The relay is released by power to the system. The relay is released by power to the system. Wide time adjustment range: 0.1sec to 10 days. Power & Relay ON LED. Accuracy 0.2%.	Upon application of the supply voltage the relay operates and the time starts. On the expiry of the set time the relay releases. The relay is reset by Power OFF to the relay. Wide time adjustment range: 0.1sec to 10 days. Power & Relay ON LED. Accuracy 0.2%.	Mode A: On application of the supply voltage the relay operates when the supply volage is disconnected the timer period starts. After the adjusted time is over the relay releases. Time ADJ 0.15s-10m for delay OFF. Time ADJ 0.1s-1h for delay ON Power & Relay on LED Accuracy 0.2% Mode B: Delay ON operation		
Supply *Add voltage to code	*230VAC, *24V(AC/DC)	*230VAC, *24V(AC/DC)	*230VAC, *24V(AC/DC)	*230VAC, *24V(AC/DC)			12-240VAC/DC
Type	Cycling Timer	Staircase Timer	Staircase Timer	Light Dimmer	Light Dimmer		
Operating Temp: -20 to 45°C		IP65 		IP40 			
Code	PCM-03* PCM-03/U (12-240VAC/DC)	ASH-01/U	ASM-01/U	DIP-02	DIM-20		
Time	0.1 Sec - 10 Days	10 Sec - 10 Min	10 Sec - 10 Min	—	—		
Output relay	1 C/O - 16A	1 NO - 16A	1 NO - 16A	—	—		
Function	The one mode time relay has an equal ON/OFF repeating time delay starting with OFF. Wide time adjustment range: 0.1sec to 10 days Power & Relay ON LED. Accuracy 0.2%.	Staircase, corridor time delay device. Operating time adjustable from 10 secs to 10mins by means of potentiometer. 2 Way switching. 3-wire or 4-wire installation. Size: 69 x 56 x 27mm	Similar to ASH-01/U but in DIN Power: Red LED indication Time adjustment: 10 secs to 10mins 1 Module width	Light intensity memory. Compact Design. LED indicator. 3 Wire design. Can fit into 4x2 flush box. Triac Output. Wiring: Black: Live Brown: Load Red: Switch Size: 50 x 50 x 26mm Max load: 350VA Resistive load Min load: 30VA	Intelligent dimmer lighting control unit for resistive, inductive loads or electronic ballasts and dimmable energy saving flourescent lamps. DIN Rail Mount. LED indicates load on. Lighting level memory when power OFF. Energy saving in Stand-by mode. Max load: 500VA Resistive or inductive load. Min:30VA		
Supply *Add voltage to code	*230VAC *24V (AC/DC)	12-240VAC/DC	12-240VAC/DC	230VAC	230VAC 50/60Hz		

PHASE FAILURE, VOLTAGE, DAYLIGHT & TEMPERATURE RELAYS

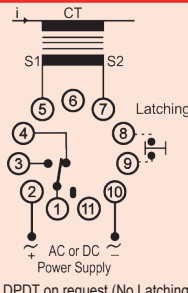
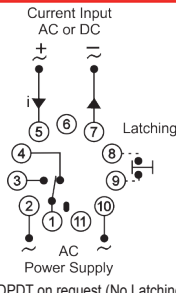
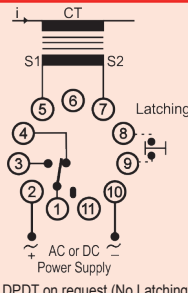
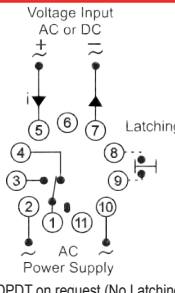
Type	3 Phase Failure & Sequence	3 Phase Failure & Sequence	1 Phase Over / Under Voltage Relay	3 Phase Over / Under Voltage Relay	Digital Display Over / Under Voltage & Phase Failure	
Operating Temp: -20 to 60°C		IP65 				
Code	CKM-01	CKH-01	PNM-10	PNM-31	PNM-32	
Output Relay	1 C/O - 10A	1 C/O - 10A	1 C/O - 10A	1 C/O - 16A	1 C/O 16A	
Function	Phase sequence, total and partial loss monitoring device. Monitors wrong phase sequence, or loss of one phase. < 180V Switch on Delay: 5-10 Secs Switch off Delay: 1-5 Secs Voltage Threshold ADJ: 170 - 200V Hysteresis ±10V Correct / wrong phase seq. LED	Phase sequence, total and partial loss monitoring device. Monitors wrong phase sequence, or loss of one phase. < 180V Switch on Delay: 5-10 Secs Switch off Delay: 1-5 Secs Voltage Threshold: 185V Hysteresis ±10V Correct / wrong phase seq. LED	Over / under Voltage monitoring relay. Single phase monitoring Minimum and Maximum voltage adjustment Min value: 170V - 225V Max value: 235V - 290V Switch off time delay adjustment: 0 to 12Secs	Over / under Voltage monitoring relay. Three phase monitoring Minimum and Maximum voltage adjustment Min value: 170V - 225V Max value: 235V - 290V Switch off delay 5 secs Phase seq. LED Voltage asymmetry LED L1, L2, L3 phase LED Relay ON LED	Protection of 3 phase systems against: • Phase sequence • Phase failure • Over / Under volts (L-N) adjustable: 170-225V (under) 235-290V (over) • Features: - Delay ON time setting 2-15s - Delay OFF time setting 2-15s - Voltage hysteresis 1-4V - Voltage asymmetry level setting 10-60V	
Supply	Powered from own supply 400V + N	Powered from own supply 400V + N	230VAC 50/60Hz	Powered from own supply 400V + N	Powered from own supply 400V + N	
Type	Daylight Relay		Temperature Regulator		Digital Temp Regulator	
Operating Temp: -20 to 45°C	IP65 					
Code	WZH-01	WZM-01	RTM-01		RTM-20	RTM-30
Supply	230VAC 50/60Hz	230VAC 50/60Hz	230VAC, 50/60Hz		230VAC 50/60Hz	
Output Relay	1 NO - 16A	1 C/O - 16A	1 C/O - 16A		1 C/O - 16A	
Function	Used to control lighting depending on lux density levels. The unit is resistant to momentary changes in lighting levels Lux adj 0.1 to 200Lx Photocell included Size: 69 x 56 x 27mm Switching delay: 30S Hysteresis: +5-60Lux	Used to control lighting depending on lux density levels. The unit is resistant to momentary changes in lighting levels Requires Light Sensor Lux adj 0.1 to 200Lx Sensor cable max length 50m Switching delay: 30S Hysteresis: +5-60Lux	DIN mounted temperature controller. -5°C to 40°C. Underfloor heating etc. For use with standard NTC sensor, from 3m to 50m (See below)		RTM-20: -5°C to 60°C. RTM-30: -10°C to 90°C Underfloor heating etc. LCD display No freeze, comfort, economy modes Indication of temp value and adjustable temp required. 24hr 7day ON / OFF settings RTM-20 Heating only RTM-30 Heating & cooling For use with standard NTC sensor, from 3m to 50m. (See below)	
Daylight Sensor		Daylight Sensor		Temperature Sensor IP67		
Code	SOH*	Code	SOS-01	Code	NTC-03	
	The SOH is designed for operation with the Daylight Switches. *01: 1m connecting cable. *03: 3m connecting cable *05: 5m connecting cable	IP54 	The SOS-01 is a stand-alone sensor. To be used with WZM-01. The length of the interconnecting cable may not exceed 50m.		For use with the RTM-01, RTM-20 and RTM-30 temp. regulators. Cable length: 3m (can be extended up to 50m) Temperature -5°C to 60°C	

VOLTAGE & CURRENT RELAYS

Type	Voltage Indicator		Over Current Limiter		Load Control Relay
Operating Temp: -20 to 45°C	1 phase 	3 phase 			
Code	LDM-10	LDM-30	PMH-01	PMM-01	PPM-05/5 (0.5-5A) PPM-05/16 (1.6-16A)
Output Relay	—	—	1 NO - 16A AC1 4kW	1 NO - 16A AC1 4kW	1 C/O - 16A AC1 4kW
Function	The module is used for graphical presentation of either one phase or three phase voltage supply system levels. The voltage value is shown by lines of LEDs. Range from 195V to 245VAC PH/N Powered from own supply. LDM-30 Loss of L1 will cause total switch off Input voltage tolerance: -15 to +10%		Used to monitor and switch off supply when the Load power value has been exceeded, Adj: 0.2 - 2kW. Unit measures current every 40 secs.	Used to monitor and switch off supply when the Load power value has been exceeded, Adj: 0.2 - 2kW. Unit measures current every 40 secs.	When the adjusted current value is exceeded (term 1, 2) the monitor switches off the non-priority load, with the adjusted time delay. Current values and time delay can be adjusted.
Supply	LDM-10: 1 phase 230VAC monitoring LDM-30: 3 phase 400 VAC + N monitoring		230VAC 50/60Hz	230VAC 50/60Hz	230VAC 50/60Hz

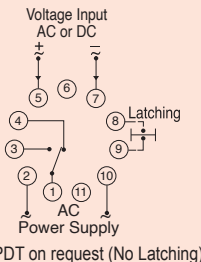
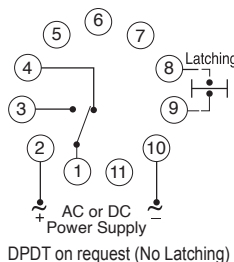
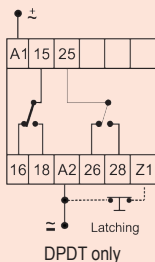
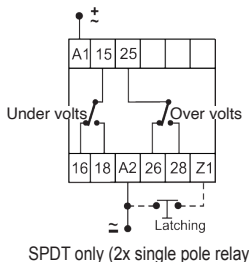
Type	Bi-stable Relay		Liquid Level Relay	On application of the supply voltage, the relay will energise, and the geyser will switch on. Current adjustment can be set so that if one stove plate is on, the geyser will remain on. When the second stove plate is switched on the geyser will be switched off after an adjustable time delay. Current can also be set so that even if one stove plate is switched, the geyser will switch off. Use PPM-05/16 for 3kW geyser. Use PPM-05/5 with CT's for larger loads For geysers use external contacts.  ⊗ = Lamp to indicate that geyser is off. Stove load not to exceed 16 Amps, if larger use external CT. Eg. DS-505 50/5A with relay PPM-05/5. 
Operating Temp: -20 to 45°C				
Code	PBM-01*	PBM-02*	SSRC-04*	
Supply	*230VAC or *24V (VAC/DC) *Add voltage to code		*230VAC, 400VAC	
Function	Used to control lighting or other devices by means of a pushbutton or pushbuttons in parallel. Pushing any button causes switching on or switching off. L or N line signal. PBM-02: Internal relay memory remembers position of relay when power fails. Can be centrally controlled.		SSRC-04 is used for the level and discharge control of conductive liquids in tanks located in industrial plants and domestic applications. The output relay switches ON when the liquid reaches the upper level electrode. The output relay switches OFF when the lower level electrode is no longer in contact with the liquid. The sensitivity (i.e. impedance between electrodes) can be adjusted to 5-50Ω for different liquids by means of the knob of the front panel. The LED on the front panel lights when the relay is ON position.	
Output Relay	1NO @ 16A AC 1 4kW		1C/O 8A	
LED Indication	LED Green: Power LED LED Red: Relay on LED Test button		LED Green: Power LED LED Red: Relay on LED	
Dimensions	17.5mm width DIN mounting		35mm width DIN mounting	

POWER MONITORS

Type	Current Monitor - Single Phase	Current Monitor - Single Phase	Current Window Comparator - Single Phase	DC Current Window Comparator																																										
																																														
Code	SP100/SP103	SP101/SP104	SP120/SP123	SP121																																										
Features	- Internal shunt for direct in-line current sensing (AC or DC) - Adjustable responsible delay of 0.1 to 10 seconds on SP103 1A or 5A, AC or DC input range (programmable) - Direct interface with conventional current transformers. - Trip point adjustable on percentage scale - Hysteresis adjustable 5-30% - Programmable for overload or underload detection. - Latching on overload or underload (programmable) - Start-up delay 10A SPDT relay output	- Internal shunt for direct in-line sensing of currents up to 200mA (AC or DC) - Adjustable responsible delay of 0.1 to 10 seconds on SP104 - Direct interface with DC Shunt Resistors - Trip point adjustable on calibrated scale 0-100% - Hysteresis adjustable 5-30% - Programmable for overload or underload detection. - Latching on overload or underload (programmable). - Start-up delay 10A SPDT relay output	- Direct in-line current sensing - Combined overload and underload detection - Internal shunt for direct in-line current sensing - Adjustable responsible delay of 0.1 to 10 seconds on SP123 1A or 5A AC input range (programmable) - Direct interface with conventional current transformers - Separate adjustment of overload and underload threshold - Latching in both modes. - LED indications for overload, underload and normal load. - Start-up delay 10A SPDT relay output	- Combined overload and under load detection - Internal shunt for direct in-line sensing of currents up to 200mA DC - Direct interface - Separate adjustment of overload and underload thresholds - Latching in both modes - Range selector switch for 1mA, 20mA, 200mA, 60mV, 150mV, and 5V - LED indication for overload, underload and normal load - Start-up delay 10A SPDT relay output																																										
Connection Diagram																																														
Specifications	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (current input to power supply): 2kV Power consumption: 3VA (approx), 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V $\pm 15\%$ Isolation: No galvanic isolation. Power consumption: 100mA (10-30V), 30mA for 48V and higher CURRENT INPUT Trip point: 0.1 to 1A or 0.5 to 5A AC/DC (adjustable) Repetitive accuracy: 1% Hysteresis: 5% to 30% (adjustable) Maximum input current (continuous): 6A Peak short-term over-current (10 seconds): 20A Current input impedance: 50 milliohms. RESPONSE Start-up delay: Approximately 10 seconds, standard. (0.1 to 15 seconds also possible on special order) Response delay: SP100 - 1 second, SP103 - adjustable from 0.1 to 10 seconds (other ranges on special order)	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (current input to power supply): 2kV Power consumption: 3VA (approx), 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V $\pm 15\%$ Isolation: no galvanic isolation. Power consumption: 100mA (10-30V), 30mA for 48V and higher CURRENT INPUT Repetitive accuracy: 1% Hysteresis: 5% to 30% (adjustable) <table><tr><th>Range</th><th>Input Impedance</th><th>Max. Input (Continuous)</th></tr><tr><td>1mA</td><td>60 Ohm</td><td>60mA</td></tr><tr><td>20mA</td><td>3 Ohm</td><td>350mA</td></tr><tr><td>200mA</td><td>0.7 Ohm</td><td>800mA</td></tr><tr><td>60mV</td><td>10k</td><td>50V</td></tr><tr><td>150mV</td><td>10k</td><td>50V</td></tr><tr><td>5mV</td><td>10k</td><td>50V</td></tr></table> RESPONSE Start-up delay: approximately 10 seconds, standard. (1 to 15 seconds also possible on special order) Response delay: SP101 - 1 second. SP104 - adjustable from 0.1 to 10 seconds (other ranges on special order)	Range	Input Impedance	Max. Input (Continuous)	1mA	60 Ohm	60mA	20mA	3 Ohm	350mA	200mA	0.7 Ohm	800mA	60mV	10k	50V	150mV	10k	50V	5mV	10k	50V	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (current input to power supply): 2kV Power consumption: 3VA (approx), 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V $\pm 15\%$ Isolation: no galvanic isolation. Power consumption: 100mA (10-30V), 30mA for 48V and higher CURRENT INPUT Trip point: 0.1 to 1A or 0.5 to 5A AC (adjustable) Repetitive accuracy: 1% Hysteresis: 2% Fixed (relative to trip point setting) Maximum input current (continuous): 6A Peak short-term over-current (10 seconds): 20A Current input impedance: 50 milliohms RESPONSE Start-up delay: approximately 10 seconds, standard (1 to 15 seconds also possible on special order) Response delay: SP120 - 1 second. SP123 - adjustable from 1 to 10 seconds (other ranges on special order)	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (current input to power supply): 2kV Power consumption: 3VA (approx), 6VA for 415, 525V (approx) DC: Supply voltage: 12, 24, 48, 60, 110V $\pm 15\%$ Isolation: no galvanic isolation. Power consumption: 100mA (12, 24V), 30mA for 48V and higher CURRENT INPUT Repetitive accuracy: 1% Hysteresis: 2% Fixed (relative to sensitivity setting) <table><tr><th>Range</th><th>Input Impedance</th><th>Max. Input (Continuous)</th></tr><tr><td>1mA</td><td>60 Ohm</td><td>60mA</td></tr><tr><td>20mA</td><td>3 Ohm</td><td>350mA</td></tr><tr><td>200mA</td><td>0.7 Ohm</td><td>800mA</td></tr><tr><td>60mV</td><td>10k</td><td>50V</td></tr><tr><td>150mV</td><td>10k</td><td>50V</td></tr><tr><td>5mV</td><td>10k</td><td>50V</td></tr></table> RESPONSE Start-up delay: approximately 10 seconds, standard (1 to 15 seconds also possible on special order) Response delay: SP121 - 1 second	Range	Input Impedance	Max. Input (Continuous)	1mA	60 Ohm	60mA	20mA	3 Ohm	350mA	200mA	0.7 Ohm	800mA	60mV	10k	50V	150mV	10k	50V	5mV	10k	50V
Range	Input Impedance	Max. Input (Continuous)																																												
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150mV	10k	50V																																												
5mV	10k	50V																																												
*Relay Contacts: SP = Single Pole DP = Double Pole																																														
Ordering Code Example	TYPE	MODEL	VOLTAGE	POWER SUPPLY	RELAY CONTACTS	TYPE	MODEL	VOLTAGE	POWER SUPPLY	RELAY CONTACTS	TYPE	MODEL	VOLTAGE	POWER SUPPLY	RELAY CONTACTS	TYPE	MODEL	VOLTAGE	POWER SUPPLY	RELAY CONTACTS																										
	SP	100	/	230V	AC	—	*	SP	101	/	230V	AC	—	*	SP	120	/	230V	AC	—	*	SP	121	/	230V	AC	—	*																		

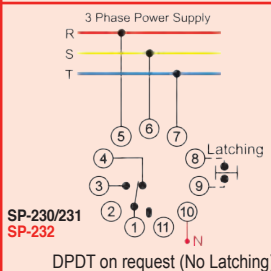
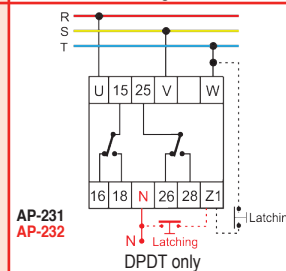
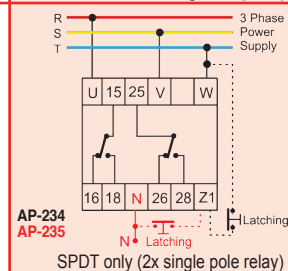
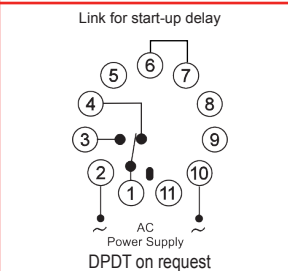
*Relay Contacts:
SP = Single Pole
DP = Double Pole

POWER MONITORS

Type	Voltage Monitor - Single Phase	Voltage Window Comparator - Single Phase	Voltage Window Comparator - Single Phase AC/DC	Combined Over/Under Voltage Monitor, 2 Independent Relays																					
																									
Code	SP200/SP201	SP220/SP221	AP221	AP224																					
Features	• Programmable input voltage range 0 to 600V AC(RMS) or DC • Adjustable response delay from 0.1 to 10 seconds on SP201 • Voltage threshold adjustable on calibrated scale, 0-100% • Adjustable hysteresis 5-30% • Programmable for over-voltage or under-voltage detection • Latching on over-voltage or under-voltage • 10A SPDT relay output	• Combined over-voltage and under-voltage detection • Adjustable response delay of 0.1 to 10 seconds on SP221 • Monitoring of own supply voltage • High precision and repetitive accuracy • Independent setting of over-voltage and under-voltage tripping points • LED indication for type of fault and status of the relay • Latching facility • 10A SPDT relay output	• DIN rail format • Combined over-voltage and under-voltage monitoring • Monitoring of own supply voltage • Selectable power supply voltages • High precision and repetitive accuracy • Independent adjustment of over-voltage and under-voltage setpoints • Adjustable response times available on trip and/or recovery (0.1-10 secs) • Adjustable start-up delay (0-10 secs) • Latching on over-voltage or under-voltage fault conditions (programmable) • LED indication for Relay ON, over-voltage & undervoltage • 5A DPDT relay output	• DIN rail format • Combined over and under detection voltage • Internal shunt for direct in-line sensing of currents up to 200mA DC • Direct interface • Separate relay for over-voltage and under-voltage • Separate adjustment of overload and underload thresholds • Latching in both modes • Range selector switch for 1mA, 20mA, 200mA, 60mV, 150mV, and 5V • LED indication for overload, underload and normal load • Start-up delay • 5A DPDT relay output																					
Connection Diagram																									
Specifications	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (current input to power supply): 2kV Power consumption: 3VA (approx), 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V $\pm 15\%$ Isolation: No galvanic isolation Power consumption: 100mA (10-30V), 30mA for 48V and higher VOLTAGE INPUT Repetitive accuracy: 1% Hysteresis: 5% to 30% (adjustable) <table><tr><th>Range</th><th>Input Impedance</th><th>Max. Input Voltage</th></tr><tr><td>0-15V</td><td>500k Ohm</td><td>700V</td></tr><tr><td>0-30V</td><td>500k Ohm</td><td>700V</td></tr><tr><td>0-60V</td><td>500k Ohm</td><td>700V</td></tr><tr><td>0-150V</td><td>500k Ohm</td><td>700V</td></tr><tr><td>0-300V</td><td>500k Ohm</td><td>700V</td></tr><tr><td>0-600V</td><td>500k Ohm</td><td>700V</td></tr></table> RESPONSE Response delay: SP200 - 1 second SP201 - adjustable from 0.1 to 10 seconds (other ranges on special order) Latching disabled during power-up: approx. 10 seconds	Range	Input Impedance	Max. Input Voltage	0-15V	500k Ohm	700V	0-30V	500k Ohm	700V	0-60V	500k Ohm	700V	0-150V	500k Ohm	700V	0-300V	500k Ohm	700V	0-600V	500k Ohm	700V	POWER SUPPLY AC: Supply voltage: 12, 24, 48, 115, 230, 400, 415, 525V $\pm 20\%$ Isolation (current input to power supply): 2kV Power consumption: 3VA (approx), 6VA for 415, 525V (approx) DC: Supply voltage: 12, 24, 48, 60, 110V $\pm 20\%$ Isolation: no galvanic isolation Power consumption: 100mA (12, 24V), 30mA for 48V and higher VOLTAGE SENSING Calibrated to respond to RMS of a sinusoidal waveform Repetitive accuracy: 1% Hysteresis: 2% fixed (relative to its supply voltage) Response delay: SP220 - 1 second SP221 - adjustable from 0.1 to 10 seconds (other ranges on special order) Latching disabled during power-up: approx. 10 seconds	POWER SUPPLY AC: 12, 24, 115, 230, 400, 525V AC Isolation: Galvanic (without latching) Power consumption: 2VA (approx) Housing width: 45mm Voltage tolerance: $\pm 20\%$ DC: Supply voltage: 12, 24, 48, 60, 110V DC Isolation: No galvanic isolation Power consumption: 30mA (approx) Housing width: 45mm Voltage tolerance: $\pm 20\%$ VOLTAGE SENSING Repetitive accuracy: 1% Hysteresis: 2% fixed Hysteresis relates to the supply voltage Setpoints: The unit is calibrated to trip on the RMS value of the supply voltage (assuming no AC waveform distortion) RESPONSE Response time on trip: 0.1 - 10 seconds (adjustable) Response time on recovery: 0.1 - 10 seconds (adjustable) Start-up delay: 0 - 10 seconds (adjustable) Latching inhibited during power up	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 525V AC Isolation: Galvanic (without latching) Power consumption: 2VA (approx) Housing width: 45mm Voltage tolerance: $\pm 20\%$ DC: Supply voltage: 12, 24, 48, 60, 110V DC Isolation: No galvanic isolation Power consumption: 30mA (approx) Housing width: 45mm Voltage tolerance: $\pm 20\%$ VOLTAGE SENSING Repetitive accuracy: 1% Hysteresis: 2% (fixed) Setpoints: The unit is calibrated to trip on the RMS value of the supply voltage (assuming no AC waveform distortion) RESPONSE Response time on trip: 0.1 - 10 seconds (adjustable) Response time on recovery: 0.1 - 10 seconds (adjustable) Start-up delay: 0 - 10 seconds (adjustable) Latching inhibited during power up
Range	Input Impedance	Max. Input Voltage																							
0-15V	500k Ohm	700V																							
0-30V	500k Ohm	700V																							
0-60V	500k Ohm	700V																							
0-150V	500k Ohm	700V																							
0-300V	500k Ohm	700V																							
0-600V	500k Ohm	700V																							
*Relay Contacts: SP = Single Pole DP = Double Pole																									
Ordering Code Example	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SP 200 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SP 220 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS AP 221 / 230V AC — DP	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS AP 224 / 230V AC — SP																					

