

This document must be retained for future reference.

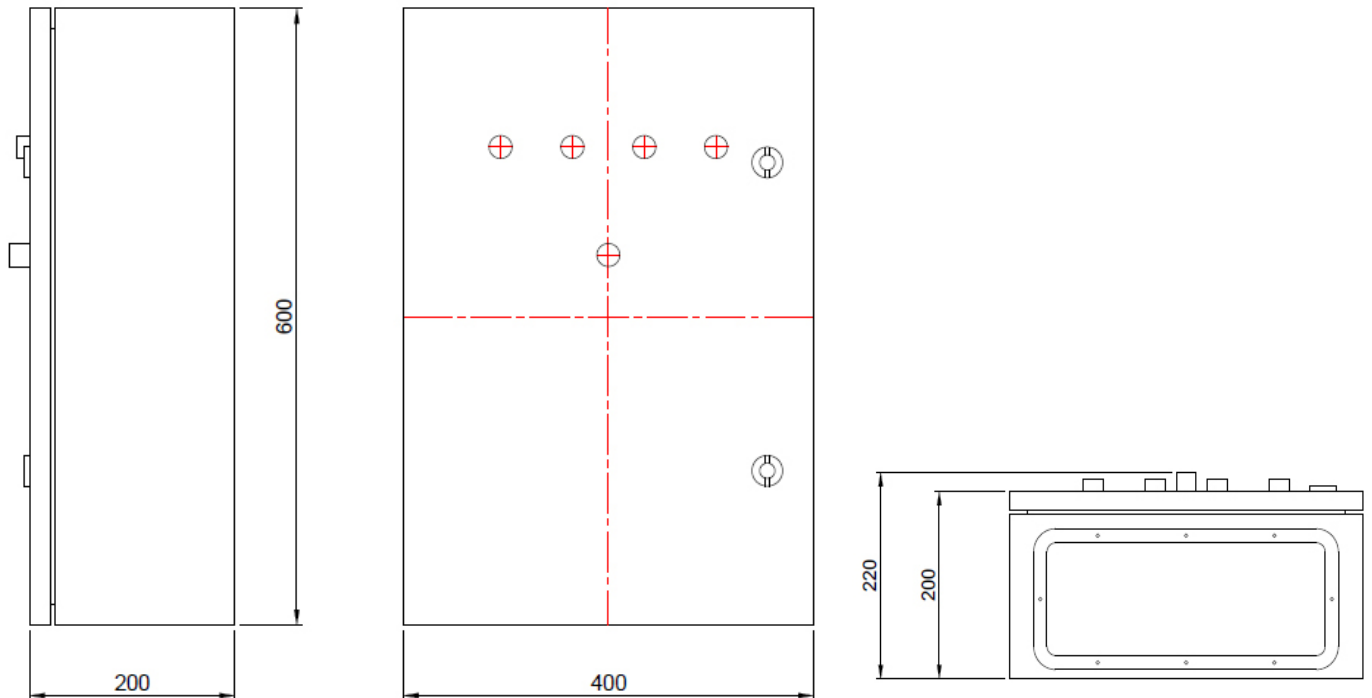
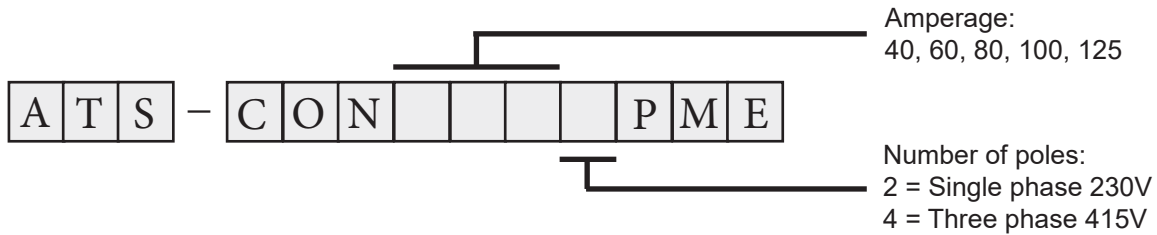
It is the responsibility of the person installing the electrical equipment to ensure that the installation meets the requirements of the IET wiring regulations and is therefore 'fit for purpose'. Factors such as correct selection of components, cable sizing, protective devices and Earth bonding are all critical and should be checked prior to full testing and power-up. Any other regulations applicable to the equipment being installed such as the Machinery Directive and current health and safety legislation must also be adhered to.

All connections (including factory made) must be checked for the correct tightness prior to commissioning of the electrical installation. All connections should also be inspected periodically to ensure correct tightness.