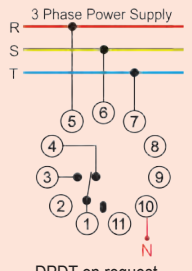
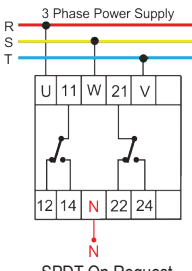
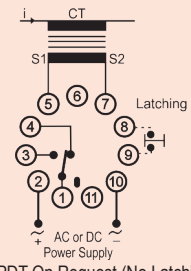
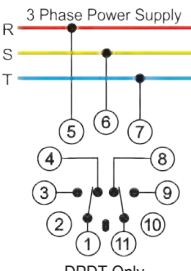
*Relay Contacts:
 SP = Single Pole
 DP = Double Pole

POWER MONITORS

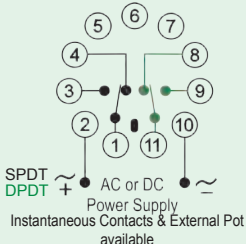
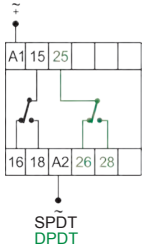
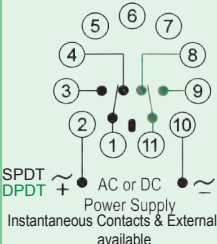
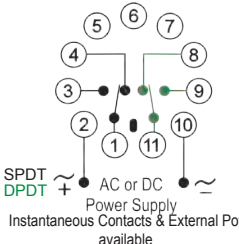
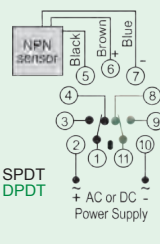
Type	Voltage Window Comparator - Three Phase	Three Phase Voltage Window Comparator, Phase Sequence & Failure	Combined Over/Under- Voltage Monitor - Three Phase	Frequency Monitor
				
Code	SP230/SP231/SP232	AP231/AP232	AP234/AP235	SP320
Features	- Combined over-voltage and under-voltage detection - Monitoring of own supply voltage - Adjustable response delay on SP231 SP232 available with neutral - High precision and repetitive accuracy - Independent setting of over-voltage tripping points - LED indication for type of fault and status of the relay - Latching facility 10A SPDT relay output	- Phase Failure - Phase Sequence - Combined over-voltage and under voltage monitoring - Monitoring of own supply voltages AP232 available with neutral - Selectable power supply voltages - High precision and repetitive accuracy - Independent adjustment of over-voltage and under-voltage setpoints - Separately adjustable response times on trip and recovery (0.1 to 10 secs) - Adjustable start-up delay (0-10 secs) - Latching of fault conditions (prog.) - Microprocessor technology incorporated - LED indication for type of fault and relay status 5A DPDT relay as standard - DIN rail mounting	- Phase Failure (AP234) - Phase & Neutral Failure (AP235) - DIN rail format - Combined over-voltage and under-voltage monitoring - Separate relays for over-voltage and under-voltage - Monitoring of own supply voltage AP235 Available with neutral - Selectable power supply voltages - High precision and repetitive accuracy - Independent adjustment of over voltage and under-voltage setpoints - Adjustable response times - available on trip and/or recovery (0.1 to 10 seconds) - LED indication of over-voltage relay on and under-voltage relay on (power LED flashes when timing) 8A SPDT over-voltage relay output	- Monitoring frequency of own power supply - High precision and repetitive accuracy - Independent setting of over and under-frequency tripping point - LED indication of type of fault and relay status - Programmable for over-frequency, under-frequency or frequency window detection - Start-up delay 10A SPDT relay output
Connection Diagram	 SP-230/231 SP-232 DPDT on request (No Latching)	 AP-231 AP-232 DPDT only	 AP-234 AP-235 SPDT only (2x single pole relay)	 Link for start-up delay AC Power Supply DPDT on request
Specifications	POWER SUPPLY Supply voltage (phase-to-phase): 115, 230, 400, 415, 525V AC $\pm 15\%$ Power consumption: 3VA (approx), 6VA for 415, 525V AC (approx) VOLTAGE SENSING Calibrated to respond to the RMS of a sinusoidal waveform. Repetitive accuracy: 1% Hysteresis: 2% fixed (relative to its supply voltage) Response delay: 1 second Latching disabled during power-up: approx. 10 seconds - SP231 Only	POWER SUPPLY Supply type: AC transformer supply only Supply voltage: 115, 230, 400, 525V Housing width: 45mm Power consumption: 2VA (approx) Isolation: Galvanic Voltage tolerance: $\pm 20\%$ VOLTAGE SENSING Setpoints: The unit is calibrated to trip on the RMS value of the supply voltage (assuming no AC waveform distortion) Repetitive accuracy: 1% Hysteresis: 2% (fixed) Hysteresis relates to the supply voltage RESPONSE Response time on trip: 0.1 - 10 seconds (adjustable) Response time on recovery: 0.1 - 10 seconds (adjustable) Start-up delay: 0 - 10 seconds Latching inhibited during power up	POWER SUPPLY Supply type: AC transformer supply only Supply voltage: 115, 230, 400, 525V AC Housing width: 45mm Power consumption: 2VA (approx) Isolation: Galvanic (without latching) Voltage tolerance: $\pm 20\%$ VOLTAGE SENSING Setpoints: The unit is calibrated to trip on the RMS value of the supply voltage (assuming no AC waveform distortion) Repetitive accuracy: 1% Hysteresis: 2% (fixed) Hysteresis relates to the supply voltage RESPONSE Response time on trip: 0.1 - 10 seconds (adjustable) Response time on recovery: 0.1 - 10 seconds (adjustable) Start-up delay: 0 - 10 seconds (adjustable) Latching inhibited during power up	POWER SUPPLY Supply voltage: 12, 24, 115, 230, 400, 415, 525V, AC $\pm 15\%$ Power consumption: 3VA (approx), 6VA for 415, 525V (approx) Supply frequency: 42Hz - 58Hz (60Hz available on special order) RESPONSE Start-up delay: Approximately 10 seconds standard (1 to 15 seconds available on special order) Response delay: 1 second FREQUENCY SENSING Repetitive accuracy: 1% Hysteresis: 0.5 Hz fixed
Ordering Code Example	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SP 230 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS AP 231 / 230V AC — DP	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS AP 234 / 230V AC — SP	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SP 320 / 230V AC — *

*Relay Contacts:
SP = Single Pole
DP = Double Pole

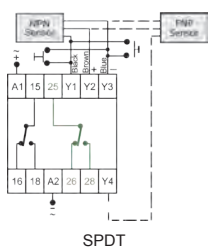
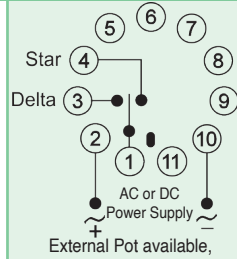
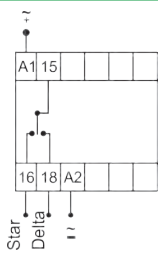
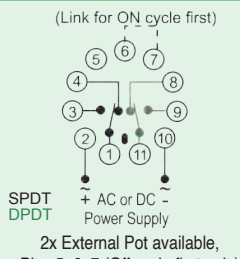
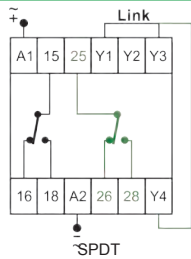
POWER MONITORS

Type	Phase Sequence, Phase Failure, Phase Asymmetry Detector	Phase Sequence, Phase Failure, Phase Asymmetry Monitor	Single Phase, Reverse Power Monitor (Generator Protection)	Phase Sequence, Phase Failure, Phase Asymmetry Detector with Alarm
				
Code	SP430/SP431	AP430/AP432	SP510	SX125/SX131
Features	- Detection of phase asymmetry - Adjustable sensitivity - Insensitive to regenerated EMF - High stability under harmonic distortion - Insensitive to balanced supply voltage variations - Fast response to reversed phase sequence SP431 available with neutral 10A SPDT Relay output	- DIN rail mount - Detection of phase asymmetry - Adjustable Negative Phase Sequence (NPS) sensitivity - Insensitive to regenerated EMF - High stability under harmonic distortion - Insensitive to balance supply voltage variations - Fast response to reversed phase sequence AP432 Available with neutral - Power ON and Relay ON LED's	- Reverse current tripping level adjustable up to 20% of maximum forward current - Current monitoring through internal shunt - Response time adjustable up to 10 seconds - Start-up delay adjustable up to 10 seconds - Insensitive to changes in power factor - LED indication for reverse power and Relay ON - Latching facility 10A SPDT Relay output	- Detection of phase asymmetry - Clear audible warning alarm when detection occurs (SX131) 5mm bright LED indication when detection occurs (SX125) - Insensitive to regenerated EMF - High stability under harmonic distortion - Insensitive to balanced supply voltage variations - Fast response to reversed phase sequence 10A DPDT Relay Output
Connection Diagram	 SP-430 SP-431 DPDT on request	 SP-430 SP-432 SPDT On Request	 DPDT On Request (No Latching)	 DPDT Only
Specifications	POWER SUPPLY Supply voltage (phase-to-phase): 115, 230, 400, 440, 525V AC $\pm 15\%$ Power consumption: 3VA (approx), 6VA for 415, 525V AC (approx) VOLTAGE SENSING Repetitive accuracy: 1% Hysteresis: 2% fixed (relative to its supply voltage) Response delay: 1 second (approx)	POWER SUPPLY Type: AC transformer (2kV galvanic isolation) Voltage: 115, 230, 400, 415, 525, 550V Tolerance: $\pm 20\%$ Power consumption: 2VA (approx) HOUSING 250V and below: 22.5mm width Above 250V: 45mm width VOLTAGE SENSING Repetitive accuracy: 1% Hysteresis: 2% (fixed) Hysteresis relates to the supply voltage Response delay: 1 second (approx) RELAY Relay options (250V): 10A SPDT or 5A DPDT	POWER SUPPLY Supply voltage: 115, 230, 400, 415, 525V AC $\pm 15\%$ Power consumption: 3VA (approx), 6VA for 415, 525V AC (approx) CURRENT INPUT Input current range: 0 - 5AAC Reverse current sensitivity: 100mA to 1AAC (adjustable) Repetitive accuracy: 1% Hysteresis: 5% (fixed) Maximum input current (continuous): 6A Peak short term over current (10 seconds): 20A Current input impedance: 50 milliohms RESPONSE Start-up delay: 0 - 10 seconds (adjustable) Response delay: 1 - 10 seconds (adjustable)	POWER SUPPLY Supply voltage (phase-to-phase): 115, 230, 400, 525V AC $\pm 20\%$ Power consumption: 3VA (approx), 6VA for 415, 525V AC (approx) VOLTAGE SENSING Repetitive accuracy: 1% Hysteresis: 2% fixed (relative to its supply voltage) Response delay: 1 second (approx)
*Relay contact SP= Single Pole DP= Double Pole				
Ordering Code Example	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SP 430 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS AP 430 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SP 510 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SX 125 / 230V AC

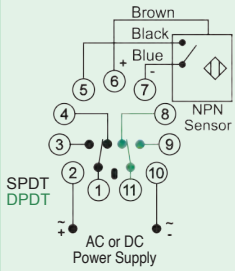
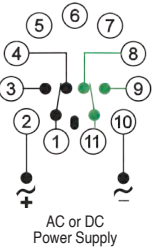
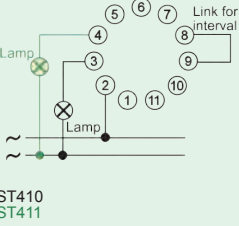
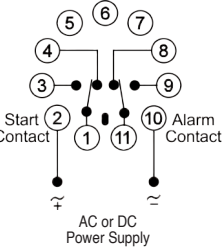
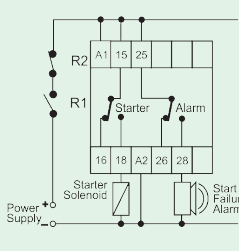
ELECTRONIC TIMERS

Type	Multi-Function Timer	Multi-Function Timer	Delay on Timer	Interval (One Shot)	Electronic Reset Timer																																																																																																																																
																																																																																																																																					
Code	ST100/ST101	AT100	ST105/ST107	ST106/ST108	ST110/ST111/ST112/ST113																																																																																																																																
Features	• Programmable functions: Delayed ON, Interval (one shot), Equal Repeating • Programmable functions and independent overlapping time ranges • Extended supply voltage range: 10V to 30V AC/DC, 90V to 250V AC • Specific power supply voltage available on request • Time adjustment on calibrated scale: 0 - 100% • High repetitive accuracy • 5A DPDT relay output • Time range: ST100: Up to 120 sec. ST101: Up to 240 min • Extended time ranges available up to 25 hours or 200 hours on special order	• 4 programmable functions: Delayed ON, Interval (one shot) or Equal Repeating (OFF/ON first) • 18 overlapping programmable time ranges from 0.2sec - 100 hours, achieved by: • 3 programmable time ranges: seconds, minutes, hours • 6 programmable time scales for each of 3 time ranges • Time Settings on calibrated scale (10% - 100%) • High repetitive accuracy • Microprocessor technology • Power ON and Relay ON LED's • Flashing Power ON LED when unit is timing • 5A SPDT or DPDT relay output	• Delay ON • Adjustable single time range • Extended supply voltage range: 10V to 30VDC, 48VDC, 110VDC, 24VAC, 48VAC, 115VAC, 230VAC, 90V to 250VAC, 400VAC • Time adjusted on calibrated scale 0 - 100% • High repetitive accuracy • Relay: 5A SPDT or 5A DPDT • Time Ranges:<table><tr><th>ST105</th><th>ST107</th></tr><tr><td>120 Seconds</td><td>240 Minutes</td></tr></table> - Special Version: SX175/115VAC-DP Fixed Time Range 0-30 sec Supply: 115VAC	ST105	ST107	120 Seconds	240 Minutes	• Interval (One Shot) • Adjustable single time range • Extended supply voltage range: 10V to 30VDC, 48VDC, 110VDC, 24VAC, 48VAC, 115VAC, 230VAC, 90V to 250VAC, 400VAC • Time adjusted on calibrated scale 0 - 100% • High repetitive accuracy • Relay: 5A SPDT or 5A DPDT • Time Ranges:<table><tr><th>ST106</th><th>ST108</th></tr><tr><td>120 Seconds</td><td>240 Minutes</td></tr></table>	ST106	ST108	120 Seconds	240 Minutes	• Programmable functions: Delayed ON, Interval (one shot), both with hold or pulse reset • Programmable in six independent overlapping time ranges • Direct interface with DC three-wire NPN (ST110/ST111) and PNP (ST112/ST113) sensors • High speed electronic reset & repetitive accuracy • Time adjustment on calibrated scale, 0-100% • 5A double pole relay output (10A SPDT offered on request) • Time Ranges: ST110/ST112: Up to 120 sec ST111/ST113: Up to 240 min • Extended time ranges available up to 200 hours on special orders																																																																																																																								
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Specifications	POWER SUPPLY AC: Supply voltage: Not galvanic: 230VAC = 90 - 250VAC Galvanic: 12, 115, 230, 400, 415, 525V ±15% Power consumption: 3VA (approx), 6VA for 415, 525V (approx) DC: Supply voltage: 48, 60, 110V ±15% Power consumption: 30mA AC/DC: Supply voltage: 10 - 30V Power consumption: 100mA Reset: Power supply to be interrupted for at least 0.5 seconds. For high speed reset applications, refer to ST110 <table><tr><th colspan="2">ST-100</th></tr><tr><th>Switch S1</th><th>Time Ranges</th></tr><tr><td>1.8s</td><td>- Up to 1.8s</td></tr><tr><td>7.5s</td><td>- Up to 7.5s</td></tr><tr><td>15s</td><td>- Up to 15s</td></tr><tr><td>30s</td><td>- Up to 30s</td></tr><tr><td>60s</td><td>- Up to 60s</td></tr><tr><td>120s</td><td>- Up to 120s</td></tr></table> <table><tr><th colspan="2">ST-101</th></tr><tr><th>Switch S1</th><th>Time Ranges</th></tr><tr><td>220s</td><td>- Up to 220s</td></tr><tr><td>7.5m</td><td>- Up to 7.5m</td></tr><tr><td>15m</td><td>- Up to 15m</td></tr><tr><td>60m</td><td>- Up to 60m</td></tr><tr><td>120m</td><td>- Up to 120m</td></tr><tr><td>240m</td><td>- Up to 240m</td></tr></table> Extended time range available on special order: 6, 12, 5, 25, 50, 100, and 200 hours	ST-100		Switch S1	Time Ranges	1.8s	- Up to 1.8s	7.5s	- Up to 7.5s	15s	- Up to 15s	30s	- Up to 30s	60s	- Up to 60s	120s	- Up to 120s	ST-101		Switch S1	Time Ranges	220s	- Up to 220s	7.5m	- Up to 7.5m	15m	- Up to 15m	60m	- Up to 60m	120m	- Up to 120m	240m	- Up to 240m	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 525V Power Consumption: 2VA (approx) Tolerance: ±15% AC Reactive: Supply Voltage: 230VAC = 90-250VAC Power consumption: 2VA (approx) DC: Supply Voltage: 48, 60, 110V Power Consumption: 30mA (approx) Tolerance: ±15% AC/DC: Supply Voltage: 12/24V Power Consumption: 100mA (approx) Tolerance: 15% TIME SPECIFICATION Setting Accuracy: 5% Repeatability: 0.5% HOUSING 250V and below: 22.5mm width. Above 250V: 45mm width RELAY Relay Options (250V, 5A)SPDT, DPDT TIME RANGES (STANDARD) 2: 0.2 to 2 sec, min or hrs 5: 0.5 to 5 sec, min or hrs 10: 1 to 10 sec, min or hrs 20: 2 to 20 sec, min or hrs 50: 5 to 50 sec, min or hrs 100: 10 to 100 sec, min or hrs	POWER SUPPLY AC: Supply voltage: Not Galvanic 250VAC = 90 - 250VAC Galvanic: 12,24,48,115,230,400, 415 525V ±15% Power Consumption: 3VA (approx) 6VA FOR 415, 525V (approx) DC: Supply Voltage: 48,60,110,220V ±15% Power Consumption: 30mA (approx) AC/DC: Supply Voltage: 10 - 30V Power Consumption: 100mA (approx) Reset: Power supply to be interrupted for at least 0.5 seconds. <table><tr><th colspan="2">ST105</th><th colspan="2">ST107</th></tr><tr><th>Sw Pos</th><th>Time</th><th>Sw Pos</th><th>Time</th></tr><tr><td>1</td><td>Up to 1.8s</td><td>1</td><td>Up to 220s</td></tr><tr><td>2</td><td>Up to 7.5s</td><td>2</td><td>Up to 7.5m</td></tr><tr><td>3</td><td>Up to 15s</td><td>3</td><td>Up to 15m</td></tr><tr><td>4</td><td>Up to 30s</td><td>4</td><td>Up to 60m</td></tr><tr><td>5</td><td>Up to 60s</td><td>5</td><td>Up to 120m</td></tr><tr><td>6</td><td>Up to 120s</td><td>6</td><td>Up to 240m</td></tr></table>	ST105		ST107		Sw Pos	Time	Sw Pos	Time	1	Up to 1.8s	1	Up to 220s	2	Up to 7.5s	2	Up to 7.5m	3	Up to 15s	3	Up to 15m	4	Up to 30s	4	Up to 60m	5	Up to 60s	5	Up to 120m	6	Up to 120s	6	Up to 240m	POWER SUPPLY AC: Supply voltage: Not Galvanic 250VAC = 90 - 250VAC Galvanic: 12,24,48,115,230,400, 415 525V ±15% Power Consumption: 3VA (approx) 6VA FOR 400 (approx) DC: Supply Voltage: 48,60,110,220V ±15% Power Consumption: 30mA (approx) AC/DC: Supply Voltage: 10 - 30V Power Consumption: 100mA (approx) Reset: Power supply to be interrupted for at least 0.5 seconds. <table><tr><th colspan="2">ST106</th><th colspan="2">ST108</th></tr><tr><th>Sw Pos</th><th>Time</th><th>Sw Pos</th><th>Time</th></tr><tr><td>1</td><td>Up to 1.8s</td><td>1</td><td>Up to 220s</td></tr><tr><td>2</td><td>Up to 7.5s</td><td>2</td><td>Up to 7.5m</td></tr><tr><td>3</td><td>Up to 15s</td><td>3</td><td>Up to 15m</td></tr><tr><td>4</td><td>Up to 30s</td><td>4</td><td>Up to 60m</td></tr><tr><td>5</td><td>Up to 60s</td><td>5</td><td>Up to 120m</td></tr><tr><td>6</td><td>Up to 120s</td><td>6</td><td>Up to 240m</td></tr></table>	ST106		ST108		Sw Pos	Time	Sw Pos	Time	1	Up to 1.8s	1	Up to 220s	2	Up to 7.5s	2	Up to 7.5m	3	Up to 15s	3	Up to 15m	4	Up to 30s	4	Up to 60m	5	Up to 60s	5	Up to 120m	6	Up to 120s	6	Up to 240m	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V ±15%. Isolation (reset input to power supply): 2kV Power consumption: 3VA (approx), 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V ± 15% Isolation: no galvanic isolation. Power consumption: 100mA (10-30V), 30mA for higher ranges RESET INPUT Reset: 2 milliseconds Short circuit current: 1mA Open circuit voltage: 8.2V 12V DC OUTPUT Voltage tolerance: 10-15V DC Source current: 30mA (max.) <table><tr><th colspan="2">ST-110/112</th></tr><tr><th>Switch S1</th><th>Time Ranges</th></tr><tr><td>1.8s</td><td>- Up to 1.8s</td></tr><tr><td>7.5s</td><td>- Up to 7.5s</td></tr><tr><td>15s</td><td>- Up to 15s</td></tr><tr><td>30s</td><td>- Up to 30s</td></tr><tr><td>60s</td><td>- Up to 60s</td></tr><tr><td>120s</td><td>- Up to 120s</td></tr></table> Extended time ranges on special order: 6, 12, 5 and 25 hours, 50, 100, and 200 hours <table><tr><th colspan="2">ST-111/113</th></tr><tr><th>Switch S1</th><th>Time Ranges</th></tr><tr><td>220s</td><td>- Up to 220s</td></tr><tr><td>7.5m</td><td>- Up to 7.5m</td></tr><tr><td>15m</td><td>- Up to 15m</td></tr><tr><td>60m</td><td>- Up to 60m</td></tr><tr><td>120m</td><td>- Up to 120m</td></tr><tr><td>240m</td><td>- Up to 240m</td></tr></table>	ST-110/112		Switch S1	Time Ranges	1.8s	- Up to 1.8s	7.5s	- Up to 7.5s	15s	- Up to 15s	30s	- Up to 30s	60s	- Up to 60s	120s	- Up to 120s	ST-111/113		Switch S1	Time Ranges	220s	- Up to 220s	7.5m	- Up to 7.5m	15m	- Up to 15m	60m	- Up to 60m	120m	- Up to 120m	240m	- Up to 240m
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240m	- Up to 240m																																																																																																																																				
Ordering Code Example	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS ST 100 / 230V AC - - - *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS AT 100 / 230V AC - - - *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS ST 105 / 230V AC - - - *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS ST 108 / 230V AC - - - *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS ST 110 / 230V AC - - - *																																																																																																																																

ELECTRONIC TIMERS

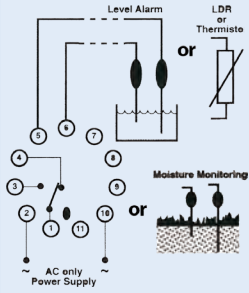
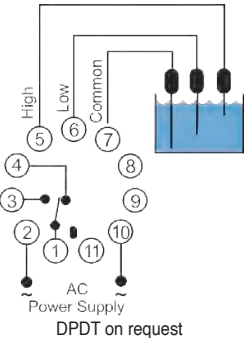
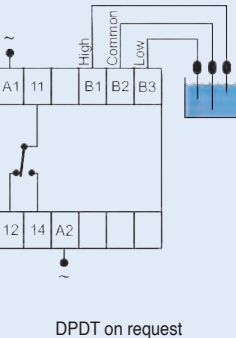
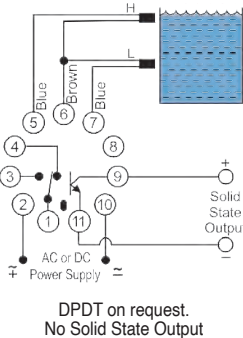
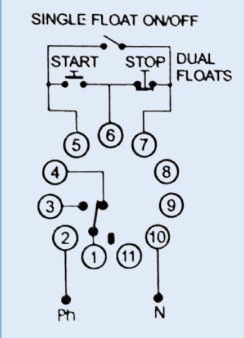
Type	Electronic Reset Timer	Star-Delta Timer	Star-Delta Timer	Unequal Cycling Timer	Unequal Cycling Timer																																												
																																																	
Code	AT110	ST130	AT130	ST200/ST201/ST202/ST203	AT200																																												
Features	• Programmable functions: Delayed ON, Interval (one shot), both with hold or pulse reset • 18 overlapping programmable time ranges from 0.2 seconds to 100 hours, achieved by: • 3 programmable time ranges: seconds, minutes, hours • 6 programmable time scales for each of 3 time ranges • Time Setting on calibrated scale(10 -100%) • High speed electronic reset and high repetitive accuracy • Direct interface with DC three-wire NPN/PNP sensors, with reset input for either PNP or NPN in the same unit • Power ON, Relay ON and reset LED's • Flashing Power ON LED when unit is timing • Microprocessor technology incorporated • 5A SPDT or DPDT relay output	• Relay de-energises to "centre-off" position for failsafe operation • Adjustable time range of 0-60 seconds • Incorporates 75 millisecond pause time to prevent overlapping of Star and Delta switching • LED indication of relay output status, i.e.: Star or Delta mode • Two relay method for interlocking of contacts ensuring break before make • 5A relay output • Rated for continuous operation	• Relay de-energises to "centre-off" position for failsafe operation • Adjustable Star Time range of up to 60 seconds • Fixed 75/50 millisecond pause time to prevent overlapping of Star and Delta switching • LED indication of relay output status i.e. Star or Delta mode • Two SPDT relays with neutral centre position ensure break before make • Microprocessor technology incorporated • 5A SPDT relay output • Rated for continuous operation	• Programmable OFF-cycle first or ON-cycle first • Programmable in 6 overlapping time ranges • Extended time ranges available up to 25 hours or 200 hours on special order • Separate off/on time adjustment on calibrated scale, 0-100% • High repetitive accuracy • 5A DPDT relay output (10A SPDT offered on request) <table><tr><th>Timer</th><th>T1</th><th>T2</th></tr><tr><td>ST200</td><td>A</td><td>A</td></tr><tr><td>ST201</td><td>A</td><td>B</td></tr><tr><td>ST202</td><td>B</td><td>B</td></tr><tr><td>ST203</td><td>B</td><td>A</td></tr></table>	Timer	T1	T2	ST200	A	A	ST201	A	B	ST202	B	B	ST203	B	A	• Programmable for either OFF cycle first or ON-cycle first • 12 overlapping programmable time ranges from 0.2 seconds to 4 hours • High repetitive accuracy • Power ON and Relay ON LED's • Flashing Power ON LED when unit is timing (flash rate increases when relay is about to switch) • Microprocessor technology incorporated • 5A SPDT or DPDT relay output • Separate OFF/ON time range selection and time adjustments on calibrated scales, 0-100% • Link Y1/Y2 to Y3 for minutes • Link Y3 to Y4 for "On" first																													
Timer	T1	T2																																															
ST200	A	A																																															
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Connection Diagram																																																	
Specifications	POWER SUPPLY AC: Supply voltage: 12, 24,115, 230, 400, 525V 2kV Galvanic isolation Power Consumption: 2VA (approx) Tolerance: ±15% DC: Supply Voltage: 48, 60, 110V Power Consumption: 30mA (approx) Tolerance: ±15% AC/DC: Supply Voltage: 12/24V Power Consumption: 100mA (approx) Tolerance: ±15% RESET INPUT Input type: NPN Sensor, PNP Sensor, Potential free contact Minimum Pulse width: 4ms Open circuit Voltage: <5, 6V HOUSING 250V and below: 22.5mm width Above 250V: 45mm width RELAY Relay Options: (250, 5A)SPDT or DPDT DC OUTPUT Voltage tolerance: 10-24V Source Current: 10mA Setting Accuracy: 5% Repeatability: 0.5% TIME RANGES (STANDARD) 2: 0.2 to 2 sec, min or hrs 5: 0.5 to 5 sec, min or hrs 10: 1 to 10 sec, min or hrs 20: 2 to 20 sec, min or hrs 50: 5 to 50 sec, min or hrs 100: 10 to 100 sec, min or hrs	POWER SUPPLY AC: Supply voltage: 48, 60, 115, 230, 400, 415, 525V ±15% Power consumption: 3VA (approx), 6VA for 415, 525V (approx) AC Reactive: Supply voltage: 230V (90-250V) DC: Supply voltage: 10-30V AC/DC, 48, 60, 110V DC ±10% Isolation: no galvanic isolation Power consumption: 100mA for 10-30V AC/DC, 30mA for higher ranges RESET Power supply to be interrupted for at least 1 second TIME SETTINGS 0 - 60 seconds adjustable PAUSE TIMER Approximately 75 milliseconds ±10%	POWER SUPPLY AC Transformer: Supply Voltage: 12, 24, 115, 230, 400, 525V ±15% 2kV galvanic isolation Power consumption: 2VA, 6VA (approx) AC Reactive: Supply voltage: 230V (90-250V) Power consumption: 100mA DC: Supply voltage: 48, 60, 110V Power Consumption: 30mA ±15% AC/DC: Supply voltage: 12/24V Power consumption; 100mA ±15% HOUSING 250V and below: 22.5mm width Above 250V: 45mm width RELAY: Relay Options (250V, 5A): SPDT (1x SPST for Delta and 1x SPST for Star) RESET Power supply to be interrupted for at least 1 second PAUSE TIME 75 milliseconds <table><tr><th colspan="2">STAR TIME ADJUSTMENT</th></tr><tr><th>SPDT</th><th>FUNCTION</th></tr><tr><td>S1</td><td>60s Delay / 75ms Pause</td></tr><tr><td>S2</td><td>30s Delay / 75ms Pause</td></tr><tr><td>S3</td><td>60s Delay / 50ms Pause</td></tr><tr><td>S4</td><td>30s Delay / 50ms Pause</td></tr></table>	STAR TIME ADJUSTMENT		SPDT	FUNCTION	S1	60s Delay / 75ms Pause	S2	30s Delay / 75ms Pause	S3	60s Delay / 50ms Pause	S4	30s Delay / 50ms Pause	POWER SUPPLY AC: Supply voltage: 230, 400, 415, 525V ±15% AC Reactive: Supply voltage: 230V (90-250V) Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 48, 60, 110V DC ±15% Power consumption: 30mA AC/DC: Supply voltage: 10-30V AC/DC. Power consumption: 100mA RESET Power supply to be interrupted for at least 0.5 seconds Extended time ranges available on special order: 6, 12.5, 25, 50, 100 and 200 hours <table><tr><th colspan="2">A</th></tr><tr><th>Switch Position</th><th>Time Ranges</th></tr><tr><td>1</td><td>- Up to 1.8s</td></tr><tr><td>2</td><td>- Up to 7.5s</td></tr><tr><td>3</td><td>- Up to 15s</td></tr><tr><td>4</td><td>- Up to 30s</td></tr><tr><td>5</td><td>- Up to 60s</td></tr><tr><td>6</td><td>- Up to 120s</td></tr></table> <table><tr><th colspan="2">B</th></tr><tr><th>Switch Position</th><th>Time Ranges</th></tr><tr><td>7</td><td>- Up to 220s</td></tr><tr><td>8</td><td>- Up to 7.5m</td></tr><tr><td>9</td><td>- Up to 15m</td></tr><tr><td>10</td><td>- Up to 60m</td></tr><tr><td>11</td><td>- Up to 120m</td></tr><tr><td>12</td><td>- Up to 240m</td></tr></table>	A		Switch Position	Time Ranges	1	- Up to 1.8s	2	- Up to 7.5s	3	- Up to 15s	4	- Up to 30s	5	- Up to 60s	6	- Up to 120s	B		Switch Position	Time Ranges	7	- Up to 220s	8	- Up to 7.5m	9	- Up to 15m	10	- Up to 60m	11	- Up to 120m	12	- Up to 240m	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 525V 2kV Galvanic isolation Power Consumption: 2VA, 6VA (approx) Tolerance: ±15% AC Reactive: Supply voltage: 230V (90-250V) Power Consumption: 100mA DC: Supply Voltage: 48, 60, 110V Power consumption: 30mA Tolerance: ±15% AC/DC: Supply voltage: 12/24V Power consumption: 100mA Tolerance: ±15% HOUSING 250V and below: 22.5mm width Above: 45mm width RELAY Relay options (250V, 5A): SPDT, DPDT TIME SPECIFICATION Setting Accuracy 5% Repeatability 0.5% TIME RANGES (STANDARD) 2: 0.2 to 2 sec or min 6: 0.6 to 6 sec or min 20: 2 to 20 sec or min 60: 6 to 60 sec or min 120: 12 to 120 sec or min 240: 24 to 240 sec or min
STAR TIME ADJUSTMENT																																																	
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Ordering Code Example	TYPE MODEL VOLTAGE POWER RELAY SUPPLY CONTACTS AT 110 / 230V AC - *	TYPE MODEL VOLTAGE POWER RELAY SUPPLY CONTACTS ST 130 / 230V AC	TYPE MODEL VOLTAGE POWER RELAY SUPPLY CONTACTS AT 130 / 230V AC - S1	TYPE MODEL VOLTAGE POWER RELAY SUPPLY CONTACTS ST 200 / 230V AC - *** *	TYPE MODEL VOLTAGE POWER RELAY SUPPLY CONTACTS AT 200 / 230V AC - *																																												

ELECTRONIC TIMERS

Type	Multi-function Asymmetrical Reset Timer	No Power Delay OFF Timer	AC Interval or Complementary Lamp Flasher	Multi-Start Attempt Unit	Multi-Start Attempt Unit																																														
	FAILSAFE FEATURES 																																																		
Code	ST210	ST300/ST301	ST410/ST411	ST500	AT500																																														
Features	• 6 Programmable reset functions with hold or pulse reset or both, and power supply on reset • Programmable in 6 independent overlapping time ranges up to 120 seconds • Direct interface with DC three-wire NPN sensor • High speed electronic reset • High repetitive accuracy • Time adjustment on calibrated scale, 0-100% • 5A double pole relay output (10A SPDT offered on request)	• Internal NiCd battery back-up on ST301 • Programmable in 6 independent overlapping time ranges • Time adjustment on calibrated scale, 0-100% • High repetitive accuracy • 10A single pole or 5A double pole relay output • Time ranges: • ST300: up to 120 sec • ST301: up to 240 min - Special Version: SX174/115VAC-DP Fixed Time Range 0-60 sec Supply: 115VAC	• Programmable: continuous flashing or interval flashing • Adjustable interval 1-10 secs • Pulse rate of 90 flashes per minute as standard (other rated on special order) • Solid state switching • Switching capacity 4A, 1000W / 250V • Power supply range 90V-250VAC • Two wire in-line connection (ST410) or three wire in-line connection (ST411)	• Programmable number of starts: 3 to 8 • Adjustable cranking time: 1 to 10 seconds • Start failure alarm output	• Programmable number of start attempts: 3 to 8 • Start failure alarm output • Separately adjustable starter and pause times • Adjustable starter time: 1 to 20 seconds • Adjustable pause time: 1 to 20 seconds • Power On, Start Relay and Alarm Relay LED's • Microprocessor technology incorporated • 5A SPDT Start Relay • 5A SPDT Alarm Relay (start failure)																																														
Connection Diagram																																																			
Specifications	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 10\%$ Isolation (reset to power supply): 2kV Power consumption: 3VA, 6VA for 400, 415, 525V (approx) DC: Supply voltage: 10-30V 48, 60, 110V DC $\pm 15\%$ Isolation: no galvanic isolation Power consumption: 100mA (10-30V), 30mA for higher ranges RESET INPUT Reset time: 6ms Short circuit current: 2mA Open circuit voltage: 8,2V 12V DC Output: Voltage tolerance 10-15V DC Source current: 30mA (max) <table><thead><tr><th>Switch Position</th><th>Time Ranges</th></tr></thead><tbody><tr><td>1</td><td>- Up to 1,8s</td></tr><tr><td>2</td><td>- Up to 7,5s</td></tr><tr><td>3</td><td>- Up to 15s</td></tr><tr><td>4</td><td>- Up to 30s</td></tr><tr><td>5</td><td>- Up to 60s</td></tr><tr><td>6</td><td>- Up to 120s</td></tr></tbody></table>	Switch Position	Time Ranges	1	- Up to 1,8s	2	- Up to 7,5s	3	- Up to 15s	4	- Up to 30s	5	- Up to 60s	6	- Up to 120s	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 48, 60, 110V $\pm 15\%$ Power consumption: 30mA AC/DC: Supply voltage: 12V AC/DC and 24V AC/DC Power consumption: 100mA <table><thead><tr><th colspan="2">ST-300</th></tr><tr><th>Switch S1</th><th>Time Ranges</th></tr></thead><tbody><tr><td>1,8s</td><td>- Up to 1,8s</td></tr><tr><td>7,5s</td><td>- Up to 7,5s</td></tr><tr><td>15s</td><td>- Up to 15s</td></tr><tr><td>30s</td><td>- Up to 30s</td></tr><tr><td>60s</td><td>- Up to 60s</td></tr><tr><td>120s</td><td>- Up to 120s</td></tr></tbody></table> <table><thead><tr><th colspan="2">ST301</th></tr><tr><th>Switch Position</th><th>Time Ranges</th></tr></thead><tbody><tr><td>220s</td><td>- Up to 220s</td></tr><tr><td>7,5m</td><td>- Up to 7,5m</td></tr><tr><td>15m</td><td>- Up to 15m</td></tr><tr><td>60m</td><td>- Up to 60m</td></tr><tr><td>120m</td><td>- Up to 120m</td></tr><tr><td>240m</td><td>- Up to 240m</td></tr></tbody></table> **I = Instantaneous Contacts	ST-300		Switch S1	Time Ranges	1,8s	- Up to 1,8s	7,5s	- Up to 7,5s	15s	- Up to 15s	30s	- Up to 30s	60s	- Up to 60s	120s	- Up to 120s	ST301		Switch Position	Time Ranges	220s	- Up to 220s	7,5m	- Up to 7,5m	15m	- Up to 15m	60m	- Up to 60m	120m	- Up to 120m	240m	- Up to 240m	POWER SUPPLY Supply voltage: 230 (90-250V) Supply frequency: 45-70Hz Minimum load: 15W (250VAC), 10W(110VAC) Maximum load: 1000W (250VAC), 400W (110VAC) Maximum load current: 4A continuous TIMING Flash rate: 90 flashes per minute (standard). Optional pulse rates available on special order Interval: 1-10 seconds (adjustable) RESET Power supply to be interrupted for at least 5 seconds	POWER SUPPLY AC: Supply voltage: 48, 60, 115, 230V $\pm 15\%$ Power consumption: 3VA (approx) DC: Supply voltage: 48, 60, 110V $\pm 15\%$ Power consumption: 30mA AC/DC: Supply voltage: 10-30V AC/DC Power consumption: 100mA RESET Power supply to be interrupted for at least 0,5 seconds NUMBER OF START 3 to 8 (programmable) DURATION OF START ATTEMPT Adjustable from 1 to 10 seconds DURATION OF PAUSE Equal to set duration of start attempt	POWER SUPPLY AC: Supply Voltage: 12, 24, 115, 230, 400, 525V 2kV galvanic isolation Power Consumption: 2VA (approx) Tolerance: $\pm 15\%$ AC Reactive: Supply voltage: 230 (90-250V) Power Consumption: 2VA DC: Supply Voltage: 48, 60, 110V Power consumption: 30mA Tolerance: $\pm 15\%$ AC/DC: Supply voltage: 12/24V Power consumption: 100mA Tolerance: $\pm 15\%$ HOUSING 250V and below: 22.5mm width Above 250V: 45mm width ALARM RELAY Contact rating 250V, 5A SPDT STARTER RELAY Contact rating 250V, 5A SPDT START ATTEMPTS Number of Start Attempts: 3 to 8 Duration of Start Attempts: Adjustable from 1 to 20 secs Duration of Pause between Start Attempts: Adjustable from 1 to 20 secs
Switch Position	Time Ranges																																																		
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240m	- Up to 240m																																																		
Ordering Code Example	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS ST 210 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS ST 300 / 230V AC — ** *	TYPE MODEL VOLTAGE POWER SUPPLY ST 410 / 250V — AC	TYPE MODEL VOLTAGE POWER SUPPLY ST 500 / 230V — AC	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS AT 500 / 230V AC — SP																																														

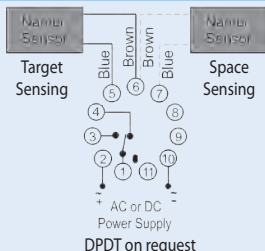
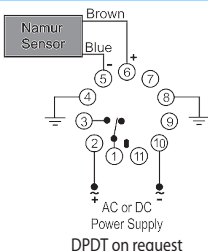
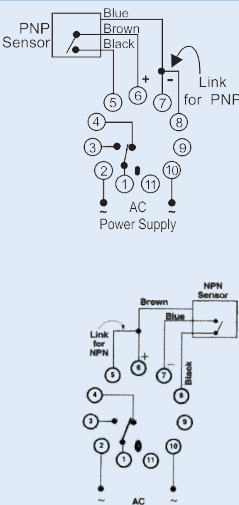
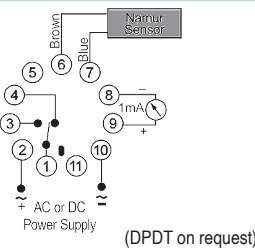
See Page 1.36 for Module Dimensions & Accessories

PROCESS CONTROLLERS

Type	Control Module for resistive Sensors	Liquid Level Control Module	Liquid Level Controller	Level Control Module for NAMUR Sensor	Distance Control Unit
					
Code	SC100	SC130	AC130	SC230	DCU
Features	- Senses conductivity between two probe terminals providing a relay output if conductivity exceeds a set limit - AC modulation of probe signal to prevent plating and electrolytic corrosion - Low voltage probe signal for human safety - Adjustable sensitivity from 15k to 500k Ohm 10A SPDT relay output Possible Applications: - Liquid Level Control - Flame Detection / Daylight Switching - Temperature Control - Soil Moisture Monitoring - Remote Start/Stop	- Programmable for charging and discharging operation - AC modulation of probe signal to prevent plating and electrolytic corrosion - Low voltage, probe signal for human safety - Adjustable sensitivity - DC or AC power supply option 10A SPDT relay output	- Programmable for charging and discharging operation - AC modulation of probe signal to prevent plating and electrolytic corrosion - Low voltage, probe signal for human safety - Adjustable sensitivity - Power ON and RELAY ON LED's 5A SPDT or DPDT relay output	- Interfaces with industrial standard NAMUR sensors (inductive or capacitive) - Low power sensor signal to DIN19234 - Programmable charge or discharge modes - Programmable single or double sensor selection - Independent indication of each sensor status - Separate cable fault indication for each sensor - Failsafe operation under cable fault conditions - Direct interface with solid state relay - Protected NPN output for direct interface with PLC's or counters 10A SPDT relay output - DC or AC power supply option	- Designed for long distance operations of up to 4km using 1.5mm copper wire/cable - AC modulation of probe signal to prevent plating and electrolytic corrosion - Low voltage probe signal for human safety - Suitable for use in single or dual float switches
Connection Diagram					
Specifications	POWER SUPPLY AC: (AC only - see SC130 for DC applications) Supply voltage: 12, 24, 115, 230, 400, 415, 525V AC $\pm 15\%$ Isolation (probe input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V $\pm 15\%$ Isolation: no galvanic isolation Power consumption: 100mA (10-30V), 30mA for higher ranges PROBE INPUT Sensitivity: approx. 15-500k Ohm (adjustable) Probe voltage: 12V AC Probe frequency: 50Hz	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (probe input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V $\pm 15\%$ Isolation: no galvanic isolation Power consumption: 100mA (10-30V), 30mA for higher ranges LEVEL SENSING INPUT Probe voltage: 4V AC Probe frequency: 100Hz Sensitivity: 0 - 50kOhm (adjustable) Response time: 0,5 seconds *For Probe parts, see page 2.2	POWER SUPPLY AC: Transformer (2kV galvanic isolation): Supply Voltage: 12, 24, 115, 230, 400, 525VAC Power consumption: 2VA (approx) Tolerance: $\pm 15\%$ DC: Supply voltage: 12, 24, 48, 60, 110V Power consumption: 30mA (approx) Power consumption: 100mA (approx) Tolerance: $\pm 15\%$ HOUSING 250V and below: 22,5mm width Above 250V: 45mm width LEVEL SENSING INPUT Probe voltage: 4V AC Probe frequency: 100Hz Sensitivity: 0 to 100kOhm (adjustable) Response: 0.5 seconds RELAY Relay Contacts (250V, 5A): SPDT, DPDT. *For probe parts see page 2.2	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525 $\pm 15\%$ Isolation (sensor input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V $\pm 15\%$ Isolation: no galvanic isolation Power consumption: 100mA (10-30V), 30mA for higher ranges SENSOR INPUT Type NAMUR (DIN 19234) Maximum Sensing Speed: 25Hz (when using relay output) Short Circuit Current: 20mA DC Open Circuit Voltage: 8,2V DC OUTPUTS (SP) NPN Open Connector (9,11) Solid State Relay Drive (8,9) C/O (1,3,4) If DP Contacts, no solid state O/P	POWER SUPPLY AC: Supply voltage: 230, 400VAC Float terminal voltage: 24VDC Isolation: Galvanic isolation
Ordering Code Example	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 100 / 230V AC *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 130 / 230V AC *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS AC 130 / 230V AC *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 230 / 230V AC *	TYPE VOLTAGE POWER SUPPLY DCU / 230V AC

*Relay contact
SP= Single Pole
DP= Double Pole

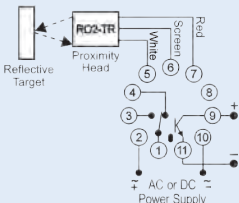
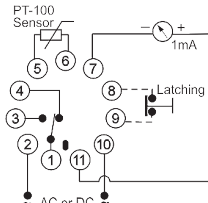
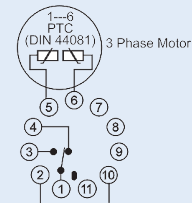
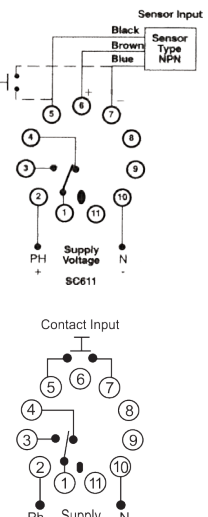
PROCESS CONTROLLERS