DO NOT USE POWER TOOLS ON THESE PRODUCTS

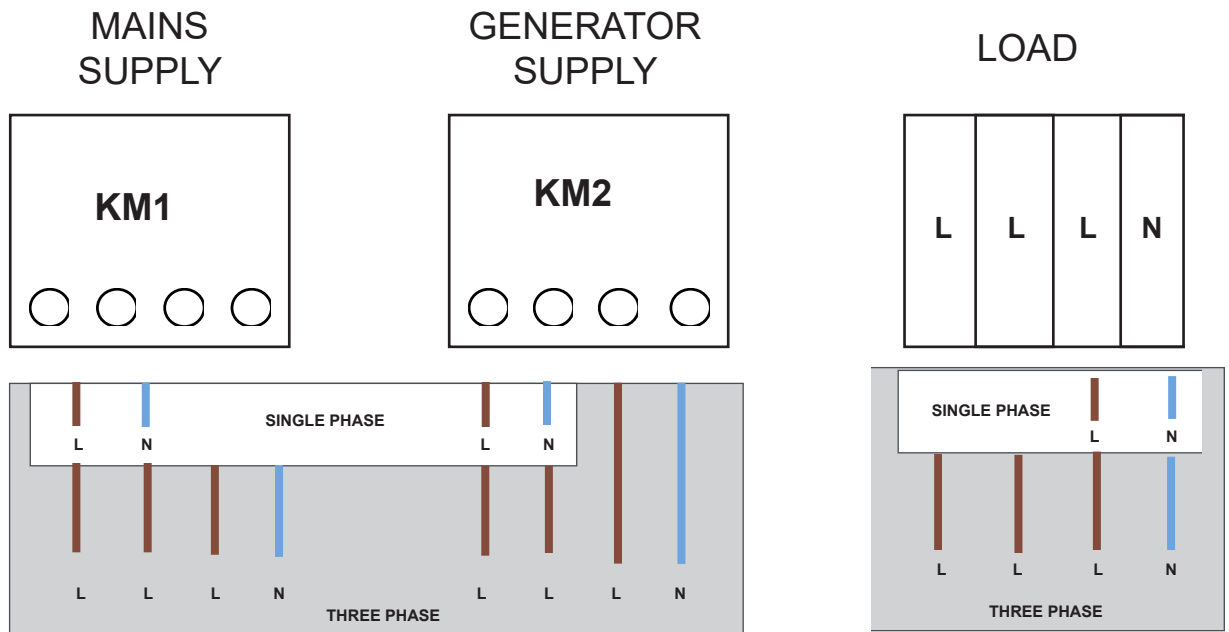


Automatic Transfer Switch (ATS)



Maximum Cable size	mm²	10	16	25	35	50
Operational Current AC1	A	40	60	80	100	125
Compliance / Approvals	Low Voltage Control Gear & Switch Gear					
British / European / International Standard	BS/EN/IEC 60947-6-1					

Wiring Diagram



Parameter Settings;

Mains Failure Relay (MFR)

Set the overvoltage and undervoltage thresholds, hysteresis and time delay in accordance with the phase failure relay datasheet.

Delay On Start Timer (DOST)

Set the time for how long you want to delay the generator start signal following the loss or under/over voltage of the mains supply. Reference ECTDOFF datasheet. Please see footnote.

Mains Return Timer (MRT)

Set the time for how long you want to delay the ATS from returning the load back to the mains supply following the mains supply being available. Reference ECTON datasheet.

Cool Down Timer (CDT)

Set the time for how long you want to delay the generator stop signal following the load being transferred back to the mains supply. Reference ECTDOFF datasheet.

Changeover Timer (DOCT)