Type	Control Module for NAMUR Sensor	Intrinsically Safe Control Module for NAMUR Sensor	3-Wire DC Sensor Interface Relay Module	Tachometer Relay												
	FAILSAFE FEATURES 			FAILSAFE FEATURES 												
Code	SC300	SC301	SC314	SC320												
Features	• Direct interface with Namur two-wire proximity sensors (inductive, capacitive and opto-electronic) • Sensor cable fault detection with LED indication • Proximity switching in hostile supply voltage environments (transients, surges) • High reliability proximity switching compared to limit switches • Cost efficient sensor and module replacement • Impervious to interference between sensor and amplifier over long cable runs • Low power sensor signal to DIN19234 • 10A single pole or 2 x 5A double pole relay outputs	• Intrinsically safe classification: (Ex ib) Gr 2C, T6. • Direct interface with Namur two wire proximity switches • Failsafe operation • Sensor cable fault detection and indication • Low power sensor signal to DIN19234 • SPST relay outputs	• Interfaces with all types of 3-wire NPN or PNP DC sensors (inductive, capacitive and optoelectronic) • LED indication of relay status • Robust power supply • Cost efficient interface for DC sensors in AC environments • Cost efficient module replacement • 10A SPDT relay output	• Direct interface with Namur two-wire proximity sensors or limit switches • Low power sensor signal to DIN19234 • Sensor cable fault indication • Programmable speed ranges: 10 RPM to 10 000 RPM • Programmable for over-speed or under-speed detection • 0 to 1mA proportional output for tachometer instruments • 4-20mA available on request • Speed set point adjustable on calibrated scale 0-100% • Start-up delay • 10A SPDT relay output Note: Analogue output not available when DP option selected												
Connection Diagram				 (DPDT on request)												
Specifications	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (sensor input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V $\pm 15\%$ Isolation: no galvanic isolation Power consumption: 100mA (10-30V), 30mA for higher ranges SENSOR INPUT Type: NAMUR (DIN 19234) Maximum Sensing Speed: 25Hz Short Circuit Current: 20mA DC Open circuit voltage: 8,2V DC	POWER SUPPLY AC: Supply voltage: 115, 230V $\pm 15\%$ Isolation (sensor input to power supply): 2kV Power consumption: 3VA approximately DC: Supply voltage: 24V $\pm 15\%$ Isolation: no galvanic isolation Power consumption: 100mA SENSOR INPUT Type: Namur (DIN 19234) Quiescent Voltage: <8.2V DC Short circuit current: < 25mA Max External Capacitance: < 300nF (AC supply), < 700nF (DC supply) Max External Inductance: < 2mH Relay options: SPST (pins 1 & 3, NO), DPST (pins 1 & 3 NO / pins 11 & 9, NO) Maximum relay current: 5A Maximum relay voltage: 250V Maximum product of relay current and voltage: 100VA Internal fuse rating: (AC supply) 100mA, 250V	SUPPLY VOLTAGE AC: Supply Voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (sensor input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) DC OUTPUT SUPPLY FOR SENSORS 10-15V at 30mA SENSORS INPUT: (PNP pin 5, NPN pin 8) Each sensor must be able to conduct at least 80mA to operate the modules internal relay Maximum switching speed: 25Hz (when using relay output)	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (sensor input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 60, 110V $\pm 15\%$ Isolation: no galvanic isolation Power consumption: 100mA (10-30V), 30mA for higher ranges SENSOR INPUT Type: Namur (DIN 19234) Short Circuit Current: 20mA DC Open Circuit Voltage: 8,2V DC Hysteresis: 10% (fixed) Repeatability: 1% Start-up delay: approximately 10 seconds (Available 0-15 seconds on special order) Analogue output: 0-1mA DC** (0-20mA or 4-20mA - available as an output order option) Maximum load: 7k Ohm Accuracy: 5% of full scale <table><tr><th>Speed Range</th><th>Approximate Response time</th></tr><tr><td>10-100 RPM</td><td>10 seconds</td></tr><tr><td>30-300 RPM</td><td>10 seconds</td></tr><tr><td>100-1 000 RPM</td><td>1 second</td></tr><tr><td>300-3 000 RPM</td><td>1 second</td></tr><tr><td>1 000- 10 000 RPM</td><td>1 second</td></tr></table>	Speed Range	Approximate Response time	10-100 RPM	10 seconds	30-300 RPM	10 seconds	100-1 000 RPM	1 second	300-3 000 RPM	1 second	1 000- 10 000 RPM	1 second
Speed Range	Approximate Response time															
10-100 RPM	10 seconds															
30-300 RPM	10 seconds															
100-1 000 RPM	1 second															
300-3 000 RPM	1 second															
1 000- 10 000 RPM	1 second															
*Relay contact SP= Single Pole DP= Double Pole																
Ordering Code Example	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 300 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 301 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 314 / 230V AC — SP	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 320 / 230V AC / ** — *												

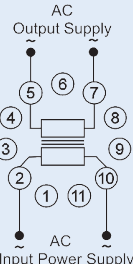
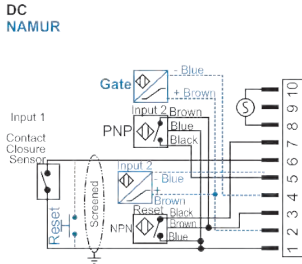
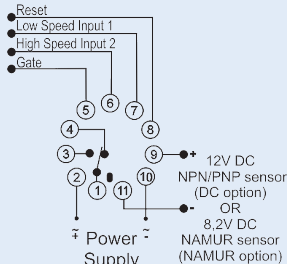
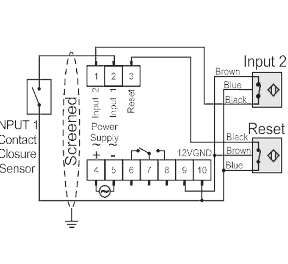
See Page 1.36 for Module Dimensions & Accessories

©ACDC Dynamics

PROCESS CONTROLLERS

Type	Opto-electronic Control Unit	Temperature Control Module	Thermistor Motor Protection Module	Flip Flop Relay with/without Memory																														
	FAILSAFE FEATURES 	FAILSAFE FEATURES 	FAILSAFE FEATURES 																															
Code	SC410/SC411	SC501	SC510/SC511	SC610/SC611																														
Features	- Directly interfaces with the R02 Detector range of rectangular and tubular opto-electronic sensors 10 metre sensing distance with the appropriate barrier heads - Programmable for dark or light response - Adjustable on and off response delay of 0-5 seconds - Signal modulated beam to stop foreign light source interference - Adjustable light intensity - High speed solid state (NPN) open collector output - Direct interface with solid state relays - Opto sensor cable fault detection (SC411 only) 10A SPDT relay output Note: Solid state O/P not available when DP option selected	- Interfaces with industrial standard PT-100 temperature sensors - Six programmable overlapping temp. ranges between -50 - 300°C - Programmable for over and under temperature - Temperature level adjustment on calibrated scale 0 - 100% - High repetitive accuracy - Programmable inversion of relay output for fail-to-safe operation 0 to 1mA proportional output for each temperature range - Proportional output is limited to 1,2 mA to protect analogue instruments - Latching on under-temperature or over-temperature (programmable) 10A SPDT relay output	- Interfaces with PTC sensors as per DIN 44081 - The SC511 has a fault latching feature, can be reset via external opening contact or via the reset button on the unit - Test button to simulate fault condition on the SC511 - Sensor or cable fault detection and indication with an automatic relay de-energisation for failsafe operation 10A SPDT relay output	- Many power supply options - Direct connection of a NPN sensor (SC611) SC610 - without memory SC611 - with memory 10A SPDT or a 5A DPDT relay																														
Connection Diagram	 DPDT on request	 DPDT on request. No Latching	 DPDT on request	 DPDT on request (SC610 Only)																														
Specifications	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (sensor input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, $\pm 15\%$ Isolation: no galvanic isolation (common negative) Power consumption: 100mA (10-30V), 30mA for higher ranges RESPONSE ON - Delay = 0.03 - 5 seconds (adjustable) OFF - Delay = 0.03 - 5 seconds (adjustable) SSR DRIVER OUTPUT (Pin 8 - 9) Max. output source current: 8mA Open circuit output voltage: 12V DC TRANSMITTER (Pin 6 - 7) Current pulse: 1.5A/25 microseconds Maximum wire impedance: 2.5 Ohms (use coaxial cable) Short circuit current: 20 mA (average) RECEIVER (Pin 5 - 6) Short circuit current: 3mA Open circuit voltage: 8.2V OPEN COLLECTOR TRANSISTOR OUTPUT (Pin 9-11) Type: NPN transistor Output sink current: 100mA Maximum voltage: 30V DC	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Isolation (sensor input to power supply): 2kV Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 12, 24V 15% Isolation: no galvanic isolation Power consumption: 100mA CONNECTION CABLE 2 - core, unscreened. Resistance of long cables affect temp. accuracy (Approx. 1°C per 0.3 ohms) SENSOR INPUT Type PT-100 resistive temperature sensor Short-circuit current: 1mA Open-circuit voltage: 220mV TEMPERATURE SENSING RANGE - Repetitive accuracy: 1% <table><thead><tr><th>RANGE</th><th>S1</th></tr></thead><tbody><tr><td>-50 to 50 C</td><td>1</td></tr><tr><td>0 to 100 C</td><td>2</td></tr><tr><td>50 to 150 C</td><td>3</td></tr><tr><td>100 to 200 C</td><td>4</td></tr><tr><td>150 to 250 C</td><td>5</td></tr><tr><td>200 to 300 C</td><td>6</td></tr></tbody></table> ANALOGUE OUTPUT Rating 0 to 1mA (proportional) 4-20mA available as an order option on any one range Maximum voltage between pins 7 and 11 (pin 11 positive): 12V DC Maximum load: 7k Ohm. Current limits at 1.2mA to protect analogue instruments	RANGE	S1	-50 to 50 C	1	0 to 100 C	2	50 to 150 C	3	100 to 200 C	4	150 to 250 C	5	200 to 300 C	6	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, 415, 525V $\pm 15\%$ Power consumption: 3VA, 6VA for 415, 525V (approx) DC: Supply voltage: 10-30V, 48, 110V $\pm 15\%$ Isolation: no galvanic isolation Power consumption: 100mA for 10-30V, 30mA for 48V and higher SENSOR INPUT Type: PTC sensor as per DIN 44081 Input impedance: 2200 Ohms Open-circuit voltage: $\leq 2.5V$ Short circuit current: 1mA (max) MEASURING CHARACTERISTICS OF THE SENSOR Maximum cold resistance of PTC sensor: 1500ohms (i.e. 1 to 6 sensors can be connected) Triggering threshold: 3100 Ohms $\pm 10\%$ Recovery threshold: 1650 Ohms $\pm 10\%$ Short-circuit detection: $< 20\text{ohms}$ Open-circuit detection: $10k \pm 10\%$ Repetitive accuracy: 0,5% Response Time: 50 milliseconds	POWER SUPPLY AC: Supply voltage: 12, 24, 115, 230, 400, $\pm 15\%$ Isolation (reset to power supply): 2kV Power consumption: 3VA (approx) DC: Supply voltage: 12, 24, 10-30, 48, 60, 110V $\pm 15\%$ Isolation: no galvanic isolation Power consumption: 100mA for 12V and 24V, 30mA for 48V and higher 12V DC Output: Voltage tolerance: 10-15V DC. Source Current: 50mA (max.) INPUT <table><thead><tr><th colspan="2">SC-610</th></tr></thead><tbody><tr><td>Short circuit current:</td><td>8.5mA</td></tr><tr><td>Open Circuit Voltage:</td><td>8.2V</td></tr><tr><td>Input reset speed:</td><td>20 milliseconds.</td></tr></tbody></table> <table><thead><tr><th colspan="2">SC-611</th></tr></thead><tbody><tr><td>Short circuit current:</td><td>1mA</td></tr><tr><td>Open Circuit Voltage:</td><td>8.2V</td></tr><tr><td>Input reset speed:</td><td>10 milliseconds.</td></tr></tbody></table>	SC-610		Short circuit current:	8.5mA	Open Circuit Voltage:	8.2V	Input reset speed:	20 milliseconds.	SC-611		Short circuit current:	1mA	Open Circuit Voltage:	8.2V	Input reset speed:	10 milliseconds.
RANGE	S1																																	
-50 to 50 C	1																																	
0 to 100 C	2																																	
50 to 150 C	3																																	
100 to 200 C	4																																	
150 to 250 C	5																																	
200 to 300 C	6																																	
SC-610																																		
Short circuit current:	8.5mA																																	
Open Circuit Voltage:	8.2V																																	
Input reset speed:	20 milliseconds.																																	
SC-611																																		
Short circuit current:	1mA																																	
Open Circuit Voltage:	8.2V																																	
Input reset speed:	10 milliseconds.																																	
*Relay contact SP= Single Pole DP= Double Pole																																		
Ordering Code Example	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 410 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 501 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 510 / 230V AC — *	TYPE MODEL VOLTAGE POWER SUPPLY RELAY CONTACTS SC 610 / 230V AC — *																														

COUNTALINE

Type	Power Supply Module	Totalising Counter	Multi-function Preselect Counter	Preselect Counter
				
Code	SC900	CC120	SC700	CC701
Features	• Cost effective power supply. • A large variety of output supply options (see table below) • High input voltage ranges (up to 525V AC) • Ease of installation due to 11-pin plug-in concept	• Large 6-digit LED display with leading zero suppression • High speed count input (5kHz) with positive or negative active edge (order option) • Independent low speed count input (30Hz) suitable for mechanical sensors • Reset achieved via the front panel push-button, via external switch or via NPN sensor • Gate input for ignoring high speed count input pulses • DC (NPN or PNP) or Namur sensor compatible high speed and gate inputs (order option) • 48 x 72mm panel mount housing format	• High & low speed inputs in one unit • Selectable ADD, SUBTRACT or ADD/SUBTRACT count modes • Relay hold time programmable from 0,1 - 25 seconds in 0,1 seconds increments • Reset achieved via the front panel push-button, via external switch or via NPN sensors • DC (NPN or PNP) or Namur sensor compatible high speed and gate inputs (order option) • Tamperproof keylock feature for protection of programmed parameters • 11-pin plug-in format (Industrial Standard)	• High & low speed inputs in one unit • Relay hold time programmable from 0,1 - 25 seconds in 0,1 second increments • Reset achieved via the front panel push-button, via external switch or via NPN sensors • DC (NPN or PNP) or Namur sensor compatible high speed input (order option) • Large 4-digit display with leading zero suppression • Separate up and down count inputs in ADD/SUBTRACT mode 1 • Separate count and count direction input in ADD/SUBTRACT mode 2 • User friendly keypad programming • 48 x 48mm (1/16 DIN) panel mount housing format
Connection Diagram				
Specifications	INPUT SUPPLY VOLTAGE *AC: Supply Voltage: 12, 24, 115, 230, 400, 415, 525V 10% Isolation (input to input): 2kV **Output Voltage: 12, 24, 15, 32V Power consumption: 6VA (approx) ***Output Supply Voltage Type: AC, DC, DCRG AC Supply (±10%) Output Current: 300mA, 150mA, 100mA DC Unregulated (±10%) Output Current: 200mA, 120mA, 100mA % Ripple: <5 DCRG Regulated (±1%) Output Current: 150mA, 100mA, 80mA % Ripple: <0,5 Output Type: AC = AC DC = DC (UNREGULATED) DCRG = DC (REGULATED)	INPUT SPECIFICATIONS Namur: High Speed & Gate Input: Namur sensor DIN 19234 Reset Input: Potential free contact/NPN sensor Slow Speed Input: Potential free contact or NPN sensor DC: High Speed & Gate Input: NPN/PNP sensor Reset Input: Potential free contact/NPN sensor Slow Speed Input: Potential free contact or NPN sensor Max. Input frequency: High Speed Input: 5kHz Gate & Reset Input: 1kHz Slow Speed Input: 30Hz Minimum pulse width: High Speed Input: 100 microseconds Gate & Reset Input: 500 microseconds Slow Speed Input: 16.7microseconds Active pulse edge: High & low Speed Input: Positive or negative, Namur and DC Gate Input: Low level on input SENSOR INTERFACE Replace* with sensor type 1= Namur negative edge 2= Namur positive edge 3= Negative - NPN/PNP(DC) 4= Positive - NPN/PNP(DC) Namur option: 8.2V DC/10mA DC (NPN or PNP) option:12V DC/ 50mA Max. NPN saturation voltage: 2V DC (high speed count and gate inputs)2.5V DC (low speed count input) Max. PNP sensor saturation voltage: 2V DC (high speed count and gate inputs) GENERAL SPECIFICATIONS Supply voltage: Replace ** with 24VAC/DC, 115VAC,230VAC, 400VAC, 415VAC, 525VAC Protection class : IP 54 (front), IP30 (rear) Connection: Plug-connector	INPUT SPECIFICATIONS AC/DC: Supply voltage: 24V ±15% Isolation: No galvanic isolation Power consumption: 100mA Low speed input: Input type: potential-free contact or NPN sensor Maximum count frequency: 30Hz Minimum pulse width: 16.7ms High speed input: Maximum count frequency: 1kHz Minimum pulse width: 500Hz RESET INPUT Minimum pulse width: 500ms SENSOR INTERFACE Replace* with sensor type *D= NPN/PNP *N= Namur Namur: 8.2V DC/ 10mA DC (NPN/PNP):12V DC/ 50mA Max. NPN sensor saturation voltage: 2VDC OUTPUT SPECIFICATIONS Solid state relay: 12V at 10mA GENERAL SPECIFICATIONS Supply voltage: Replace** with 12VDC, 24VAC/DC, 115VAC, 230VAC, 400VAC, 415VAC, 525VAC Maximum count frequency exceeded: 3 decimal points illuminating Power supply interruption < 1 second: 3 decimal points flashing Relay ON time: Adjustable range: 0.1 to 25 seconds Resolution: 0.1 second repeatable ±1% Set-up and data retention: ±10 years	INPUT SPECIFICATIONS High speed input: Namur: Namur sensor DIN 19234 DC: NPN or PNP sensor Maximum input frequency: 500Hz Minimum pulse width: 1 millisecond Active pulse edge: Positive or Negative Slow speed input: Namur & DC: Potential free contact or NPN sensor (open collector type) Maximum input frequency: 30 Hz Minimum pulse width: 16.7 ms Active pulse edge: Positive or Negative RESET INPUT: Namur & DC: Potential free contact or NPN sensor Maximum input frequency: 500Hz Minimum pulse width: 1 millisecond Active pulse edge: Negative: holds count value. Positive (if low for < 2 sec): resets count value and clears error messages SENSOR INTERFACE Replace* with Sensor Type *D= PNP/PNP *N= Namur Namur: 8.2V DC / 10mA NPN or PNP sensor: 12V DC/ 30mA Max.NPN sensor saturation voltage: 2V DC, 2.5V DC Maximum PNP sensor saturation voltage: 2V DC (high speed count input) OUTPUT SPECIFICATIONS Relay: 250 VAC, 8A, SPDT SSR Drive: 10mA at 6V GENERAL SPECIFICATIONS Supply voltage: Replace** with 12VAC, 12VDC, 24VAC, 24VDC, 48VAC, 115VAC, 230VAC, 400VAC
Ordering Code Example	TYPE MODEL AC VOLTAGE OUTPUT VOLTAGE OUTPUT TYPE SC 900 / * — * * * *	TYPE MODEL ACTIVE EDGE POWER SUPPLY CC 120 / * / * *	TYPE MODEL VOLTAGE SENSOR TYPE RELAY CONTACTS SC 700 / * * / * SP	TYPE MODEL VOLTAGE SENSOR TYPE RELAY CONTACTS CC 701 / * * / * SP

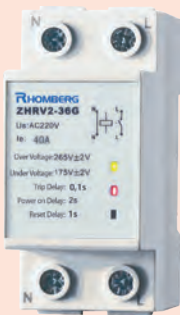
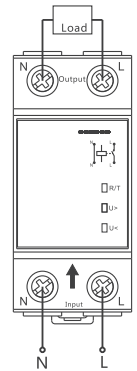
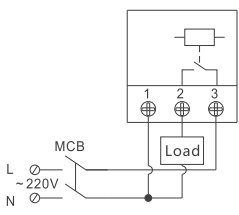
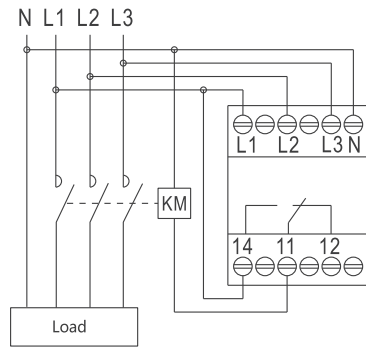
See Page 1.36 for Module Dimensions & Accessories

DIN RAIL MOUNT TIMERS

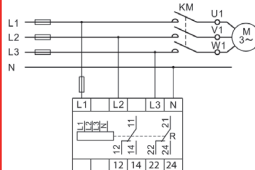
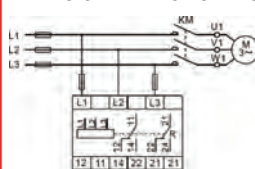
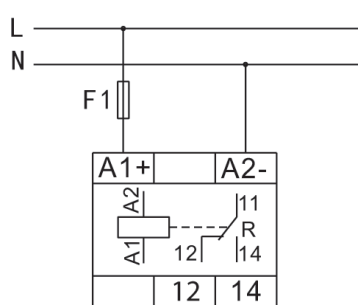
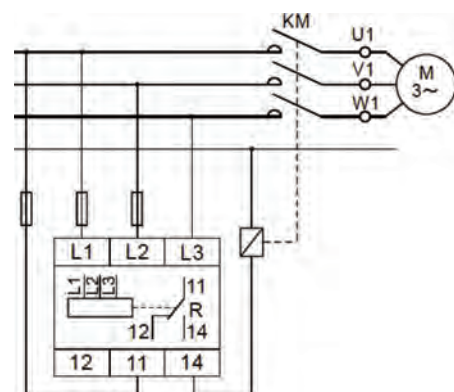
Type	Delay on Timer	Multifunction Timer	Star Delta Timer	Passage Light Timer	Unequal Cycling Timer
(Replace * with relay type.) (Replace * with supply voltage.)					
Code	ZHR1-A - */*	ZHR1-M - */*	ZHR1-ST/*	ZHR1-LS/*	ZHR1-S2-/*
Output	Replace * in Code with *2 = 2 x Timed C/O *2T = 1 x Timed + 1 x Instantaneous C/O 5A@250VAC	Replace * in Code with *2 = 2 x Timed C/O *2T = 1 x Timed + 1 x Instantaneous C/O 5A@250VAC	2 x NO 5A@250VAC	1 x NO 5A@250VAC	2 x C/O 5A@250VAC
Function	- Microprocessor based - LED indication of supply and relay state - On application of power the time function starts. At the end of time delay the relay operates - The unit is reset by removal and re-application of power supply - Wide time range of 0.1s to 100Hr	- Microprocessor based - LED indication of supply and relay state 10 Independent operating functions: - A - Delay on operate - B - Delay on Release - C - Cycle timer OFF first - D - Cycle timer ON first - E - Interval hold reset - F - Interval pulse reset - G - Delay OFF hold reset - H - Delay ON/OFF pulse reset - I - Latching pulse reset - J - Pulse Generator - Wide time range of 0.1s to 100Hr	- Microprocessor based - LED indication of supply and relay state. - Start time adjustable 1s - 10min. - Pause time adjustable 20ms - 300ms. - The unit is reset by removal and re-application of power supply	- Microprocessor based - Control of stairwell or Passage Lighting - When the unit receives a pulse input (L/N) the relay operates for the preset time. At the end of the set time it switches off automatically. - LED indication of supply and relay state - Auto or Manual Mode - Time Range adjustable: 30s - 20min	- Microprocessor based - LED indication of supply and relay state - Time ranges from 0.1s to 100Hr - Timing Functions start on application of power supply. - The unit is reset by removal and re-application of power supply.
Supply Voltage	*D12 = DC12V *AD240 = AC/DC 24-240V *A400 = AC400V	*D12 = DC12V *AD240 = AC/DC 24-240V *A400 = AC400V	*A110 = AC110V *A230 = AC230V *A400 = AC400V	*A110 = AC110V *A230 = AC230V *A400 = AC400V	*AD240 = AC/DC 24-240V *A110 = AC110V *A400 = AC400V

Type	No Power Delay Off	Delay On Restart Timer	Unequal Cycling Timer	Intermediate Relay
				
Code	ZHR1-D/*	ZHR1-SD/*	ZHR2-S3T/*	ZHR2-R3/*
Output	1 x C/O 5A@250VAC	1 x C/O 5A@250VAC	2 x timed C/O 16A@250VAC 1 x Instantaneous 16A@250VAC	3 x C/O 8A@250VAC
Function	- Microprocessor based - Relay operates when power is applied. - Timing starts when power is removed. - Power must be present for ≥ 2000ms - Delay time range 0.1s-10m - LED indication of status	- Microprocessor based - Relay operates when power is applied. - Relay de-energises when power fails - When power is restored the re-start time function begins - When re-start time period expires the relay re-energises - Delay time range 0.5-20m - LED indication of status	- Microprocessor based - Instantaneous relay contact energises and time period starts. - Timed relays energises at end of pre set time period - Unit reset by removal and re-application of power - Delay time range 0.1s-100hr - LED indication of status	- Used to expand the number of relay contacts - Operates similar to 11pin plug-in industrial relay but in DIN rail mount format
Supply Voltage	*D12 = DC12V, *A115 = AC115V *A230 = AC230V *A400 = AC400V	*A115 = AC115V *A230 = AC230V	*D12 = DC12V, *AD240 = 24-240VAC/DC	*D12 = DC12V, *AD240 = 24-240VAC/DC

VOLTAGE MONITORS

Type	Single phase Over / Under Voltage Protector (Fixed TripPoints)	Single Phase Auto-Reset Over / Under Voltage Protector	Single phase Over / Under Voltage Protector	3 Phase Over / Under Voltage, Phase Sequence / Failure /Asymmetry Neutral Fail, Timed Fail / Reset	3 Phase Phase Failure/ Sequence/ Asymmetry
(Replace * with supply voltage.)		NEW 			
Code	ZHRV2-36G/*	ZHRV2-36S/*	ZHRV2-54T/*	ZHRV2-S/*	ZHRV3-01-Z/ *
Output	1 x N/O	1 x N/C	1 x N/O	1 x C/O 10A/250VAC	2 x C/O 5A@250VAC
Function	O/Voltage Trip 265VAC Recover at 257VAC U/Voltage Trip 175VAC Recover at 180VAC Power-On delay 2s Trip delay 0.1s Reset delay 1s Auto reset Switching capacity * Add to code 32 = 32A@250VAC 40 = 40A@250VAC 63 = 63A@250VAC 80 = 80A@250VAC Not Suitable for Refridgeration Applications	Overvoltage Trip: 225-275VAC Undervoltage Trip: 165-215VAC Power On Delay: 0.3s- 30s Trip Delay: 0.1 - 10s Auto Reset Adjustable Tripping Delay LCD Monitoring/Status Indication Switching Capacity *Add To Code 40 = 40A @250VAC 63 = 63A@250VAC	Overvoltage Trip 210-280VAC Recover at trip x 97% Undervoltage Trip 120-200VAC Recover at trip x 103% Power-On delay 2s Trip delay 5 - 600s Reset delay 1s • Auto reset • Display voltage Switching capacity * Add to code 40 = 40A@250VAC 63 = 63A@250VAC 80 = 80A@250VAC	Overvoltage 5% - 20% Under voltage 5% - 20% Phase Sequence / Failure Neutral Failure 1volt Over / Under increments Asymmetry trip 0.1 - 20s Phase Sequence trip ≤ 0.2s Phase failure trip ≤ 0.2s • Protection can be turned On/Off • Display phase voltages (P-N) • Microprocessor based • True RMS measurement • LCD status Indication	Phase Sequence/Failure Asymmetry 5-15% Trip Delay 0.1-10s Reset Time 0.1-10s • Microprocessor based • True RMS measurement • 8 Nominal voltage operating ranges • LED status indication • Trip/Reset delay adjustable • Suitable for either 3 or 4-Wire systems
Supply	AC 230V	AC 230V Frequency Range: 50Hz	AC 230V	*M240 = AC 220V - 440V *M415 = AC 380V - 415V Frequency Range 45 - 65Hz	*M440 = AC 208V-440 (8 Set Points-P/P) *M254 = AC 120V-254V (8 Set Points-P/N) Frequency Range: 45 - 65Hz
Connection Diagram					

VOLTAGE MONITORS

Type	3 Phase Over/Under Voltage, Phase Sequence/ Failure/Symmetry	Over or Under Voltage Monitor	Over and Under Voltage Monitor (Comparator)	3 Phase Over/Under Voltage, Phase Sequence/ Failure/Asymmetry	3 Phase Phase Sequence/ Failure/Asymmetry
(Replace * with supply voltage.)					
Code	ZHRV3-07-Z/ *	ZHRV5-01/ *	ZHRV5-02/ *	ZHRV5-09/ *	ZHRV5-11/ *
Output	2 x C/O 5A@250VAC	1 x C/O 5A@250VAC	1 x C/O 5A@250VAC	1 x C/O 5A@250VAC	1 x C/O 5A@250VAC
Function	Phase Sequence/Failure Overvoltage 2-20% Undervoltage 2-20% Asymmetry 5-15% Trip Delay 0.1-10s Reset Time 0.1-10s • Microprocessor based • True RMS measurement • 8 Nominal voltage operating ranges • LED status indication • Trip/Reset delay adjustable • Suitable for either 3 or 4-Wire systems	Selectable Operating Modes: - Over Voltage Latching - Over Voltage Non-Latching - Under Voltage Latching - Under Voltage Non-Latching • Voltage threshold adjustable (Dependant on Supply Voltage) • Hysteresis: 5-20% • Time Delay: 0.1-10s • Microprocessor based • True RMS measurement • Monitor AC or DC. • LED indication of control state.	Over & Under Voltage Levels adjustable (Dependant on supply voltage). Fixed Hysteresis: 5% Time Delay: 0.1-10s • Microprocessor based • True RMS measurement • Monitor AC or DC • LED indication of control state.	Phase Sequence/Failure Overvoltage 2-20% Undervoltage 2-20% Asymmetry fixed 8% Trip Delay 0.1-10s • Microprocessor based • True RMS measurement • 8 Nominal voltage Operating Ranges • LED status indication.	Phase Sequence/Failure Asymmetry 8% Trip Delay 2s • Microprocessor based • True RMS measurement • 8 Nominal voltage Operating Ranges • Frequency Range: 45-65Hz • LED status indication
Supply	*M440 = AC 208V-440 (8 Set Points-P/P) *M254 = AC 120V- 254V (8 Set Points-P/N) Frequency Range: 45 - 65Hz	*D12 = DC 12V *AD48 = AC/DC 24-48V *AD240 = AC/DC 110-240V	*D12 = DC 12V *AD48 = AC/DC 24-48V *AD240 = AC/DC 110 - 240V	*M460 = AC 220V-440V (8 Set Points-P/P) Frequency Range: 45 - 65Hz	*M460 = AC 220V - 440V (8 Set Points-P/P) Frequency Range 45 - 65Hz
Connection Diagram	ZHRV3-01-Z/M245 - 4 Wire  ZHRV3-01-Z/M440 - 3 Wire 				

MOTOR PROTECTION RELAYS

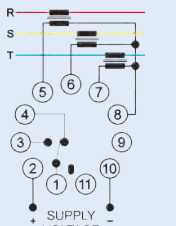
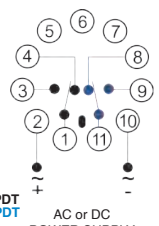
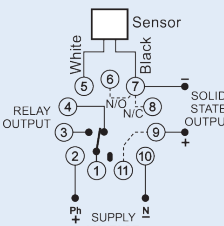
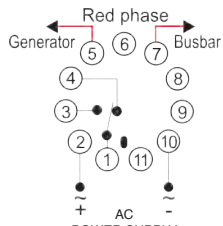
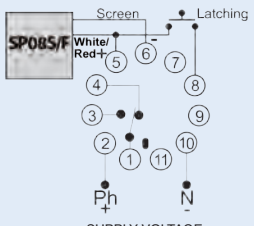
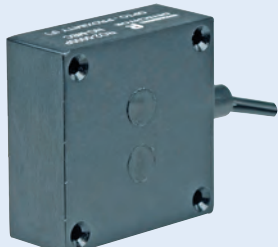
Type	Motor Protection Relay	Motor Protection with Remote CT
		
Code	ZHRA2-*/**-S	ZHRA3-*.***-***
Output	1 x N/C 5A@250VAC 1 x N/O 5A@250VAC	1 x C/O 5A@250VAC 1 x Aux N/O 5A@250VAC
Function	No load start, Overload, Phase Failure, Stall, Asymmetry Protection. • Microprocessor based design • Digital display (current values) Add to Code Trip Current Motor kW *6 0.5-6A 0.25-3kW *60 5-60A 3-30kW *240 20-240A 11-110kW	Overload, Phase Failure, Stall, Grounding, Temperature, Asymmetry, Neutral Failure • Microprocessor based design • LCD backlit display shows Current, and Fault status • Star-Delta and Auto Buck starts *** Optional O/P Add to code 4/20 (4 - 20mA) RS (RS485 Modbus) Add to Code Trip Current Motor kW *5 1-5A 0.55-2.2kW *10 2-10A 1.1-4kW *30 6-30A 3-15kW *50 10-50A 5.5-22kW *200 40-200A 22-90kW

Supply Voltage	**A230 for 230VAC **A400 for 400VAC Frequency Range 45 - 65Hz
----------------	---

Type	Motor Protection Relay	LIQUID LEVEL CONTROLLER
(Replace * with trip current) (Replace * with supply voltage)	 	(Replace * with supply voltage) 
Code	ZHRA1-*/ *	ZHRA5-*
Output	1 x C/O 5A@230VAC	1 x N/C 1A@240VAC
Function	Inverse time Current Protection, Overload, Phase Failure, Phase Asymmetry and Locked Rotor Protection. LED Indication of status Current transformers integrated into the body of the unit. Current adjustable within range. Adjustable start Delay: 2-30s Various Current Ranges available: Trip Current Motor kW *1A-5A 0.5 - 2.5kW *6A-30A 3 - 15kW *16A-80A 8 - 40kW *80A-400A 40 - 200kW	Does not require power supply. Simplified wiring & installation. Overload, Phase Failure Protection Thyristor Output. LED Indication of status. Compact design. Low Cost. Current transformers integrated into the body of the unit. Various Current Ranges available: Trip Current *0.5A - 5A *2A - 20A *20A - 80A *64A - 160A
Supply Voltage	*AC230V *AC400V Frequency Range 45 - 65Hz	No power supply required

Type	Liquid Level Control
(Replace * with supply voltage)	
Code	ZHRL1-A*
Output	1 x C/O 250VAC@1.5A
Function	Charge and Discharge. (Fill & Drain) Adjustable Sensitivity: 5kΩ - 100kΩ. Can operate as 2 or 3 probe system Adjustable delay to prevent false triggers: 0.1-10s LED indication of high/low water level
Supply Voltage	*A110 = AC 110V *A230 = AC 230V

SPECIAL PRODUCTS

Type	3-Phase Current Monitor	Re-cycling Timer with Pause	Control Module for Namur Sensors	Semi-Automatic Synchronising Unit	Spark Detector																																
																																					
Code	CM193	DT310/12	PSM1130/3	SAS110	SP08M																																
Features	• Ready to operate when the current transformers and shunt resistor block-SR3 is connected • When power is applied the relay energises immediately • LED indication showing power ON • If the current on any of the 3 phases fails below the set limit for at least one second, the relay will de-energise and the LED extinguishes	• Unit starts with pause mode • Contacts totally isolated • Adjustable pause time ranges • Adjustable cycle time ranges • Whole cycle will continuously repeat until power has been switch off	• Transistorised switching amplifier for inductive proximity sensors to DIN19234 (Namur) • Available as a solid state or relay output • Selectable delay on output • Programmable for metal sensing and non metal sensing • LED indication for metal sensed or no metal sensed • LED indication when relay is energised	• Senses differences in voltage, frequency and phase angle between the generator and the busbar system • LED illuminates when all 3 parameters match • Hysteresis setting for voltage • Response delay 0,3 to 3 secs • Adjustable voltage synchronisation point, 5-30V RMS	• Detects infra light from arcing or flames • Long dist. sensing and acc. location • Cost effective solutions, detection in burners, boilers or fire detection equip. • In conjunction with a suitable infra light source, a high speed opto-barrier syst. • Syst. consists of a Control Unit SP-08M & side or front sensor heads SP-08S/F • Initiates power shut down before permanent damage is done • The sensor heads can be connected in parallel and any sensor will trigger the relay output • The module can be configured to latch when arcing is sensed																																
Connection Diagram																																					
Specifications	POWER SUPPLY **AC: Supply voltage: 115, 230, 400, 415, 525V $\pm 15\%$ Power consumption: 3VA (approx), 6VA for 415, 525V (approx) Isolation: no galvanic isolation Shunt resistor block - SR3 - *1Amp or 5Amp GENERAL Weight: 190g Colour: Blue	POWER SUPPLY AC: Supply voltage: 48, 60, 115, 230, 400, 415, 525V $\pm 15\%$ Power consumption: 3VA (approx), 6VA for 415, 525V (approx) DC: 24V only. GENERAL Weight: 190g Colour: Blue <table><tr><th colspan="2">PAUSE TIME RANGES</th></tr><tr><td>0,1 - 2 sec</td><td>1 - 20 min</td></tr><tr><td>0,3 - 6 sec</td><td>3 - 60 min</td></tr><tr><td>1 - 20 sec</td><td>10 - 200min</td></tr><tr><td>3 - 60 sec</td><td>0,5 - 10 hrs</td></tr><tr><td>10 - 200 sec</td><td>1 - 20 hrs</td></tr><tr><td>30 - 600 sec</td><td>1 - 30 hrs</td></tr></table> <table><tr><th colspan="2">CYCLE TIME RANGES</th></tr><tr><td>0,1 - 2 sec</td><td>1 - 20 min</td></tr><tr><td>0,3 - 6 sec</td><td>3 - 60 min</td></tr><tr><td>1 - 20 sec</td><td>10 - 200min</td></tr><tr><td>3 - 60 sec</td><td>0,5 - 10 hrs</td></tr><tr><td>10 - 200 sec</td><td>1 - 20 hrs</td></tr><tr><td>30 - 600 sec</td><td>1 - 30 hrs</td></tr></table> *Relay contact SP= Single Pole DP= Double Pole	PAUSE TIME RANGES		0,1 - 2 sec	1 - 20 min	0,3 - 6 sec	3 - 60 min	1 - 20 sec	10 - 200min	3 - 60 sec	0,5 - 10 hrs	10 - 200 sec	1 - 20 hrs	30 - 600 sec	1 - 30 hrs	CYCLE TIME RANGES		0,1 - 2 sec	1 - 20 min	0,3 - 6 sec	3 - 60 min	1 - 20 sec	10 - 200min	3 - 60 sec	0,5 - 10 hrs	10 - 200 sec	1 - 20 hrs	30 - 600 sec	1 - 30 hrs	POWER SUPPLY AC Transformer: Supply Voltage: 12, 24, 48, 60, 115, 230V $\pm 15\%$ Operating frequency: 40-60 Hz Isolation test voltage: 2KV Power Consumption: 2,5VA Overvoltage protection: 50% for 1 min(50Hz) DC: Supply Voltage: 24V, $\pm 15\%$ Max. ripple: 100% (above 50Hz) Power Consumption: approx. 1,5W Overvoltage protection: 100% for 1 min. on 24VDC Rating for continuous op.: 100% ED Voltage stabilisation: Yes Transient protection: Yes Operating temp.: -20 to +50°C Supply interruptions: Will not react to interruptions less than 30ms TIMERS: Input pulse length: 0,1 to 5 secs Output hold time: 0,1 to 5 secs Repeatability: approx. 1% Overall accuracy: approx. 5% OUTPUT Relay contact: 1x single pole change over contact Contact rating (resistive load): 380VAC - 10A - 2500VA Contact isolation: 2500V SOLID STATE Type: Open collector transistor Output sink current: 100mA/12VDC GENERAL Weight: 190g Colour: Blue	POWER SUPPLY AC: Supply voltage: 115, 230, 400, 415, 525V $\pm 15\%$ Power consumption: 3VA, 6VA for 415, 525V (approx) Over voltage protection: 50% for 1 minute Red Phase: Over voltage protection: 750V GENERAL Weight: 200g Colour: Blue	POWER SUPPLY AC: Supply Voltage: 12, 24, 115, 230, 400V Power Consumption: 3VA(approx) Isolation: 2kV (voltage input to power supply) Tolerance: $\pm 15\%$ GENERAL Weight: 190g Colour: Blue Sensor Head - to be ordered separately  <table><tr><th>SP08F</th><th>SP08S</th></tr><tr><td>Front sensing</td><td>Side sensing</td></tr></table> RHS	SP08F	SP08S	Front sensing	Side sensing
PAUSE TIME RANGES																																					
0,1 - 2 sec	1 - 20 min																																				
0,3 - 6 sec	3 - 60 min																																				
1 - 20 sec	10 - 200min																																				
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30 - 600 sec	1 - 30 hrs																																				
SP08F	SP08S																																				
Front sensing	Side sensing																																				
Ordering Code Example	TYPE MODEL SHUNT VOLTAGE POWER RELAY CON. SUPPLY TACTS CM 193 / * / ** AC SP	TYPE MODEL VOLTAGE POWER RELAY CON. SUPPLY TACTS DT 310 / 230V AC *	TYPE MODEL VOLTAGE RELAY CONTACTS PSM 1130/3 / 230V SP	TYPE MODEL VOLTAGE POWER SUPPLY SAS 110 / 230V AC	TYPE MODEL VOLTAGE POWER SUPPLY SP 08M / 230V AC																																

TIME SWITCHES

Orbis Digital Time Switches

Code	No. of channels	Time Range	Total No. of programmes	Working Reserve	Minimum Interval	Width in DIN	Relay Output
DATALOG1 [†]	1	24hrs/7days	40	≤10 years	1 sec	2	1 x 16A,C/O
DATALOG2 [†]	2	24hrs/7days	40	≤10 years	1 sec	2	2 x 16A,C/O

[†]Specify voltage with order: **230VAC, 110VAC, 24VAC/DC. 12VAC/DC.**

Features

- Daily, weekly or pulse programming
- Connection port for programming through Bluetooth Dongle accessory
- Easy programming guided by text menus in different languages
- Large backlit display with contrast setting and operation schedule on screen
- 4 Annual periods for special programming. Able to program cycles and pulses from 1 second
- Manual switching, temporary or permanent
- Keypad lock by password
- Replaceable backup battery
- Sealable clear window to avoid unauthorised changes

OPTIONAL
BLUE
TOOTH



Bluetooth Dongle to be ordered separately

For complete range of Audible & Visual Alarms see pages 16.1-16.19



Factory / School Time Switch IP55 - 170 x 105 x 98mm

Code	Description
FTDE7	• Complete with digital time switch • 40 Programs per week • Duration of siren can be set from 1 to 59 sec. • Can be used with bluetooth dongle OB709971
VP-PROG	• Programming Charge for FTDE7 Timer

- Supply: 230VAC
- Relay Output: C/O 16A @ 250VAC. Reserve: ≤10 years
- Features as per **DATALOG1**

Panel Fitted Daylight Switch - 230VAC

Code	No. of channels	Time Range	Total No. of programmes	Working Reserve	Width in DIN	Relay Output
ASTRO NOVA	2	24hrs/7days	40	≤10 years	2	2 x 16A,C/O

Features

- Astronomical timed switch with daily updating and simple guided programming using text menus
- Enter city name or GPS co-ordinates for automatic day/night switching
- Has connection port for programming through the Bluetooth Dongle accessory
- Fixed or astronomical operations (dawn and dusk)
- Adjustable correction of astronomical timetable of up to ± 9 hrs, 59mins
- REDUC function to avoid overlap between fixed & astronomical operations
- Large backlit display with contrast adjustment & operation schedule on screen
- Has 4 periods between two dates with special programs, which practically makes it a yearly timer switch
- Manual switching, temporary or permanent
- Keyboard blocking using password
- Replaceable reserve battery
- Transparent seal-able window to avoid unauthorised changes

OPTIONAL
BLUE
TOOTH

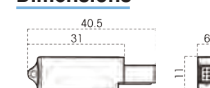


Bluetooth Dongle to be ordered separately

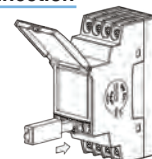
Bluetooth Dongle

Code	Features
OB709971	• Two-way Bluetooth communication with DATALOG1, DATALOG2, ASTRO NOVA • Programming & configuration from application for mobile phones or tablets • Compatible with Apple and Android devices • Easier Viewing and Programming of Timers • Memory Storage of Multiple Timers • Installed Power Setting allows Calculation of Consumption • Timer Programming can be Shared using Whatsapp, Email etc.

Dimensions



Connection



230VAC Digital Time Switch

Code	No. of channels	Time Range	Total No. of programmes	Working Reserve	Minimum Interval	Width in DIN	Relay Output
DATA UNO-D	1	24hrs	1 per day	4 years	30 Min	1	16A,C/O

Features

- Only 1 module wide
- Daily Programming
- 1 NO potential free contact
- Minimum switching time 30 mins
- Front replaceable battery
- Copy / Paste programming function
- Manual over-ride
- Backlit LCD display
- Displays operating and relay status
- Low battery indicator
- Simple Programming



230VAC Astronomical Time Switch

Code	No. of channels	Time Range	Total No. of programmes	Working Reserve	Minimum Interval	Width in DIN	Relay Output
MICRO ASTRO	1	24hrs	1 per day	4 years	30 Min	1	16A,NO

Features

- Programming of the geographical area through GPS coordinates
- Depleted battery indication on screen
- Single programme for daily operation, between sunrise and sunset
- Manual Switching Function
- Front Replacable battery
- Daylight savings function, by region
- On Screen Clock



NEW

TIME SWITCHES

ORBITS



72 x 72 Panel / DIN Rail / Surface Mount Digital Time Switch

Code	No. of channels	Time Range	Total No. of programmes	Working Reserve	Minimum Interval	Size	Relay Output
MINITLOG*	1	24hrs/7day	40	5 years	1sec	72x72x49.5	16A,C/O

*Specify voltage with order: 230VAC, 110VAC, 24VAC/DC. 12VAC/DC.

Features

- Daily / weekly programming or pulse programming
- Easy programming guided by text menus in different languages
- Large backlit display with contrast setting
- Operation schedule on screen
- With 4 annual periods for special programming
- Able to program cycles and pulses from 1 sec
- Manual activation or deactivation, temporary or permanent
- Keypad lock by password

20A
FOR
GEYSERS

RHOMBIC



DHC15A /
DHC15A -20A

DIN Rail Electronic Time Switches

Code	No. of channels	Time Range	Total No. of programmes	Working Reserve	Minimum Interval	Width in DIN	Relay Output
DHC15A*	1	24hrs/7days	20 On / 20 Off	≤ 3 Years	1 min	2 Modules	SPDT 16A (1 x C/O)
DHC15A-20A	1	24hrs/7days	20 On / 20 Off	≤ 3 Years	1 min	2 Modules	SPDT 20A (1 x C/O)

- Easy to program • Manual ON/ OFF/ AUTO override • LCD Display with backlight

* Special Supply Voltages Available - Add Voltage to code: 12/24V(12-24VAC/DC), 110VAC

zaMel cet



Electronic School Timer

Code	No. of channels	Time Range	Total no. of programmes	Working Reserve	Minimum Interval	Width in DIN	Relay Output
SDM-10/U	1	24hrs/7 days	50 on + 50 off	3 years	1 sec	2	16A, C/O

Features

- User friendly, and easy to program. Lesson times can easily be added or changed. The controller has a real time clock and calendar.
- Adjustable ringing duration
- Width: 35mm (2 Module width)
- Not more than 120 minutes between bells
- Complete with protective flap.
- Supply Voltage: 24V - 230VAC/DC
- Relay output rated at 16A, AC1 rating
- Battery backup, preventing data loss during power failure
- LED illumination of the LCD display
- Able to back up programmed times for 10 years
- Seasonal and holiday programming available

zaMel cet



Electronic School Control Box

Code	Description	Features
EW-01	The Electronic School Janitor is an assembled unit. Used for controlling school utilizing the SDM-10 . It consists of: • Over Voltage Protection • Bell Controller (SDM-10) • Electromagnetic Relay x 2 • Alarm Button • Accoustic Alarm Indicator • Short period selection button	Two ways of connecting directly to the school bell or connecting to the existing installation instead of manually ringing the bell. • Easily programmable timetable. • Real time clock. • Adjustable ringing duration. • Programmable alarm bells. • Seasonal and holiday programming available

E/NTES

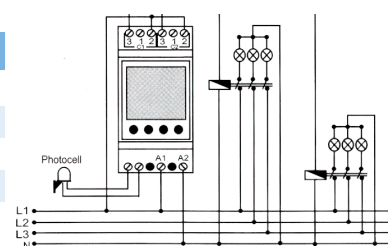


Astronomic Weekly Timer / Daylight Switch - 230VAC

Just program in your geographical co-ordinates and the unit will do the rest. Can also use a photocell to give additional control.

Code	Description	Relay Output
DTR-14	Astronomic timer with photocell	2C/O (8A)
DTR-10	Astronomic timer	2 C/O (8A)
DTR-10T	Astronomic timer	1 C/O (16A)
FG-GOZ	Photocell sensor for DTR-14	—

- Battery back-up: 5yrs.
- Super capacitor for additional 10hrs reserve
- No. of programs: 15
- Operating accuracy: ≤1 sec/day.