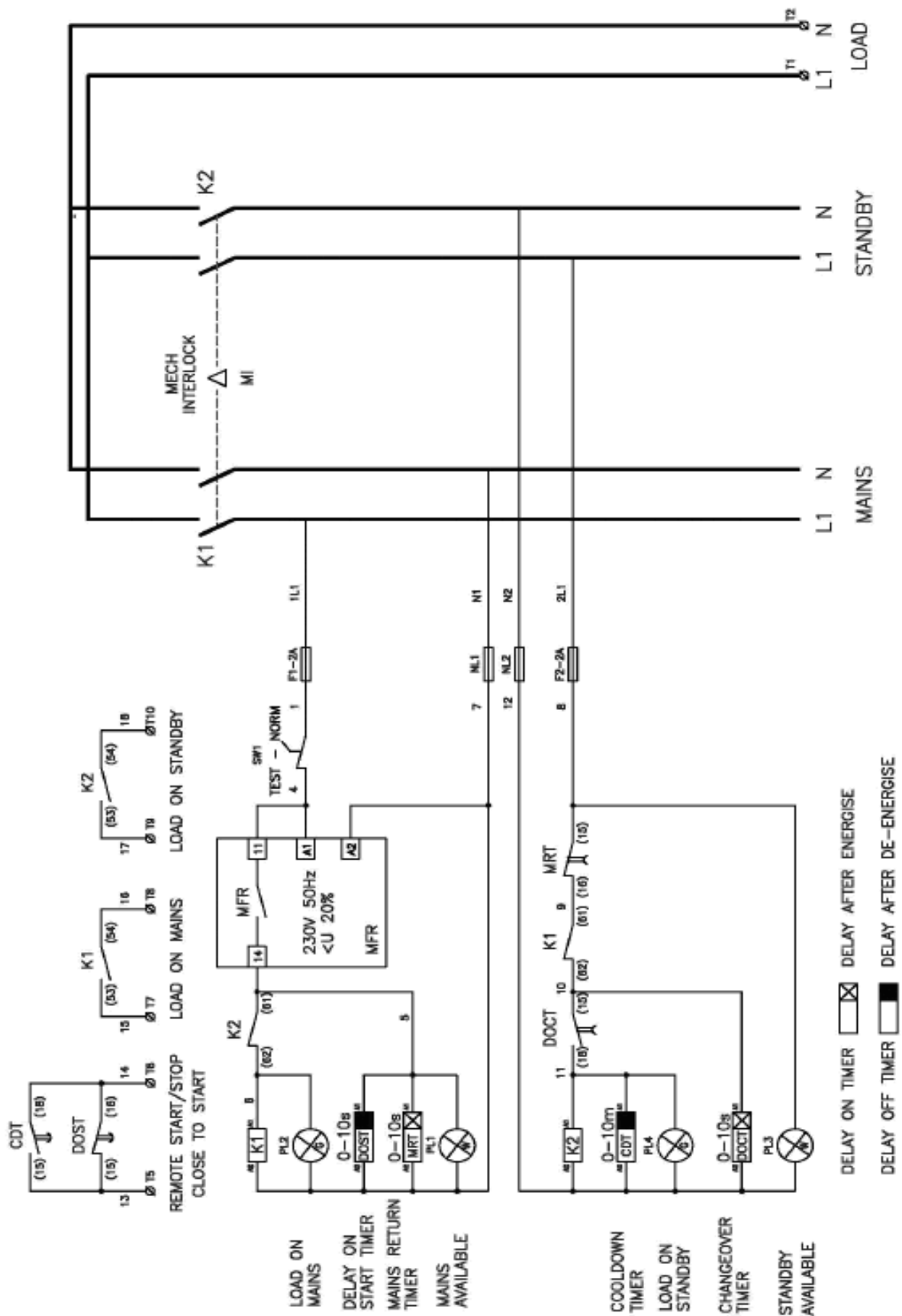
Set the time for how long you want to delay the ATS unit switching to the generator supply. Reference ECTON datasheet. Please see footnote.

Footnote:

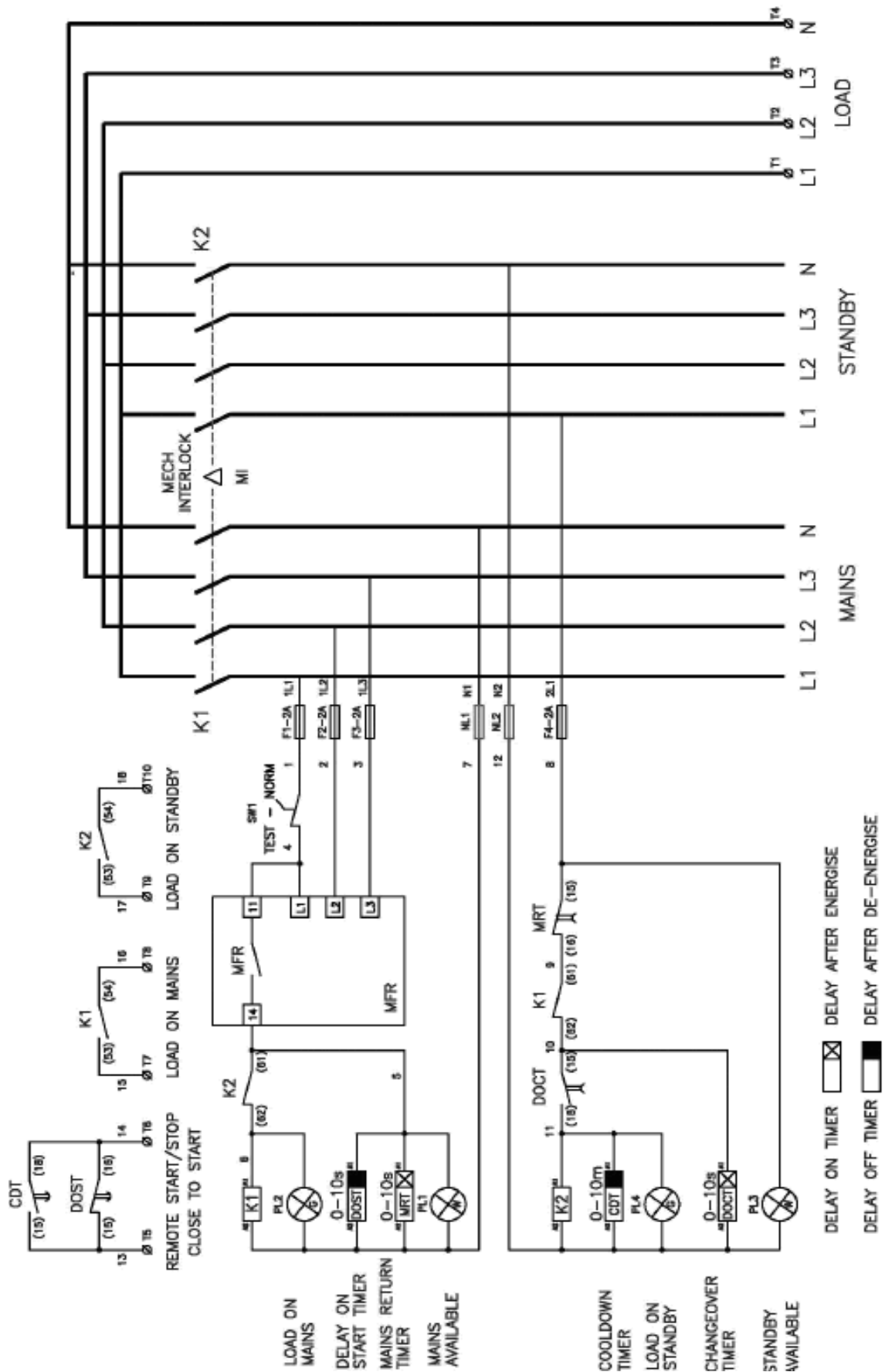
The Changeover timer (DOCT) setting will determine delay before the ATS unit switches the load from mains to generator. The delay on start timer (DOST) will determine the delay before the generator start signal is given after the mains fails. Therefore the changeover timer (DOCT) must be set to incorporate the start-up time required for the generator to reach full speed and deliver the correct output voltage and frequency.

$$\begin{aligned} \text{Time required for generator to reach required output} &= \text{Changeover timer} - \text{Start timer} \\ 2 &= 7 - 5 \end{aligned}$$