Connection Diagram

NEW

SMART WIFI SWITCHING ADAPTORS

Features

- Energy Meter Function
- Physical On/Off Button on Device
- Supply Voltage: 100-240VAC



	Export Only	Export Only	Export Only
	P4	P4	P4
Code	HG01WT	HE02WT	HSA01WT
Description	Schuko Smart Socket	British Smart Socket	3 Pin SA Smart Socket
Switching Capacity	15A@250VAC (3750W)	15A@250VAC (3750W)	15A@250VAC (3750W)

NEW

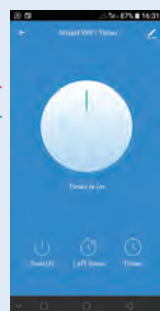
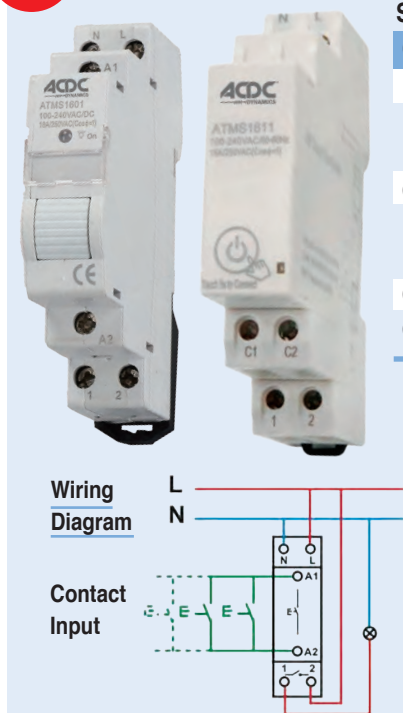
SMART WIFI TIMER/SWITCH

Smart Timer/Switch

Code	ATMS1601 230VAC	ATMS2001 230VAC	ATMS2001Z 230VAC
Rated Voltage	100-240VAC, (50/60)Hz	100-240VAC, (50/60)Hz	100-240VAC, (50/60)Hz
Rated Current	16A/250VAC (Cosφ = 1, Resistive Load)	20A/250VAC (Cosφ = 1, Resistive Load)	20A/250VAC (Cosφ = 1, Resistive Load)
Communication Protocol	Wi-Fi	Wi-Fi	Zigbee 3.0
Contact Input	Yes	Yes	Yes
Contact Configuration	1 x Dry Contact (SPST:NO)	1 x Dry Contact (SPST:NO)	1 x Dry Contact (SPST:NO)

Features

- All programming stored locally on device and when device is disconnected from the network it continues to work according to the set program until power fails
- After power failure, schedules must be retrieved from the cloud
- Pushbutton for manual On/Off Switching
- Schedules: 30 On/Off Programs can be set up once of to repeat daily or on specific days of the week
- Din Rail Mounted



NEW

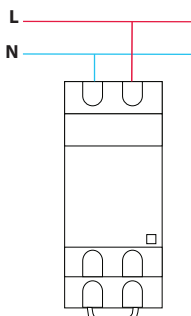
ZIGBEE SMART GATEWAY

Smart Timer/Switch

Code	ATMSGZ01
Rated Voltage	100-240VAC, 50Hz
Rated Power	3VA/1.2W
Communication Protocol	Zigbee 3.0, Wi-Fi
Contact Configuration	Wireless Connection



Wiring Diagram



Features

- Wi-Fi Frequency: 2.4GHz • Wireless connection to Zigbee devices
- Zigbee Connection Range ≤ 25m
- The mesh topology allows each device that is connected to the network of the ZigBee gateway to communicate with other devices (nodes), this increases the network range and allows for several transmission paths if a certain node fails or becomes obstructed

NEW

WIFI TIMER + ENERGY METER

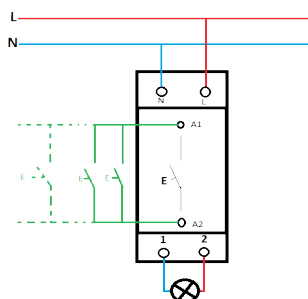


Power Consumption Statistics
Monthly Consumption Trend



Code	ATMS1602 230VAC	ATMS2002 230VAC	ATMS4002 230VAC	HWF03T
Rated Voltage	100-240VAC, 50Hz	100-240VAC, 50Hz	100-240VAC, 50Hz	100-240VAC, 50Hz
Rated Current	16A/250VAC (Cosφ = 1, Resistive Load)	20A/250VAC (Cosφ = 1, Resistive Load)	40A/250VAC (Cosφ = 1, Resistive Load)	16A/250VAC (Cosφ = 1, Resistive Load)
Contact Input	Yes	Yes	Yes	No
Contact Configuration	1 x Active Contact (SPST:NO)	1 x Active Contact (SPST:NO)	1 x Active Contact (SPST:NO)	1 x Active Contact (SPST:NO)

Wiring Diagram



Contact Input



Features

- All programming is stored locally on the and when the device is disconnected from the network it continues to work according to the set program until power falls.
- Push button for manual On/Off switching
- Schedules: 30 On/Off can be set up once off or to repeat on specific days of the week
- Din Rail Mounted



WiFi Control

App Control

Remote Switching

Count Down Timer

Share Control with Others

Multiple Timing Functions

Electricity Statistics

NEW

SMART ENERGY METER + TIMER

Wifi Energy Meters

Code	ATMS6002WM 230VAC	ATMS6004WM 230VAC
Rated Voltage	100-240VAC, 50Hz	100-240 VAC, 50Hz
Rated Current	60A/250VAC (Cosφ = 1, Resistive Load)	60A/250VAC (Cosφ = 1, Resistive Load)
Communication Port	N/A	RS485(MODBUS RTU Protocol)
Pulse Output: Impulses/KWh	1200	1600
LCD Monitoring	Voltage(V), Current(A), Energy (KWh) Consumption	Voltage(V), Current(A) Energy(KWh), Consumption Power(KW), Total Active Power Import(+KW)/ Export(-KW)
BiDirectional	No	Yes
Accuracy Class	1	1
Configuration	2 Wire Direct	2 Wire Direct



Features

- Wi-Fi Frequency: 2.4GHz.
- Count Down Timer: 1min to 23hrs 59mins.
- Timing schedules set via APP are saved for offline use in case of Wi-Fi disconnection.
- After power failure schedules must be must be retrieved from the cloud
- Bluetooth can be used to switch the device ON/OFF through the APP for a period of 5min, after Wi-Fi disconnection.
- 30 ON/OFF scheduled programs set for daily/weekly operation.
- Max. of 20 users sharing through APP.



App Control

Remote Switching

WiFi Control

Electricity Statistics

Count Down Timer

Multiple Timing Functions

Share Control with Others



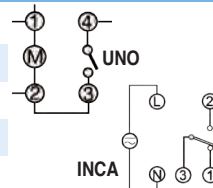
MECHANICAL TIME SWITCHES

ORBIT S



Uno & INCA Duo Type DIN Rail Mount Mechanical Timers - 230 VAC

Code	Type	Motor	Dial	Working Reserve	Minimum Switching time	No of Mod	Contact Rating @ 230V
UD	Uno D	Synchronous	1 x 24h	—	15min	1	16A
UQRD	Uno QRD	Quartz	1 x 24h	150hrs	15min	1	16A
UQRS	Uno QRS	Quartz	1 x 7 day	150hrs	2hrs	1	16A
DD	INCA D	Synchronous	1 x 24h	—	15min	2	16A
DQRD	INCA QRD	Quartz	1 x 24h	100hrs	15min	2	16A
DQRS	INCA QRS	Quartz	1 x 7 day	100hrs	2hrs	2	16A

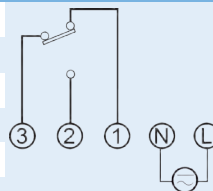


ORBIT S



Supra Type DIN Rail Mount Mechanical Time Switch - 230VAC

Code	Type	Motor	Dial	Working Reserve	Minimum Switching time	No of Mod	Contact Rating @ 230V
SD	Supra D	Synchronous	1 x 24h	—	15min	2.5	16A
SQRD	Supra QRD	Quartz	1 x 24h	150hrs	15min	2.5	16A
SQRS	Supra QRS	Quartz	1 x 7 day	150hrs	2hrs	2.5	16A
DUOD	Duo D	Synchronous	1 x 24h	—	30min	2	16A
DUOQRD	Duo QRD	Quartz	1 x 24h	150hrs	30min	2	16A



New design includes replaceable battery from front

Spare Battery Code **54225**

ORBIT S

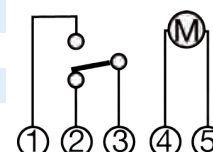


Mini T Type T2X72 Panel / DIN Rail / Surface Mount Mechanical Time Switch - 230VAC

Code	Type	Motor	Dial	Working Reserve	Minimum Switching time	Contact Rating @ 230V
TD	MINI T D	Synchronous	1 x 24h	—	15min	16A
TQRD	MINI T QRD	Quartz	1 x 24h	100hr	15min	16A
TQRS	MINI T QRS	Quartz	1 x 7 day	100hr	2hr	16A

Features

- DIN rail, panel and surface mounting
- Front dial for easy programming
- Manual On/Off and auto operation
- Removable terminal block
- Transparent Cover



TIME SWITCHES



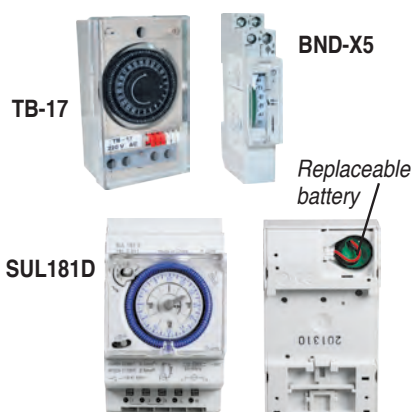
TS-MS1

TS-MS2

Plug In-Mains Timers

Code	Dial	Minimum Setting	Voltage Supply	Contact Rating
TS-MS1	24h	30 min	240VAC	16A
TS-MS2	7 day	1 hr	230VAC	16A

User friendly and easy to program



BND-X5

Replaceable battery

Mechanical Chassis Mount Swimming Pool Timer

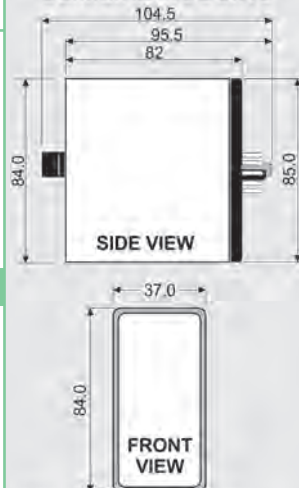
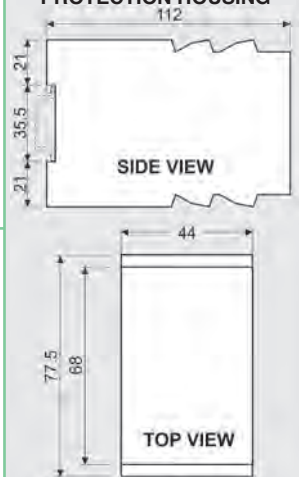
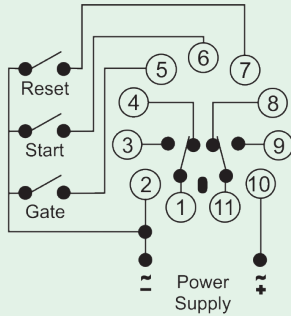
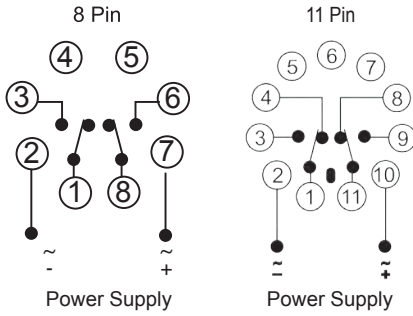
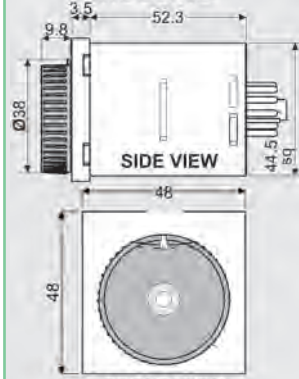
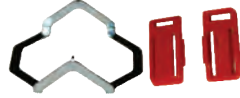
Code	Dial	Working Reserve	Minimum Setting	Width in DIN	Contact Rating		AC Supply
					Resistive	Inductive	
TB-17	24h	-	30min	-	15A	10A	240VAC

Economy Mechanical DIN Mounting Time Switches

Code	Dial	Working Reserve	Minimum Setting	Width in DIN	Contact Rating	Spare Battery
SUL181D	24h	200h	15min	3	16A	VB80H2A6H
BND-X5	24h	15h	30min	1	16A	—

Ideal for swimming pool pump control

ELECTRONIC TIMERS

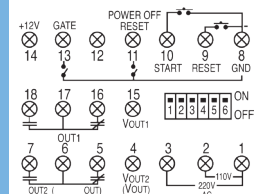
Type	Multi-Function Timer	Delayed ON / Interval (One Shot) Timer	SLIMLINE HOUSING																																		
																																					
Code	48T100	48T101																																			
Features	• Microprocessor based • Power On LED indication • Relay operation LED indication • Programmable functions: Delay on (Pulse start); Interval (Hold/ Pulse Start); Equal Repeating (On/Off First); Signal On/ Off Delay • Start - Reset - Gate Inputs • Gate Input: When activated the unit stops timing and continues when released • Time Range 0.1s to 100hrs • DPDT relay (5A) as standard • Flashing Power LED when timing • 5 Sec Test Mode to confirm circuit operation and assist commissioning • Front dial doubles as screwdriver for adjusting controls	• Microprocessor based • Power On LED indication • Relay operation LED indication • Time Range 0.1s to 100hrs • DPDT relay (5A) as standard • Flashing Power LED when timing • 5 Sec Test Mode to confirm circuit operation and assist commissioning • Front dial doubles as screwdriver for adjusting controls • Available in 8-Pin or 11-Pin Format	Housing colour: Base: Grey Cover: Blue Housing material: Polycarbonate A-LINE & PUMP MONITOR PROTECTION HOUSING  Housing colour: Beige Housing material: Nylon 66																																		
Connection Diagram																																					
Specifications	Power Supply: AC Reactive: Supply Voltage: 230 (100-230VAC) Power Consumption: 3VA AC/DC: Supply Voltage: 24(24VAC/DC) DC: Supply Voltage: 12VDC Power Consumption: 1.5W Tolerance: ±10% Reset Times Input Reset: 50msec min Power Reset: 100msec min Timing Settings <table><thead><tr><th rowspan="2">Range</th><th colspan="2">Scale Multiplier</th></tr><tr><th>X1</th><th>X10</th></tr></thead><tbody><tr><td>Sec</td><td>0.1- 1sec</td><td>1 - 10sec</td></tr><tr><td>Min</td><td>0.1 - 1min</td><td>1 - 10 min</td></tr><tr><td>Hrs</td><td>0.1 - 1hrs</td><td>1 - 10 hrs</td></tr><tr><td>10Hrst</td><td>1 - 10hrs</td><td>10 - 100hrs</td></tr></tbody></table> General Specifications: Enclosure protection rating: IP40 Size: 48 x 48 x 67 Weight: ± 100gm (approx) Only 11Pin	Range	Scale Multiplier		X1	X10	Sec	0.1- 1sec	1 - 10sec	Min	0.1 - 1min	1 - 10 min	Hrs	0.1 - 1hrs	1 - 10 hrs	10Hrst	1 - 10hrs	10 - 100hrs	Power Supply: AC Reactive: Supply Voltage: 230(100-230VAC) Power Consumption: 3VA AC/DC: Supply Voltage: 24(24VAC/DC) DC: Supply Voltage: 12VDC Power Consumption: 1.5W Tolerance: ±10% Reset Times Input Reset: 50msec min Power Reset: 100msec min Timing Settings <table><thead><tr><th rowspan="2">Range</th><th colspan="2">Scale Multiplier</th></tr><tr><th>X1</th><th>X10</th></tr></thead><tbody><tr><td>Sec</td><td>0.1- 1sec</td><td>1 - 10sec</td></tr><tr><td>Min</td><td>0.1 - 1min</td><td>1 - 10 min</td></tr><tr><td>Hrs</td><td>0.1 - 1hrs</td><td>1 - 10 hrs</td></tr><tr><td>10Hrst</td><td>1 - 10hrs</td><td>10 - 100hrs</td></tr></tbody></table> General Specifications: Enclosure protection rating: IP40 Size: 48 x 48 x 67 Weight: ± 100gm (approx) *Add to code 08 = 8Pin *Add to code 11 = 11Pin	Range	Scale Multiplier		X1	X10	Sec	0.1- 1sec	1 - 10sec	Min	0.1 - 1min	1 - 10 min	Hrs	0.1 - 1hrs	1 - 10 hrs	10Hrst	1 - 10hrs	10 - 100hrs	48 X 48 TIMER HOUSING  SIDE VIEW Dimensions: 3.5, 52.3, 9.8, 44.5, 48 FRONT VIEW Housing colour: Beige Housing material: ABS/ Polycarbonate Clips for Slimline consists of 10 sets 
Range	Scale Multiplier																																				
	X1	X10																																			
Sec	0.1- 1sec	1 - 10sec																																			
Min	0.1 - 1min	1 - 10 min																																			
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Ordering Code Example	<table><thead><tr><th>TYPE</th><th>MODEL</th><th>TYPE</th><th>VOLTAGE</th></tr></thead><tbody><tr><td>48</td><td>T100</td><td>— 11</td><td>— 230V</td></tr></tbody></table>	TYPE	MODEL	TYPE	VOLTAGE	48	T100	— 11	— 230V	<table><thead><tr><th>TYPE</th><th>MODEL</th><th>TYPE</th><th>VOLTAGE</th></tr></thead><tbody><tr><td>48</td><td>T101</td><td>— *</td><td>— 230V</td></tr></tbody></table>	TYPE	MODEL	TYPE	VOLTAGE	48	T101	— *	— 230V	RMC 10 Sets / Pack																		
TYPE	MODEL	TYPE	VOLTAGE																																		
48	T100	— 11	— 230V																																		
TYPE	MODEL	TYPE	VOLTAGE																																		
48	T101	— *	— 230V																																		

SPECIAL TIMERS

Type	Multi-Range Function Multi-Voltage Timer	Multi-Range Timer Multi-Voltage	Digital Setting & Display (4 Digit)	Multi-Range 4 Digit Timer	Miniature Timer
Code	AT11DN (2 delay) AT11EN (1 Del + 1 Inst)	AH5N (1S-600H) AH5N-S (6S-60min)	AH5F	SP3-48*	AMY-2**
Relay Contacts	3A @ 250VAC	5A @ 250VAC	5A @ 250VAC	5A @ 250VAC	5A @ 250VAC
Operation	- Delay On - Delay Off (interval) - Delay On pulse start - Delay Off pulse start - Equal repeating On or Off first AT11DN (2 delay SPDT) AT11EN (1 delay + 1 instantaneous SPDT)	Mode A Delay On DPDT Mode B Delay On SPDT & instantaneous SPDT	Delay On SPDT & instantaneous SPDT	Delay On Up/Down timing Start/Reset mode Programmable power-off memory	Delay on operate Contacts: DPDT
Size	48 x 48mm Panel Mount or 11 PIN. Base Mounting bracket included	48 x 48mm Panel Mount or 8 PIN. Base Mounting bracket excluded. (Y-50)	48 x 48mm Panel Mount or 8 PIN. Base Mounting bracket included.	48 x 48mm Panel Mount or 8 PIN. Base Mounting bracket included	22 x 28mm Base Mount Base required (ZM2VP)
Time Range	0.05 – 10sec 0.05 – 10min 0.05 – 10 hour 0.05 – 10 (x10 hour)	0 – 1S 0 – 1H 0 – 10S 0 – 10H 0 – 1M 0 – 60H 0 – 10M 0 – 600H	999.9 sec 9999 sec 999.9 min 9999 min	Time Selections 9999HR 9999SEC 9999MIN 999.9SEC 999.9MIN 99.99SEC	*6 sec *10 sec *30 sec *60 sec *180 sec
Supply Voltage	100-24VAC 24-240VDC	24-240VAC/DC	35-240VAC/DC	*12VAC/DC, *24VAC/DC, *110VAC, *230VAC	DC: *12, *24VDC AC: *24, *110, *230VAC
Connection Diagram					
Accessories	Y-50 Panel Mounting Bracket (48 x 48mm) for AH5N, AH5F & SP3-48	P3G-08 8 PIN Base With reversed terminals	P3G-11 11 PIN Base With reversed terminals	ZM2VP Base for Timer AMY-2, 14 Pin DIN Rail Mount Base	RE1

DIGITAL TIMER WITH DISPLAY

	Code	NT-411
	Contact Rating	5A @ 230VAC
	Operation	4 digit setting & display timer with multi output mode: delay auto reset. Auto/man reset and self hold, Instant reset Remote start/stop & reset.
	Size	72 x 72mm
	Time - Ranges	9999 (s)(m)(h) 99m59s, 99h59m 99d 23h
	Supply Voltages	110 / 230VAC



ELECTROMECHANICAL TIMERS

Mechanical Timers

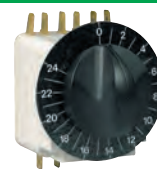


G-100



MI-4

With Motor



JV100

Time Range	Code	Time Range	Code	Time Range	Code
2-30s	G-100 30S	1-15m	MI-4 15M	0.3-12h	JV100 12H*
3-60s	G-100 60S	1.6-30m	MI-4 30M	0.6-24h	JV100 24H*
15-300s	G-100 300S	3-60m	MI-4 60M		
10-4m (240s)	G-100 4M	6-120m	MI-4 120M		
20-7m (420s)	G-100 7M	15m-6h	MI-4 6H		
45-15m	G-100 15M	30m-12h	MI-4 12H		
1.5-30m	G-100 30M	1-24h	MI-4 24H		
3-60m	G-100 60M				

* Time tolerance: $\pm 3\%$ • Contact: 16A @ 250VAC (NO+NC)

*Add AC voltage to code: 110V, 230V, 400V. More accurate for long time ranges. Time tolerance: $\pm 2\%$. Contact: 16A @ 250VAC (NO + NC)	
--	--

DIGITAL TIMERS & COUNTERS

Type	Timer	Timer/ Counter	Pre-Set Counter	Up / Down Totalizing Counter	Total Counter with Reset
	 6 Timing Functions	 Auto or Manual Reset	 Auto or Manual Reset	 Manual or Electronic Reset	 Total Counter with Reset
Code	DHC48	DHC10J	DHC5J	DHC9J-J	DHC15J
Size(mm)	48 x 48 x 92	48 x 48	48 x 48 x 92	36 x 72 x 77	2 Module DIN mount
Range	Delay ON/ Interval/ Equal Repeating. 0.01s-99h59m	Timer: 0.01s-99h59m Counter: 0-9999	0-9999	0-9999	0-99999999
Counting Speed	—	30/500cps	30/1000cps	30/1000cps	10cps
Display	0.3 inch LED (4 digit)	2 line 4 digit LED	0.3 inch LED (4 digit)	0.56 inch LED (5 digit)	8 digit LCD display
Power Supply	100-240VAC/DC	100-240VAC/DC	100-240VAC/DC	100-240VAC/DC	100-240VAC/DC
Input Signal	Pulse Start & Reset	Contact or solid-state [H]: 4~30V [L]: 0~2V Input $\geq 4.7k\Omega$	Contact or solid-state [H]: 4~30V [L]: 0~2V Input $\geq 4.7k\Omega$	Contact or solid-state [H]: 4~30V [L]: 0~2V Input $\geq 4.7k\Omega$	100-240VAC/DC
Output	2 C/O 3A@250VAC	1 C/O 3A@250VAC	1 C/O 3A@250VAC	—	—
Memory Backup	—	10 years	10 years	10 years	5 years

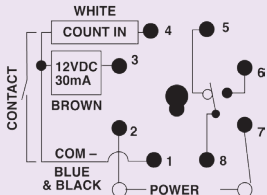
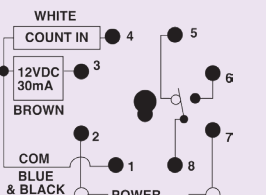
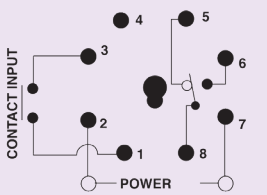
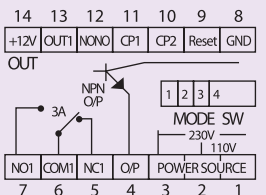
CT SERIES - COUNTER / TIMER

Type	4 Digit High Speed Counter / Timer		6 Digit High Speed Counter / Timer		6 Digit High Speed Counter / Timer		6 Digit High Speed Counter / Timer	
Autonics Supply Voltage: 100-240VAC Functions: Count Up, Down, Up/Down, Timer. Memory Backup: 10 Years								
Code	CT4S-2P4	CT4S-1P4	CT6S-2P4	CT6S-1P4	CT6M-2P4	CT6M-1P4	CT6Y-2P4	CT6Y-1P4
Set Points	Dual Preset	Single Preset	Dual Preset	Single Preset	Dual Preset	Single Preset	Dual Preset	Single Preset
Size(mm) W x H x D	48 x 48 x 90		48 x 48 x 90		72 x 72 x 85		72 x 36 x 77	
Power Supply for Sensors	12VDC 100mA Max							
Input Signal	Voltage input PNP ((H): 5-30VDC (L): 0-2V) or No-voltage input NPN (Selectable by Dip Switch)							
Counting Speed CPS	Selectable 1CPS, 30CPS, 1KCPS, 5KCPS, 10KCPS							
Solid State Output (30VDC/100mA)	1 x NPN		1 x NPN		3 x NPN	2 x NPN	1 x NPN	
Contact Output	2 NO 5A @250VAC	1C/O 5A @250VAC	2 NO 5A @250VAC	1C/O 5A @250VAC	1 NO + 1C/O 5A @250VAC	1C/O 5A @250VAC	1 NO + 1C/O 3A @250VAC	1C/O 3A @250VAC