Single Phase Circuit Diagram



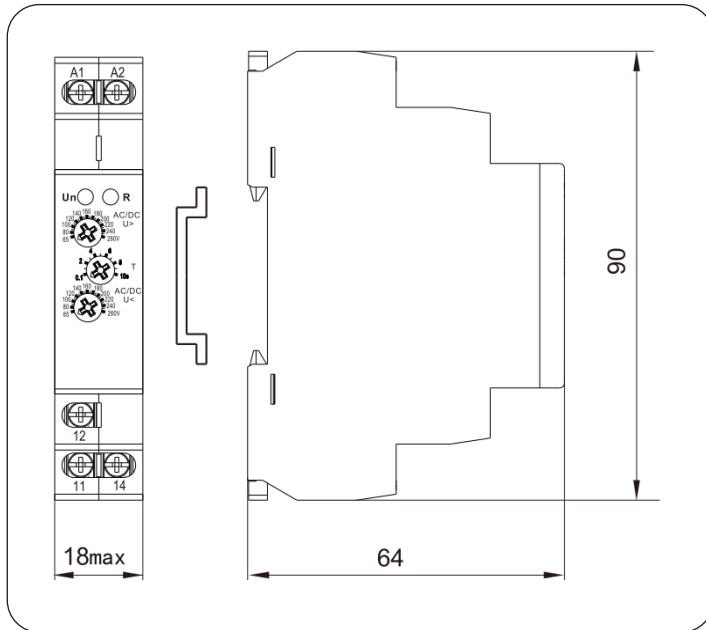
Three Phase Circuit Diagram



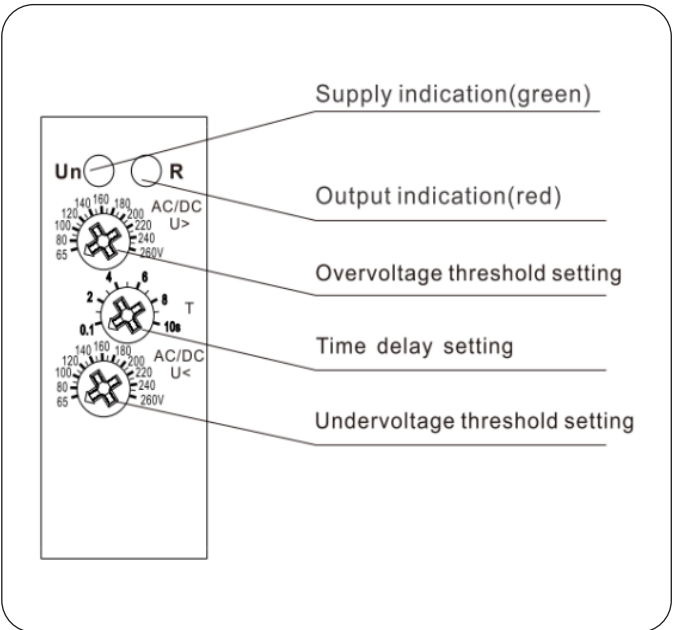
ECPF02 Single Phase Failure Relay

Data	ECPF02
Function	Monitoring voltage
Supply terminals	A1-A2
Rated supply voltage	AC/DC110-240V
Rated supply frequency	45-65Hz
Hysteresis	5% - 20%
Supply indication	Green LED
Time delay	Adjustable 0.1-10s, 10%
Measurement error	≤ 1%
Run up delay at power up	0.5s time delay
Knob setting accuracy	1% of scale value
Reset time	1000ms
Temperature coeicient	0.05%/°C, at-20°C(0.05%°F, at-68°F)
Output	1 x SPDT
Current rating	10A / AC1
Switching voltage	250VAC / 24VDC
Minimum breaking capacity	500mW
Output indication	Red LED
Mechanical life	1 x 10 ⁷
Electrical life (AC1)	1 x 10 ⁶
Operating temperature	-20°C to +55°C (-4°F to 131°F)
Storage temperature	-35°C to +75°C (-22°F to 158°F)
Mounting / din rail	Din rail EN/IEC 60715
Protection degree	IP40 for front panel / IP20 terminals
Operating position	Any
Overvoltage category	III.
Pollution degree	2
Maximum cable size (mm ²)	Solid wire maximum 1x2.5 or 2x1.5 / With sleeve maximum 1x2.5 (AWG 12)
Dimensions	90 x 18 x 64mm
Weight	59g
Standards	IEC/EN 60255-6, IEC/EN61010-1

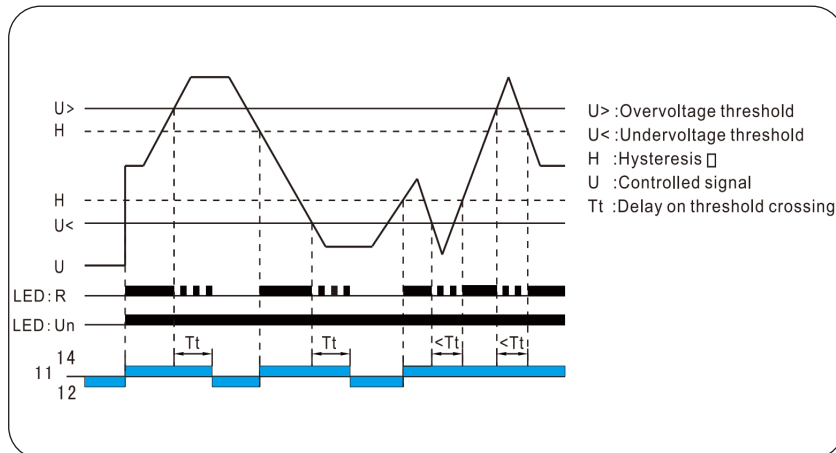
Dimensions



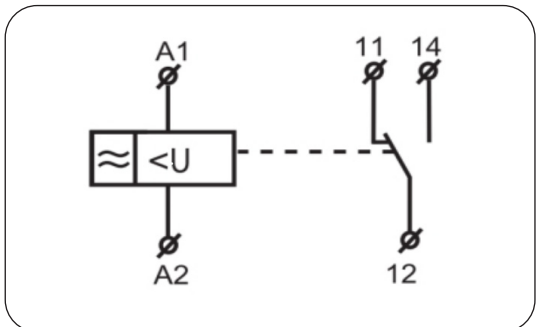
Panel Diagram



Functions Diagram



Wiring Diagram



Data	ECTDOFF
Supply terminals	A1-A2
Voltage range	AC/DC 12-240V(50-60Hz)
Burden	AC 0.7-3VA/DC 0.5-1.7W
Supply voltage tolerance	-15%;+10%
Supply indication	green LED
Time ranges	0.1s-10min
Time setting	potentiometer
Time deviation	5%-mechanical setting
Repeat accuracy	0.2%-set value stability
Minimum power time	200ms
Temperature coecient	0.05%/°C, at=20°C (0.05%/°C at=68°C)
Output	1xSPDT
Current rating	16A / AC1
Switching voltage	250VAC / 24VDC
Minimum breaking capacity DC	500mW
Output indication	Red LED
Mechanical life	1 x 10 ⁷
Electrical life (AC1)	1 x 10 ⁶
Reset time	max.200ms
Operating temperature	-20°C to +55°C -4°C to 131°C
Storage temperature	-35°C to +75°C -22°C to 158°C
Mounting / DIN rail	Din rail EN/IEC 60715
Protection degree	IP40 for front panel / IP20 terminals
Operating position	Any
Overvoltage category	solid wire max.1×2.5 or 2×1.5/with sleeve max.1×2.5(AWG 12)
Pollution degree	2
Dimensions	90 x 18 x 64mm
Weight	66g
Standards	IEC/EN 61812-1, IEC/EN61010-1

General

- Applications**

-Back-up source for Delay OFF in case of voltage failiure (emergency lighting, emergency respirator, or protection of el. controlled doors - in case of fire).

- Function Features**

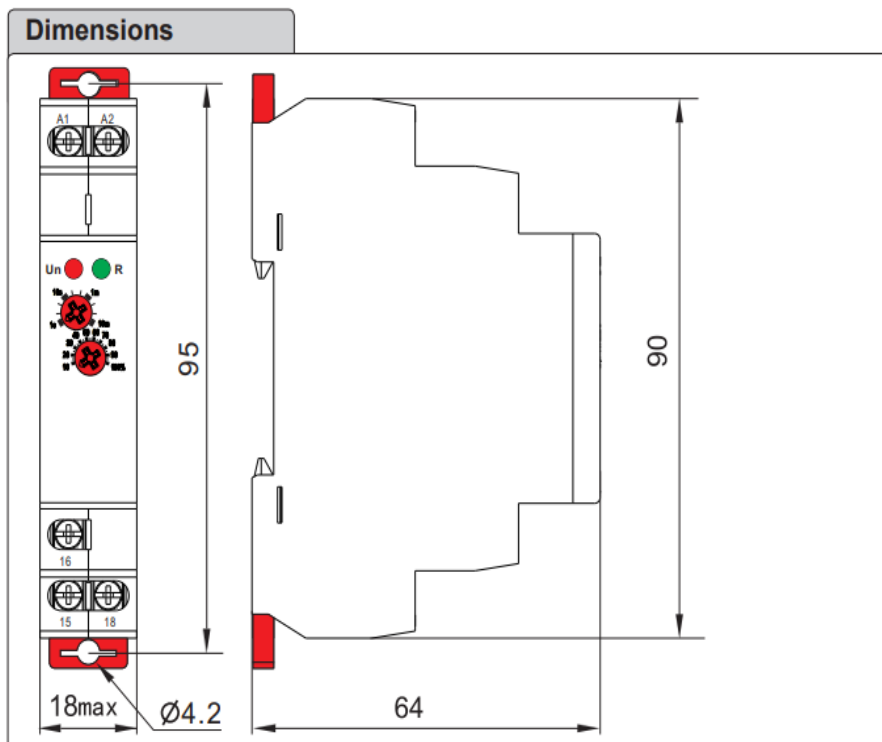
-Time range (adjustable by rotary switch and fine setting by potentiometer):

-0.1 s - 10 min

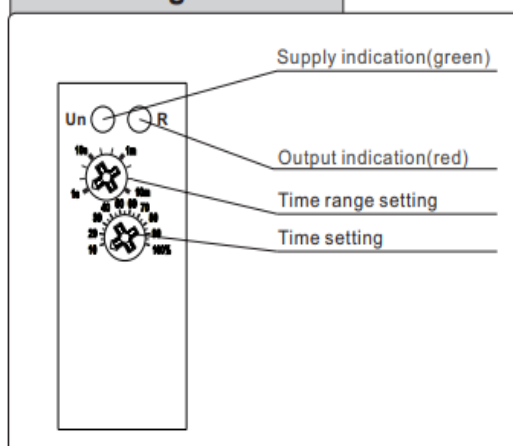
-Voltage range: AC/DC12-240V , clamp terminals