NEW DIGITAL COUNTERS, HOUR METERS, RATE INDICATORS & TOTALISERS

	6 Digit Digital Counters - IP54			7 Digit Hour Meter & Counter		7 Digit Rate Indicator & Totaliser
  						
Code	Z72FBB	ZJ2FBB	ZH2FBB	Z2301	Z2221	Z3301
Size(mm) H x W x D	24 x 48 x 37			24 x 48 x 66		24 x 48 x 66
Reset	Electrical			Electrical / Front Panel		Electrical / Front Panel
Range	0 - 999999			Hrs:Min:Sec - 999:59:59, Hrs:Min - 99999:59 Hrs/Min/Sec - 9999999, Counter - 1-9999999		1 - 9999999
Count Speed	10Hz	10Hz	30Hz	40Hz	10Hz	0.1-50Hz, Frequency: 0.1Hz-20kHz
Power Supply	85-265VAC	12-48VAC/DC	10-80VDC	9-30VDC	85-265VAC/DC	9-30VDC
Output	—			2 x Solid State 30VDC/60mA	1 NO 5A@250VAC	1 NO 5A@250VAC
Features:	- Built-in Non-Volatile Memory - Wide Range of Supply Voltages - Low Power Consumption			- Prescaling Facility for Counter - Configurable Output - Password Protection - Up / Down Counting - Runtime Set Point Change and Alarm Facility		- Wide Input Range - Prescaling Facility for Rate Indicator - Alarm Facility - Password Protection - Signal Over-Range

COUNTERS & TOTALIZERS

Type	4 Digit Up or Down Counter 0-9999	4 Digit Up or Down Counter 0-9999 with power off memory	3 Digit Up Counter 0-999	4 Digit Counter 6 Digit Totalizer	6 Digit Up or Down Counter
					
Code	AH5K	SC-48*	ASC-3*	NC-4116	NC-611
Relay Outputs	5A @ 250VAC	5A @ 250VAC	5A @ 250VAC	3A @ 250VAC	
Size	48 x 48mm Panel Mount & 8 PIN plug-in c/w mounting bracket	48 x 48mm Panel Mount & 8 PIN plug-in c/w mounting bracket	65 x 50mm Panel cut-out & 8 PIN plug-in	72 x 72mm Panel Mount only	
Specification	Up/Down count to 9999 Auto Reset or Reset by removing power. 12VDC 30mA supply for proximity switches. Input: Contact or NPN proximity sensor (see pages 295-296). IS-18-C3-03 or equivalent. 250CPS	Up/Down count to 9999. Sampling Multiplying Factor. Auto Reset/Manual Reset. Output Relay Delay: 0.1 to 9.9 sec. 12VDC 30mA supply for proximity sensor (see pages 295-296). 500CPS	Up Count to 999 Contact Input. Reset by removing power 20CPS	6 digit pulse counter with delay auto reset, instant reset, auto/man. reset and self hold. Remote start/stop reset. Total reset on front of unit. Selectable 250CPS or 25CPS. Addition/Subtraction Count. Output: Relay and NPN O/P	
Supply Volts	24-240VAC/DC	AC: *110 or *230VAC	AC: *110 and *230VAC	AC: 110 and 230VAC	
Connection Diagram					

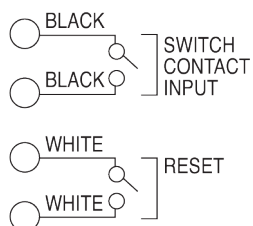
Other Counters - Mechanical Pulse Counters 6 Digits

Panel Mount Without Reset		Panel Mount With Reset		Base Mount - Without Reset
				
AC Code	DC Code	AC Code	DC Code	DC Code
NX-06P 24VAC	FX-06P 12VDC	E-16Y 24VAC	E-16Y 12VDC	LFC-6N 12VDC
-	FX-06P 24VDC	E-16Y 110VAC	E-16Y 24VDC	LFC-6N 24VDC
-	-	E-16Y 220VAC	-	-
Count Speed 10CPS Panel cutout 25 x 40mm	Count Speed 20CPS Panel cutout 19 x 30mm	Count Speed 10CPS Panel cutout 25 x 45mm	Count Speed 10CPS Panel cutout 25 x 45mm	On-time continuously rated at rated voltage Count Speed 10CPS

TOTALIZER

LCD Totalizer – Battery Operated

Size 56 x 31mm
Panel cutout
50 x 25mm



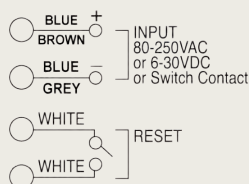
Speed	No Reset	With Reset
10Hz	LC8MC1	LC8MC1R
50Hz	LC8MC3	LC8MC3R

- 8 digit LCD totalizer (up count) with external reset
- Contact Input
- 2 x AA batteries included
- Estimated Battery life is 3 years
- Low battery indication

HOURL METERS

LCD Hour Meter

Size 56 x 31mm
Panel cutout
50 x 25mm



Range	Input	Code
999999H59M	80-250VAC	LT8MA1
999999H59M	Contact	LT8MC1
999999H59M	6-30VDC	LT8MD1

- 8 digit LCD Hour Meter with External reset
- 2 x AA batteries included
- Estimated Battery life is 3 years
- Low battery indication

For more hour meters see page 11.1

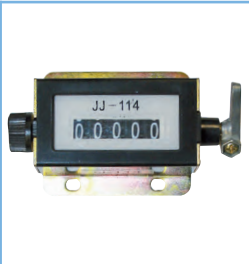
MECHANICAL COUNTERS

Tally Counters		Road Counter		
Hand Tally	Desk Tally			
				
Code	H102	D102C	WM-12M	WM-08
	• 4 Digit Counter • Ideally used for traffic surveys, assembly line parts counting, attendance at any functions etc.	• 4 Digit Counter • Ideally used for traffic surveys, assembly line parts counting, attendance at any functions etc.	• 320mm (12") wheel • Accuracy 99.96% • Carry bag included • Telescopic handle • Kick Down Stand • Handle Reset	• 160mm wheel • Accuracy 99.96% • Carry bag included • Telescopic handle • Reset

Revolution Counters

		
Code	JJ-75-I	JJ-67-1
Digits	5	5
Digit Size (mm)	8	4.4
Max Speed	350rpm	350rpm
Reset	Lever	Wheel
Size (mm)	147 x 72 x 57	80 x 37 x 30

Stroke Counters

					
Code	JJ-75-II	JJ-108A	JJ-1142	JJ-114	JJ-101
Digits	5	5	6	5	5
Digit Size (mm)	8	4.4	4.4	4.4	4
Max Speed	500c/s	500c/s	500c/s	500c/s	500c/s
Reset	Lever	Non-Reset	Wheel	Wheel	Wheel
Size (mm)	119 x 72 x 57	50 x 42 x 35	86 x 47 x 34	80 x 46 x 32	65 x 37 x 32

Position of lever on shaft, variable according to requirements. Automatic return to initial position after each impulse.

CABLE MEASUREMENT SYSTEMS



RM35 Digital Length Measuring

Code	RM35
Display Unit	Meters/Feet
Measuring Range	0.5 - 99999.99m
Cable Diameter	Ø 2 - 32mm
Max Speed	1m/s
Features:	• Durable Lithium Ion battery • 1.5" LCD Display (with backlighting) • Measuring accuracy (III - > 10 m ± 1 %) • Calibration capable • Totalling function

DPM


System Case



Mounting Plate



Belt Clip + Anchor Pad



Guide Jaws

Kit Included Parts and Accessories

1 x RM35, 1 x belt with clip system 1200 mm, 1 x anchor pad, 1 x mounting plate system case, 2 x guide jaws grey (Ø 12 mm / 18 mm), 2 x guide jaws red (Ø 6 mm / 24 mm), 1 x USB-C charging cable, 1 x RUNPOTEC system case, 1 x mains plug

CABLE MANAGEMENT ROLLERS

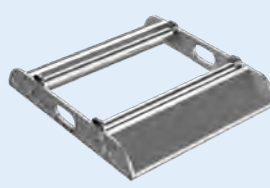
Cable Rollers

	+		Product Application	
Code	XB300+MM	XB500	RP-MM	VE13801
Description	Profi-Cable Roller c/w Multi-Function Mandrel	Profi-Cable Roller	Multi-Function Mandrel Attachment	Kabelrolator Cable Decoiler
Load Bearing Capacity	300 kg	800 kg	-	1000Kg
Dimensions	291 x 291 x 101mm	530 x 530 x 150mm	294 x Ø 430mm (extended)	87.5 x Ø 240 mm
Features	• Lightweight: 3,6 & 6,94 Kg • Non-slip and stable base • Universal cable drum rewinder/unwinder • Adjustable Mandrel height, when used with Multi-Function Mandrel	• Manage and secure loose cable bundles • Multi-Function Mandrel can be used to manage loose cable or conduit bundles	• Unlimited cable drum width • Cable drum up to Ø1000mm • Light Weight and Portable	

Quick Roll Basic

Quick Roll Original + XL

Cable Drum Lifter Set



Code	VE14601	VE12801	VE12802	RP-4500-1150	RP-4500-1350	RP-4500-1600
Max Drum Width	458 mm	515 mm	660 mm	800mm	1000mm	1250mm
Drum Shaft Length	-	-	-	1150mm	1350mm	1600mm
Max Cable Drum Ø	150 - 600 mm	200 - 700 mm	200 - 700 mm	1600mm	1600mm	1600mm
Load Bearing Capacity	120 Kg	200 Kg	250 Kg	4500 kg	4500 kg	4500 kg
Features:	• Durable, chip and wear resistant powder coated finish • Roller spacing adjustable to fit different size cable drums. • Practical and efficient design • Anti slip, stable rubber feet	• Lightweight and durable aluminium body and stainless steel rollers • Roller spacing adjustable to fit different size cable drums. • Safety ramps with anti slip design, for loading and off loading of drums and bobbins		• Compact and easy to transport, this includes dual lifting supports with a 2-speed gearbox • One gear facilitates winding/unwinding, while the other is ideal for loading. Switchable with a crank pull. • Centering cones with quick-release fasteners ensure swift and accurate drum fixation • The drum shaft features two plain bearings for effortless rolling		

NEW

INDUSTRIAL RELAYS

	Interface Relays		Base for AS14F-LS Relays	
• Slim Size • 35mm Din Rail Mountable (Base) • LED indicator • Lockable test button and inspection window				
Coil Voltage	1C/O 12A	1C/O 8A		
230VAC	AS14-LS-1Z 230VAC	AS14-LS-2Z 230VAC		
110VAC	AS14-LS-1Z 110VAC	AS14-LS-2Z 110VAC		
24VDC	AS14-LS-1Z 24VDC	AS14-LS-2Z 24VDC		
Wiring Diagrams				
			Code	Description
			PRF05A-E	Screw Terminal Bases For AS14-LS 1Z
			PRF08A-E	Screw Terminal Bases For AS14-LS 2Z

PCB RELAYS

JQX - Series PCB Relays - 5mm Pin Spacing			
Voltage	1C/O 10A	2C/O 5A	1C/O 16A
12VDC	JQX-14FC-1C 12VD	-	JQX-14FC-1CH 12VD
24VDC	-	-	-
48VDC	JQX-14FC-1C 48VD	JQX-14FC-2C 48VD	-
JQX - Series PCB Relays - 3.5mm Pin Spacing			
12VDC	JQX-14FC-1C 12VD/3.5	-	-
24VDC	JQX-14FC-1C 24VD/3.5	-	-
Base 10A 250V for JQX Relay IP20			
Code	Description		
PSF14AE/L	For E-Relays 5mm PIN spacing		

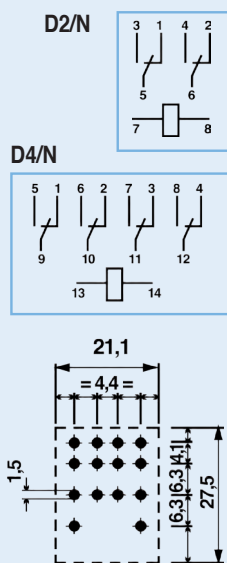
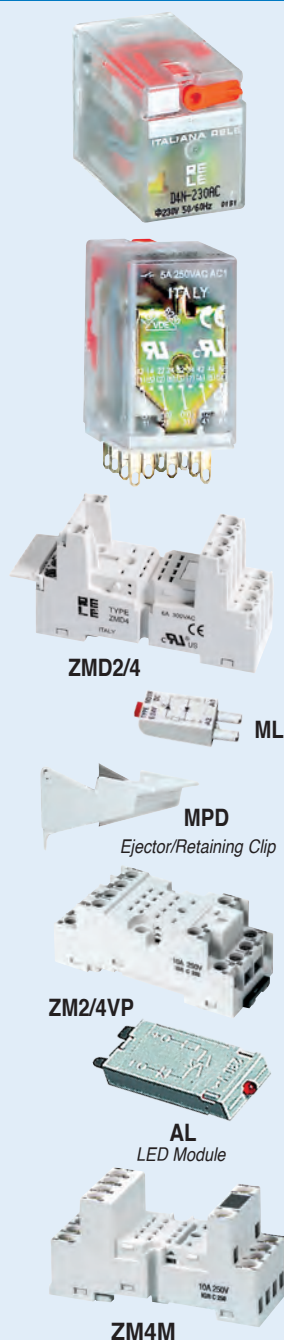
T73-Series - 10A 1C/O Relays			
Description	Code	Coil Voltage	
1 C/O 10A @ 250VAC	T73 12VDC	12VDC	
	T73 24VDC	24VDC	

TRK22F Series - PCB Miniature Relays			
Description	Low Profile Relay	Relay	Coil Voltage
2 C/O 1.25A	TRK22F/D 5VDC	TRK22F 5VDC	5VDC
Hermetically	TRK22F/D 12VDC	TRK22F 12VDC	12VDC
Sealed	TRK22F/D 24VDC	TRK22F 24VDC	24VDC

TRK17F Series - PCB Relays			
Description	Code	Coil Voltage	
1C/O 7A	TRK17F 12VDC	12VDC	
Hermetically	TRK17F 24VDC	24VDC	
Sealed			

TRK Series - Latching PCB Relays			
Description	Code	Latch	De-Latch
1C/O 7A	TRK18 12VDC	12VDC	-3 to 6 VDC
Bi-stable latching Relay	TRK18 24VDC	24VDC	-6 to 12 VDC
One pulse energises and latches the relay. A second reverse polarity pulse of lower voltage de-latches the relay			

RELAYS & BASES



D - Series Relays - c/w Flag Indication and Mechanical Latch

1 C/O 16A	2 C/O 10A	3 C/O 5A	4 C/O 5A	AC	DC
--------------	--------------	-------------	-------------	----	----

Base Mounting



Note: 1 C/O & 3 C/O Types are available while stocks last

D1/N	D2/N	—	D4/N	6VAC	6VDC
D1/N (12VAC)	D2/N	D3/N(12VDC)	D4/N	12VAC	12VDC
—	D2/N	D3/N	D4/N	24VAC	24VDC
—	D2/N	—	—	—	36VDC
—	D2/N	D3/N(48VDC)	D4/N	48VAC	48VDC
—	—	—	D4/N	60VAC	60VDC
—	D2/N	D3/N	D4/N	110VAC	110VDC
—	D2/N	D3/N	D4/N	230VAC	220VDC

PCB Mounting



—	D2/P	—	D4/P	—	12VDC
D1/P(24VDC)	D2/P	—	D4/P	24VAC	24VDC
—	D2/P	—	D4/P	110VAC	—
—	D2/P	—	D4/P	230VAC	—

Bases & Accessories for D-Series Relays

Compact Screw Terminal Base - IP20

300V/12A (2P), 6A (4P); LED modules available

Description	Width	Code
For D1 & D2 Relays	26mm	ZMD2
For D4 Relays	26mm	ZMD4
Ejector/Retaining Clip	—	MPD
LED Module	—	ML*

*Add Voltage: 24, 110, 230VAC/DC

Compact Screw Terminal Base - IP20

250V/10A; LED & Diode modules available

For D1 & D2 relays	30mm	ZM2VP
For D3 relays	30mm	ZM3VP†
For D4 relays	30mm	ZM4VP

†Does not accept LED module

LED Module for: ZM2VP / ZM4VP / ZM4M	AL*
---	-----

*Add Voltage 024, 060, 230 (110-230VAC/DC)

Diode Module	A-D
--------------	-----

Compact Screw Terminal Base - IP20

250V/10A Suitable for Diode or LED modules

For D4 Relays	ZM4M
---------------	------

Printed Circuit Base - 250V/10A

Description	Code
For D1 & D2 Relays	ZM2CS
For D3 Relays	ZM3CS
For D4 Relays	ZM4CS
For D6 Relays	ZM6CS
For D8 Relays	ZM8CS

Panel Mount Base - 250V/10A

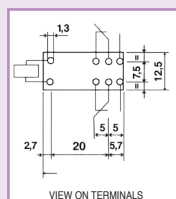
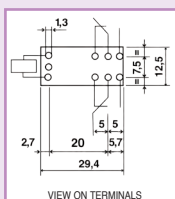
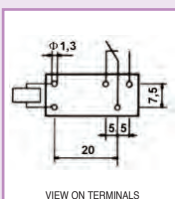
Description	Code
For D1 & D2 Relays	ZM2SP
For D3 Relays	ZM3SP
For D4 Relays	ZM4SP

Retaining Clips

Description	Code
D1 to D4 Relays	MBD
For ZM4M base	MBM

E-Series PCB Relays

Standard Relays			Latching Bi-Stable Relays			Voltages	
2 C/O 5A	1 C/O 10A	1 C/O 16A	1Coil 1C/O 10A	1 Coil 2 C/O 5A	2 Coil 2 C/O 5A	AC	DC
E52/S	E51/S	—	—	—	—	—	4VDC
E52/S	E51/S	E61/S	—	—	—	6VAC	6VDC
E52/S	E51/S	E61/S	—	—	—	—	9VDC
E52/S	E51/S	E61/S	—	RT424A12	RT424F12	12VAC	12VDC
E52/S	E51/S	E61/S	—	RT424A24	RT424F24	24VAC	24VDC
E52/S	E51/S	E61/S	—	—	—	36VAC	36VDC
E52/S	E51/S	E61/S	—	—	—	48VAC	48VDC
E52/S	E51/S	E61/S	—	—	—	60VAC	60VDC
E52/S*	E51/S	E61/S	—	—	—	110VAC*	110VDC
E52/S	E51/S	E61/S	—	—	—	230VAC	—
—	—	—	E51/R1	E52/R1	—	230VAC/DC	—



RELAYS & BASES

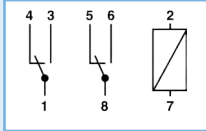
C - Series Relays - 10A 250V - c/w Flag and LED Indication



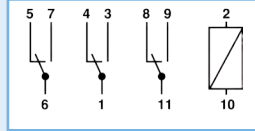
C43



C42 8 Pin



10A 8 pin
10A 11 pin



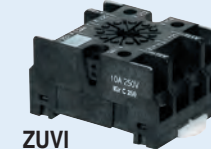
C43 11 Pin

	8 Pin 2 C/O	11 Pin 3 C/O	AC	DC
C42	-	-	6VAC	-
C42	C43	-	-	12VDC
C42	C43	-	24VAC	24VDC
C42	-	-	36VAC	-
C42	C43	-	48VAC	48VDC
C42	C43	-	60VAC (C42)	60VDC
C42	C43	-	110VAC	110VDC
C42	C43	-	230VAC	220VDC (C42)

Bases for C42 & C43 Relays



ZOV1



ZUV1

Screw Terminal Base (IP20) 250V/10A

Description	Width	Code
8 PIN	40mm	ZOV1
11 PIN	43mm	ZUV1



Screw Terminal Base (IP20) 250V/10A

Description	Width	Code
8 PIN	38mm	ZVO
11 PIN	38mm	ZVU

Suitable for LED module

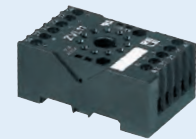
Solder Panel Mount Base - 250V/10A

Description	Width	Code
8 PIN	-	AZOS
11 PIN	-	AZUS



Screw Terminal Oval Base (IP20) 300V

Description	Width	Code
8 PIN (black)	38mm	BOV
11 PIN (black)	38mm	BUV



Screw Terminal Base (IP20) 400V/10A

Description	Width	Code
8 PIN	38mm	ZVE8
11 PIN	38mm	ZVE11



Solder Cable Cover Base - 250V/10A

Description	Width	Code
8 PIN	-	ZOQS
11 PIN	-	ZUQS



Printed Circuit Base - 250V/10A

Description	Width	Code
8 PIN	-	AZOCS
11 PIN	-	AZUCS



Screw Terminal Base (IP00) 250V/10A

Description	Width	Code
8 PIN	36mm	ZROV
11 PIN	36mm	ZRUV

Accessories

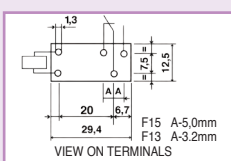


Description	Code
Retaining clip for C42 & C43 relays	MBOU
Diode Module for ZVO & ZVU	A-D
LED Module for ZVO & ZVU	AL*

*Add voltage 024, 060, 230 (110-230VAC/DC)



GN12/13



G-Series - Low-profile hermetically sealed PCB Relays

Volts DC	3.5mm Pin spacing	5mm Pin spacing		
	12A (1C/O)	12A (1C/O)	16A (1C/O)	8A (2C/O)
12V	GN13-1C 12VDC	GN12-1C 12VDC	GN16-1C 12VDC	GN8-2C 12VDC
24V	GN13-1C 24VDC	GN12-1C 24VDC	GN16-1C 24VDC	GN8-2C 24VDC
48V	-	-	-	GN8-2C-48VDC

Bases for E-Series Relays 10A 250V & Retaining Clips

Bases for E & G-Series Relays 10A 250V



Screw Terminal - IP20

Description	Code
For E & F15 relays	ZME5
For F13 relay	ZME3

Retaining Clip

Code	MPE
With eject function	

LED Module * Add voltage to code: 024, 060, 110, 230VAC/DC

Description	Code
Fits ZME3 and ZME5 bases only	ML*



Printed Circuit Base IP20

Description	Code	Code
For GN13 relays 3.5mm pin spacing	ZMECS/3.5	MBE

Retaining Clip



Screw Terminal - IP20

Description	Code
For E relays	ZMEM/5

Retaining Clip

Code	MEM
------	-----

Screw Terminal - IP20

Description	Code
For E relays	ZMEP/5

Retaining Clip

Code	MEM
------	-----



Printed Circuit Base IP20

Description	Code	Code
For E & F15 relays 5.0mm pin spacing	ZMECS/5	MBE

Retaining Clip

INDUSTRIAL RELAYS

Type	8 Pin Plug-in Relay Flat	14 Pin Plug-in Relay Flat	8 Pin Plug-in Relay Flat	14 Pin Plug-in Relay Flat
RELAYS - Test button function - Flag plus LED - Orange for AC - Blue for DC				
Relay Type	2 Pole Change Over (10A)	4 Pole Change Over (5A)	2 Pole Change Over (10A)	4 Pole Change Over (10A)
*AC	*DC	*Add voltage to code	*Add voltage to code	*Add voltage to code
230VAC	230VDC	R5502-*L (230VAC)	R5504-*L	R5602-*L (230VAC)
110VAC	110VDC	R5502-*L (110VAC)	R5504-*L (110VAC)	R5602-*L
24VAC	24VDC	R5502-0*L	R5504-0*L	R5602-0*L
12VAC	12VDC	R5502-0*L (12VDC)	R5504-0*L (12VDC)	R5602-0*L
Wiring Diagram				

Bases for R5502 & R5504 Relays - 300V/10A **IP20**



RB944-14F



ZM3VP

Bases for R5602 & R5604 Relays - 300V/10A **IP20**

RE1



ZM6V



ZM8V

Code	Description
RB943-08F	8 Pin blue screw terminal base for 2 pole relays
RB944-14F	14 Pin blue screw terminal base for 2 & 4 pole relays

Code	Description
ZM6V	Screw Terminal Base for R5602
ZM8V	Screw Terminal Base for R5604



RE1

AB - Series Relays 10A

2 C/O 10A	3 C/O 10A	Volts	
		AC	DC
AB2	AB3	12 VAC	12 VDC (AB2)
AB2	AB3	24 VAC	24 VDC
AB2	-	48 VAC	48 VDC
AB2	AB3	110 VAC	110 VDC (AB2)
AB2	AB3	230 VAC	-

Bases for AB2 & AB3 Relays - 250V/10A **IP20**

RE1



ZAV/A



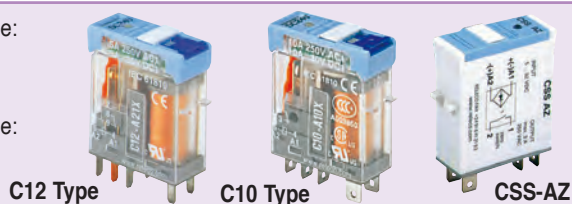
ZACS

Code	Description
ZAV/A	Screw Terminal Base for AB2/AB3 relay
ZACS	P.C.B. base for AB2/AB3 relay