-Relay status is indicated by LED

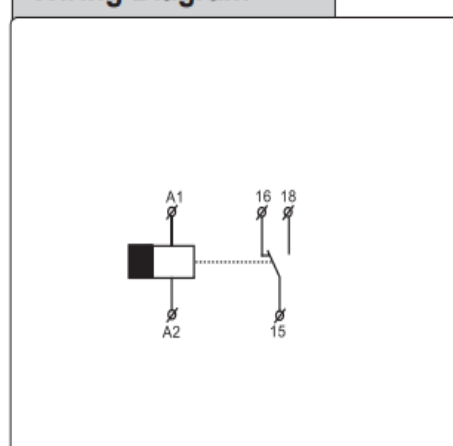
-1-MODULE, DIN rail mounting



Panel Diagram



Wiring Diagram



ECTOFF- Single Function Delay OFF Time Relay ECTON- Single Function Delay ON Time Relay

Technical Parameters	ECTON	ECTOFF
Function	Delay ON	Delay OFF
Supply terminals	A1-A2	
Voltage range	AC/DC 12-240V(50-60Hz)	
Burden	AC 0.7-3VA/DC 0.5-1.7W	
Voltage range	AC 230V(50-60Hz)	
Power input	AC max,12VA/1.3W	AC max. 12VA/1.9W
Supply voltage tolerance	-15%;+10%	
Supply indication	green LED	
Time Ranges	0.1s-10days, ON, OFF	
Time Setting	potentionmeter	
Time deviation	5%-mechanical setting	
Repeat accuracy	0.2%-set value stability	
Temperature coecient	0.05%/°C,at=20°C(0.05%°F , at=68°F)	
Output	1 X SPDT	1 X SPDT
Current rating	16A/AC1	
Switching voltage	250VAC/24VDC	
Min.breaking capacity DC	500mW	
Output indication	red LED	
Mechanical life	1 X 10 ⁷	
Electrical life(AC1)	1 X 10 ⁶	
Reset time	max.200ms	
Operating temperature	-20°C to +55°C (-4°F to 131°F)	
Storage temperature	-35°C to +75°C (-22°F to 158°F)	
Mounting/DIN rail	Din rail EN/IEC 60715	
Protection degree	IP40 for front panel/IP20 terminals	
Operating position	any	
Overvoltage category	III.	
Pollution degree	2	
Max. cable size (mm ²)	solid wire max.1×2.5or 2×1.5/with sleeve max. 1 x 2.5 (AWG 12)	
Dimensions	90 x 18 x 64mm	
Weight	1×SPDT:W240-60g,A230-59g	
	2×SPDT:W240-81g,A230-79g	
Standards	IEC/EN 61812-1,IEC/EN61010-1	