Interface Relays

*Add coil voltage to code:
230VAC, 110VAC,
24VDC

*Add coil voltage to code:
24VDC, 230VAC



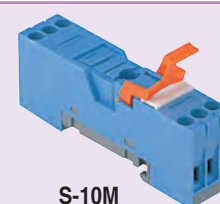
C12 Type

C10 Type

CSS-AZ

Code	Description
C10/A10/*	1 c/o 10A relay, plug-in type
C12/A21/*	2 c/o 5A relay, plug-in type
CSS-AZ	Solid-state relay, Input 5-32VAC Out switch 3A@250VAC

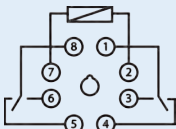
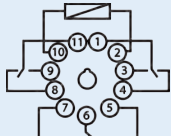
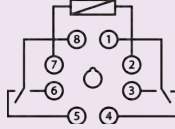
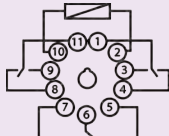
Bases for Interface Relays - **IP20**



S-10M

Code	Description
S-10M	Base for C10/C14 relay 250V/16A

INDUSTRIAL RELAYS

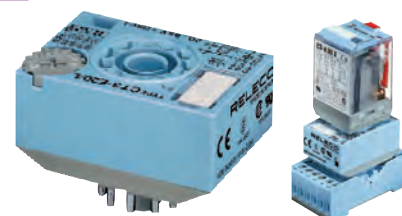
Type	8 Pin Plug-in Relay	11 Pin Plug-in Relay	8 Pin Plug-in Relay	11 Pin Plug-in Relay
UL recognised, CE approval				
Colour coding: Orange: AC Blue: DC				
Relay type	2 Pole Change Over (10A)	3 Pole Change Over (10A)	2 Pole Change Over (10A)	3 Pole Change Over (10A)
*AC *DC	*Add voltage to code	*Add voltage to code	*Add voltage to code	*Add voltage to code
380VAC —	—	—	C2/A20/*	—
230VAC 220VDC	R6002-*L (230VAC)	R6003-*L	C2/A20/* (230VAC)	C3/A30/* (230VAC)
110VAC 110VDC	R6002-*L (110VAC)	R6003-*L	C2/A20/* (110VAC)	C3/A30/*
60VAC —	—	R6003-*L	—	—
48VAC 48VDC	R6002-0*L (48VDC)	R6003-0*L (48VDC)	C2/A20/*	—
36VAC 36VDC	R6002-0*L	R6003-0*L	—	C3/A30/*
32VAC 32VDC	R6002-0*L	R6003-0*L	—	C3/A30/* (32VDC)
24VAC 24VDC	R6002-0*L	R6003-0*L	C2/A20/* (24VDC)	C3/A30/*
12VAC 12VDC	R6002-0*L	R6003-0*L	C2/A20/* (12VDC)	—
6VAC 6VDC	R6002-00*L (6VDC)	R6003-00*L	C2/A20/* (6VDC)	—
Features	Test button function Flag plus LED	Test button function Flag plus LED	Test button function & Flag ind	Test button function & Flag ind
Wiring Diagram				



Screw Terminal Bases for R6002 & R6003 Relays - IP20 300V/10A

Code	Description
BOV-B	8 Pin oval base blue
BUV-B	11 Pin oval base blue
RB750-08R	8 Pin rectangle base blue
RB740-11R	11 Pin rectangle base blue

Timers IP40



Code	Description
CT2A *	8 Pin Delay OFF timer
CT3A *	11 Pin Delay OFF timer
CT2B *	8 Pin Equal Repeating timer
CT3B *	11 Pin Equal Repeating timer
CT2E *	8 Pin Delay ON timer
CT3E *	11 Pin Delay ON timer
CT2K *	8 Pin one-shot pulse start timer
CT3K *	11 Pin one-shot pulse start timer
CT2W *	8 Pin one-shot timer
CT3W *	11 Pin one-shot timer

*Add voltage to code:

S (9.5-18VDC for timer A, B, E, K & W)
L (20-65VAC/DC, for timer A, B, E, K & W)
M (90-150VAC/DC for timer A & K),
U (180-265VAC/DC for timer A & K),
H (90-265VAC/DC for timer B, E & W)

The module CT2 & CT3 are electronic timers which are designed to be inserted between a standard plug-in relay and its socket, enabling the relay to be operated as a timer relay. The relay coil voltage must be in the range shown for each model.



Screw Terminals - IP20 300V/10A

Code	Description
RB083-08R	8 Pin rectangle base blue
RB113-11R	11 Pin rectangle base blue

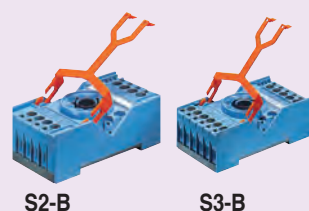


Screw Terminals - IP20 300V/10A

Code	Description
PM-S11D	11 Pin rectangle DIN mount base

Retainer clip secures relay to the socket protecting against vibration

PM-S11D



Bases for C2/A20 & C3/A30 IP20 250V/10A

Code	Description
S2-B	8 Pin rectangle base
S3-B	11 Pin rectangle base

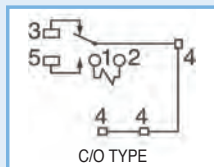
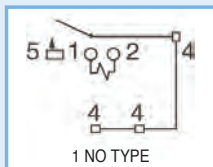
Unique retainer clip securing module to socket providing protection against vibration.

POWER RELAYS



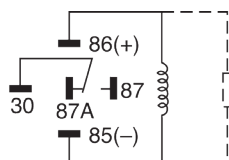
F1/C
F1/L

F2



F-Series - Automotive Relays

Description	Code	Coil Voltage
1 C/O 30A Open type	F1/C 12VDC	12VDC
	F1/C 24VDC	24VDC
1 C/O 30A Enclosed type	F1/L 12VDC	12VDC
	F1/L 24VDC	24VDC
1 NO 30A Open type	F2 12VDC	12VDC
	F2 24VDC	24VDC



Diode or
Resistor
if Used

TRK-Series - Automotive Relays 30A, 80A 1C/O

Description	Code	Coil Voltage
1 C/O 30A	TRK792 12VDC	12VDC
	TRK792 24VDC	24VDC
1 C/O 80A	ALB-80 12VDC	12VDC
	ALB-80 24VDC	24VDC



CGB-1C



JQX-30F

CGB & JQX-30F Series

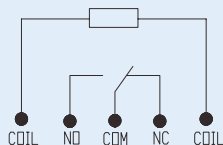
Description	40A 1C/O	20A 2C/O	Coil Voltage
Chassis Mount	-	JQX-30F	12VDC
	-	JQX-30F	24VDC
	CGB-1C	JQX-30F	110VAC
	-	JQX-30F	230VAC



JQX-50F Series

Description	Code	Coil Voltage
1 C/O 30A	JQX-50F	12VDC
Chassis Mount	JQX-50F	24VDC
Screw Terminals	JQX-50F	40VDC
	JQX-50F	110VAC
	JQX-50F	230VAC

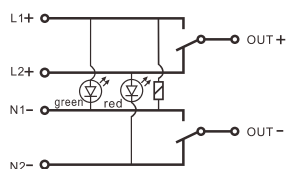
NEW



AS60FN DIN Power Relay

Description	Code	Coil Voltage
1 C/O 60A @250 VAC/30VDC	AS60FN-L-230VAC	230VAC
Quick Screw Connection	AS60FN-L-24VDC	24VDC
Easy Din Rail Installation		

NEW



AS60FN DIN Power Relay / Change-over

Description	Code	Coil Voltage
2 C/O 120 A @250 VAC/30VDC	AS62FA-NL-230VAC	230VAC
Din Rail Installation	AS62FA-NL-24VDC	24VDC
Automatic Switching between Mains and Back Up Power		



A1/2

A - Series Relays - For use with fast-on connectors

Type	1 N/O 30A	1 N/C 30A	2 N/O 16A	1 C/O 16A	Coil Voltage	
					AC	DC
RE1	A1/1	-	A1/2	A1/A	12 VAC	12 VDC
	A1/1	-	A1/2	A1/A	24 VAC	24 VDC
	A1/1	-	A1/2	A1/A	110 VAC	-
	A1/1	A1/R	A1/2	A1/A	230 VAC	-

RELAY INTERFACE MODULES

Open Base Type			Closed Base		Slim Type 5A		Box Type
IMZ DIN Mounting	RB-4/8/12L Fixed Relays	RB-4/8/12LP & LPP Plug-in Relays	RB-1CP RB2-1CP	RB-4/8/12CP	RB-1SL	RB-8SL	RB-4/8/16BT

Code	1-Way	4-Way	8-Way	12-Way	16-Way
SPDT (1C/O) 10A (DIN Mounting)					L & LP with 20 way ribbon plug
Fixed relays open base	–	RB-4L*	RB-8L*	RB-12L*	RB-16L*
Plug-in relays open base	RB-1LP*	RB-4LP*	RB-8LP*	RB-12LP*	RB-16LP*
Plug-in relays closed base	RB-1CP*	RB-4CP*	RB-8CP*	RB-12CP*	RB-16CP*
Slim type	RB-1SL*	–	RB-8SL 24VDC	–	–
Box type	–	RB-4BT 24VDC	RB-8BT 24VDC	–	RB-16BT 24VDC
Base without relay	IMZ	–	–	–	–



16-Way DIN Mounting
L & LP Type

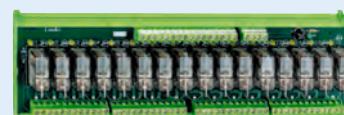
*Add voltage required: 24, 110, 230VAC; 12, 24, 110VDC

*NB: All Codes are for common negative, for common positive add "P" to Code, eg. RB-4LPP

Common Positive only available in LP Range

DPDT (2 C/O) 5A (DIN Mounting)

Fixed relays open base	–	RB2-4L*	RB2-8L*	RB2-12L*	–
Plug-in relays open base	RB2-1LP*	RB2-4LP*	RB2-8LP*	RB2-12LP*	–
Plug-in relays closed base	RB2-1CP*	RB2-4CP*	RB2-8CP*	RB2-12CP*	RB2-16CP*



RB-16CP

*Add voltage required: 24, 110, 230VAC; 12, 24, 110VDC

*NB: All Codes are for common negative, for common positive add "P" to Code, eg. RB2-4LPP

Common Positive only available in LP Range

Inter-Connecting Modules				Opto Coupling Modules			
Flat Connector	Sub-D Connector Male	DC in/DC out	1-Way	4-Way	DC in/AC out		

Code	No. of Poles	Code	No. of Poles	Code 1-Way	Code 4-Way	Input Volts	Output Volts	Output Current
JUM72-16	16-Way	JUM72-D15	15-Way	OCM1-24VDC	–	24VDC	5-48VDC	100mA
JUM72-26	26-Way	JUM72-D25	25-Way	OCM1-220VDC	OCM4-220VDC	240VDC	5-300VDC	100mA
JUM72-34	34-Way	JUM72-D37	37-Way	ET-MS01	ET-MSZ04	24VDC	240VAC	4A
JUM72-40	40-Way	JUM72-D50	50-Way					
JUM72-50	50-Way							

Slim Type Relays

Size:
20mm(L) x
5mm(W) x
12.5mm(H)



Code	Coil Volts	Contact Rating
SA-1A	12VDC (20.4mA)	5A C/O
SA-1A	24VDC (10.2mA)	5A C/O



NB: Not continuously
rated coils (pulse only)

Step Relay (Base Mount) 10A @ 250VAC

Code	No. of Step	Sequences				* Coil Voltage
		1	2	3	4	
AFH-BF01 *	2	1	2			110VAC 230VAC
AFH-BF02 *	2	1	2			24VAC 230VAC
AFH-BF04 *	4	1	2	3	4	12VDC 12VAC 230VAC

SLIM RELAY INTERFACE MODULES

RE1

Solid State



Electro Mechanical



Bus Coupler

Solid state relay interface modules - **IP20** 6.2mm width

Load Voltage	Rated Current	Control Voltage	Terminal Type	Code
0-33VDC	6A	6VDC (5-12V)	Screw	ECLR-24AD-5RS824
		24VDC (17-30V)	Screw	ECLR-24AD-RS824
		240VAC/DC (184-264V)	Screw	EZD-240AD-RS824
12-275VAC	2A	6VDC (5-12V)	Screw	ECLR-24AD-5RS2240
		24VDC (17-30V)	Screw	ECLR-24AD-RS2240
		240VAC/DC (184-264V)	Screw	EZD-240AD-RS2240

Electromechanical relay interface modules - **IP20** 6.2mm width

Rated Current	Control Voltage	Terminal Type	Code
6A	12VAC/DC	Screw	RB-1SL 12VDC
	24VAC/DC	Screw	RB-1SL 24VDC
	110VAC/DC	Screw	RB-1SL 110VAC
	230VAC/DC	Screw	RB-1SL 230VAC

Accessories

Code	Description
EZD-20P	20 Pole bus coupler for parallel connections

NEW

INTELLIGENT SOLID STATE RELAYS

Intelligent Solid State Relay: Effective thermal management by automatically adjusting the load current when temperature reaches more than 110°C. Protects itself from thermal breakdown by reducing the output power to reach thermal balance, thus increasing the service life.

1 Phase Solid State Relays

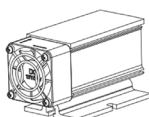
Code	Control Voltage	Load Voltage	Load Current	Size (mm) LxWxH
ISSR-10DA	3-48VDC	24-480VAC	10A	58 x 34.5 x 26
ISSR-25DA	3-48VDC	24w-480VAC	25A	58 x 34.5 x 26
ISSR-40DA	3-48VDC	24-480VAC	40A	58 x 34.5 x 26
ISSR-60DA	3-48VDC	24-480VAC	60A	58 x 34.5 x 26
ISSR-80DA	3-48VDC	24-480VAC	80A	58 x 34.5 x 26
ISSR-90DA	3-48VDC	24-480VAC	90A	58 x 34.5 x 26
ISSR-100DA	3-48VDC	24-480VAC	100A	58 x 34.5 x 26
ISSR-120DA	3-48VDC	24-480VAC	120A	58 x 34.5 x 26

3 Phase Solid State Relays

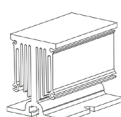
Code	Control Voltage	Load Voltage	Load Current	Size (mm) L x W x H
ITSR-10DA	3-48VDC	24-600VAC	10A	64 x 45 x 28
ITSR-25A	3-48VDC	24-600VAC	25A	64 x 45 x 28
ITSR-40DA	3-48VDC	24-600VAC	40A	64 x 45 x 28
ITSR-60DA	3-48VDC	24-600VAC	60A	64 x 45 x 28

Heat Sink for ISSR & ITSr Solid State Relays

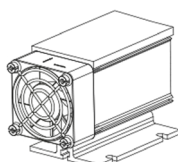
Code	Suggested Combinations	Size (mm) L x W x H
MSR40-L75	1-Phase: 10-25A	75 x 40 x 55
MSR40-L75F	1-Phase: 40-60A with Fan	95 x 40 x 55
MSR60-L80F	1-Phase: 80-120A/ 3-Phase: 25-60A	95 x 60 x 85



MSR40-L75F



MSR40-L75



MSR60-L80F

DC SOLID STATE RELAYS



RD



SSR05DH
SSR01DH
SSR02DH



CT-SSR-5DD

DC Switching Solid State Relays - Size (mm) 42L x 25W x 10D

Load Voltage	Control Voltage	Max. Current 1A	Max. Current 4A	Max. Current 8A
3-60VDC	3-32VDC	-	RD0605-D	-
3-200VDC	3-32VDC	RD2001-D	-	-
3-350VDC	3-32VDC	RD3501-D	-	-

DC Switching Solid State Relays - Size (mm) 28L x 15W x 5D

1-24VDC	3-15VDC	-	-	SSR05DH-874
1-24VDC	15-30VDC	-	-	SSR01DH-874
1-24VDC	35-72VDC	-	-	SSR02DH-874

DC Switching Solid State Relays - Chassis Mount

Load Voltage	Control Voltage	Max. Current 1A	Max. Current 5A
3-60VDC	3-32VDC	-	CT-SSR-5DD

SOLID STATE RELAYS



RS



RM1A



RM1C



R2441



R2425



SSR-VR

RS-Series S.S.R.

Load Voltage	Non-Rep. Peak Voltage	Control Voltage	Max. Current 10A AC1 (2A) AC3	Max. Current 25A AC1 (5A) AC3	Max. Current 40A AC1 (8A) AC3
230VAC _{RMS}	650Vp	4.5-32VDC	RS1A23D10	RS1A23D25	RS1A23D40
		18-36VAC/DC	RS1A23LA10	RS1A23LA25	RS1A23LA40
480VAC _{RMS}	1200Vp	4.5-32VDC	RS1A48D10	RS1A48D25	RS1A48D40
		18-36VAC/DC	RS1A48LA10	RS1A48LA25	RS1A48LA40

- Triac or Alternistor switching mode • LED indication • Protection Cap.
- Zero switching 1 phase solid state relays for resistive, inductive and capacitive loads

RM-Series S.S.R.

Load Voltage	Non-Rep. Peak Voltage	Control Voltage	Max. Current 25A AC1 (5A) AC3	Max. Current 50A AC1 (10A) AC3	Max. Current 75A AC1 (15A) AC3	Max. Current 100A AC1 (20A) AC3
230VAC _{RMS}	650Vp	4-32VDC	RM1A23D25	RM1A23D50	RM1A23D75	RM1A23D100
		24-265VAC 24-48VDC	RM1A23A25	RM1A23A50	RM1A23A75	RM1A23A100
480VAC _{RMS}	1200Vp	4-32VDC	RM1A48D25	RM1A48D50	RM1A48D75	RM1A48D100
		24-265VAC 24-48VDC	RM1A48A25	RM1A48A50	RM1A48A75	RM1A48A100
600VAC _{RMS}	1600Vp	4-32VDC	RM1A60D25	RM1A60D50	RM1A60D75	RM1A60D100
		24-265VAC 24-48VDC	RM1A60A25	RM1A60A50	RM1A60A75	RM1A60A100

- Zero switching 1 phase solid state relay. • Thyristor switching • LED indication • Built-in varistor • Protection Cap

Peak Switching 1 Phase Solid State Relays

400VAC _{RMS}	800Vp	4-32VDC	RM1C40D25	RM1C40D50	-	-
600VAC _{RMS}	1400Vp	4-32VDC	RM1C60D25	RM1C60D50	-	-

For inductive loads with iron core (eg neon lighting transformers)

Analog Switching 1 Phase Solid State Relays (with proportional output)

Load Voltage	Non-Rep. Peak Volts	Control Voltage	Max. Current 25A(AC51)	Max. Current 50A(AC51)
90-280VAC	650Vp	4-20mA DC	RE2425-AA06	RE2450-AA06
265-530VAC	1200Vp	4-20mA DC	RE4825-AA12	RE4850-AA12
90-280VAC	650Vp	0-200K Ω	R2425 (25A)	R2441 (41A) Supplied c/w 100K POT

For resistive, inductive & capacitive loads

Built-in Potentiometer

Load Voltage	Non-Rep. Peak Volts	Control Voltage	Max. Current 10A	Max. Current 15A	Max. Current 25A	Max. Current 40A
24-380VAC	600V Peak	Pot -fixed	SSR-VR2-10	SSR-VR2-15	SSR-VR2-25	SSR-VR2-40

For resistive, inductive & capacitive loads. Isolation Voltage: >2500VRMS

SOLID STATE CONTACTORS



Code	Poles	Operational Voltage	Current Rating		Control Voltage	Ultra Fast Fuse
			AC1	AC3		
SSRSC1-15	1	24-240VAC	15A	3A	24-230VAC/DC	15A
SSRSC1-30	1	24-240VAC	30A	7A	24-230VAC/DC	30A
SSRSC1-50	1	24-240VAC	50A	12A	24-230VAC/DC	50A
SSRSC2-30	2	48-600VAC	30A	7A	24-230VAC/DC	30A
SSRSC2-50	2	48-600VAC	50A	12A	24-230VAC/DC	50A
SSRSC3-10	3	48-600VAC	10A	2A	24-230VAC/DC	10A

Specification • LED status indication • Integrated heatsink • **IP20** protection • Bounce free & Arcless switching
• Built-in varistor protection • For motor, lamps, heaters, etc • Zero crossing commutation • High switching frequency

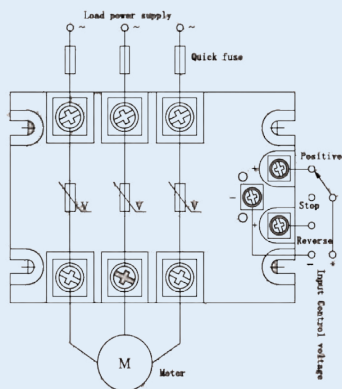
INDUSTRIAL SOLID STATE RELAYS



Single Phase



Three Phase



1 Phase Solid State Relays

Code	Line Voltage AC	Di-Electric Strength	Contol Voltage	Maximum Current
HHG1C-1/32F-1206	60-1200VAC	2.5kV	3-32VDC	60A
HHG1C-1/32F-1208	60-1200VAC	2.5kV	3-32VDC	80A
HHG1C-1/32F-1210	60-1200VAC	2.5kV	3-32VDC	100A
HHG1C-1/32F-1215	60-1200VAC	2.5kV	3-32VDC	150A
HHG1C-1/32F-1220	60-1200VAC	2.5kV	3-32VDC	200A
HHG1C-1/32F-1225	60-1200VAC	2.5kV	3-32VDC	250A

Specification • Insulation Resistance: 500MΩ 500 VDC • Voltage Drop: Less than 1.6 VAC
• Ambient Temperature: - 30 - 80°C • Working Indicator: LED

3 Phase Solid State Relays

Code 3-32VDC Control	Code 90-250VAC Control	Line Voltage	Di-Electric Strength	Maximum Current
HHG1-3/32F10	HHG1-3/250F10	440VAC	2500VAC	10A
HHG1-3/32F20	HHG1-3/250F20	440VAC	2500VAC	25A
HHG1-3/32F40	HHG1-3/250F40	440VAC	2500VAC	40A
HHG1-3/32F60	-	440VAC	2500VAC	60A
HHG1-3/32F80	HHG1-3/250F80	440VAC	2500VAC	80A
HHG1-3/32F100	HHG1-3/250F100	440VAC	2500VAC	100A
HHG1-3/32F120	HHG1-3/250F120	440VAC	2500VAC	120A

Specification • Insulation Resistance: 500MΩ / 500VDC • Voltage Drop: Less than ≤1.6VAC • Zero Cross Switching
• Temperature: - 30 - 80° • Working Indicator: LED • Control Current: 5-30mA • On-Off Time ≤10ms

3 Phase Solid State Reversible Relays

Line Line Voltage AC	Di-electric Strength	Control Voltage**	Max. Current 10A	Max. Current 25A	Max. Current 40A
400V	2500VAC	4.5 - 5.5VDC	HHG1F-3/5 10A	HHG1F-3/5 25A	HHG1F-3/5 40A
400V	2500VAC	9 - 11VDC	HHG1F-3/10 10A	HHG1F-3/10 25A	HHG1F-3/10 40A

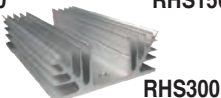
****Note:** control voltage must not be exceeded

SSR ACCESSORIES & HEAT SINKS



RHS120

RHS150



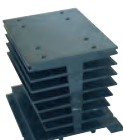
RHS300



RHS100



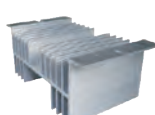
RHS45A



RHS301



RHS180



RHS127

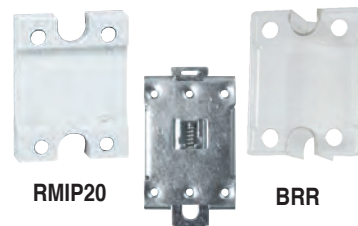


RHS105

Heat Sinks

Code	Size (mm) L x W x D	SSR	Mounting
RHS45A	100 x 50 x 96	1-Phase	DIN Rail / Screw
RHS100	85 x 45 x 82	1-Phase	DIN Rail
RHS127	127 x 70 x 50	1-Phase	Screw
RHS180	180 x 125 x 50	1-Phase	Screw
RHS300	150 x 88 x 35	3-Phase	Base Mount
RHS301	115 x 100 x 96	3-Phase	DIN Rail / Screw
RHS105	105 x 100 x 80	3-Phase	Screw
RHS150	150 x 125 x 135	3-Phase	Screw c/w fan
RHS120	200 x 125 x 135	3-Phase	Screw c/w fan

Accessories



RMIP20

BRR

RHS00

Code	Description
RMIP20	Spare cover for RS1 & RM1
RHS00	DIN rail adaptor for 1 phase
BRR	Clear cover for 1 Phase