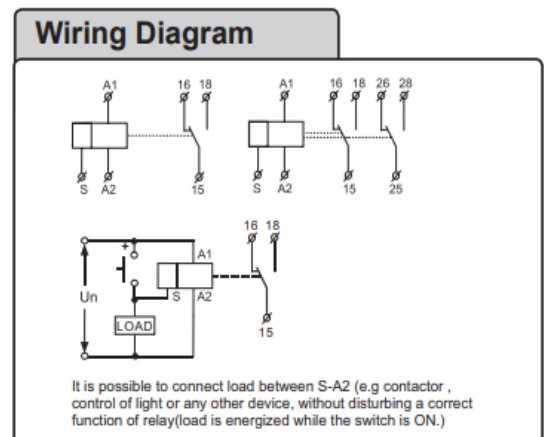
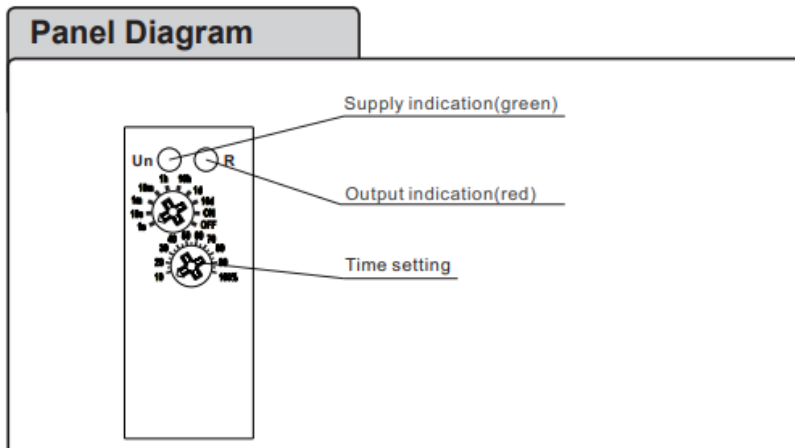
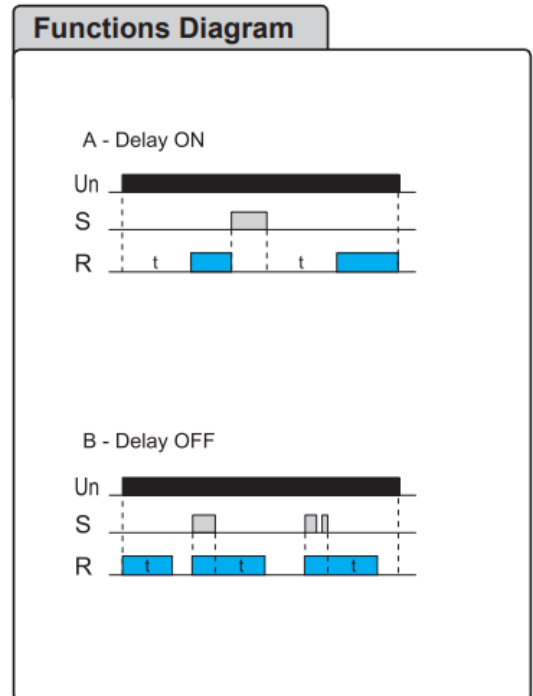
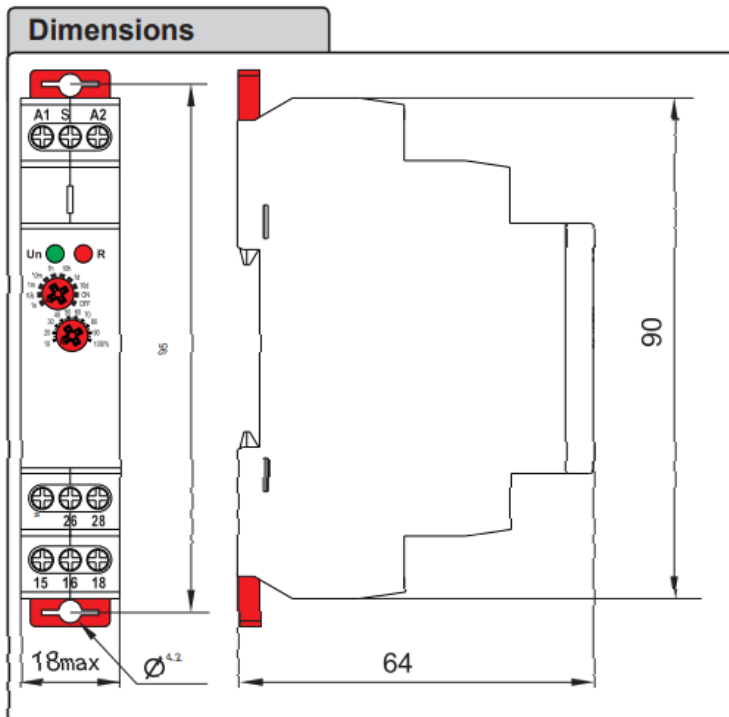
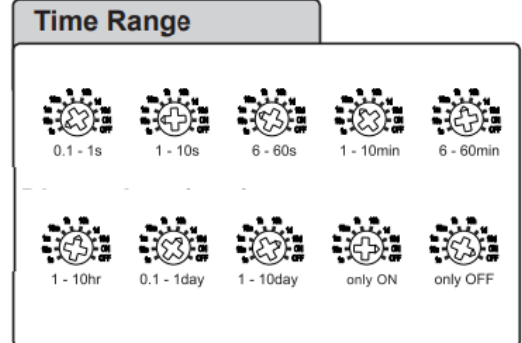
General

• Applications

-Suitable for applications where function and time requirements are known.
-Time switch, possible to be used for pump decay time after switching heating off, switching of fans.

• Function Features

-Single-function relay with possibility of time setting by a potentiometer.
-Choice of 2 functions:
A: Delay ON
B: Delay OFF
-Time scale 0.1 s - 10 days divided into 10 ranges..
-Relay status is indicated by LED.
-1-MODULE,DIN rail mounting



ECMFT - Multi Function Timer 12-230V AC/DC

Technical Parameters	ECMFT
Function	A, B, C, D, E, F, G, H, I, J
Supply terminals	A1 - A2
Voltage range	AC/DC 12-240V(50-60Hz)
Burden	AC 0.7-3VA/DC 0.5-1.7W
Voltage range	AC 230V(50-60Hz)
Power input	AC max.12VA/1.3W
Supply voltage tolerance	-15%;+10%
Supply indication	green LED
Time Ranges	0.1s - 10days, ON ,OFF
Time Setting	Potentionmeter
Time deviation	5%-mechanical setting
Repeat accuracy	0.2%-set value stability
Temperature coecient	0.05%/°C,at=20°C(0.05°F, at=68°F)
Output	1 X SPDT
Current rating	16A/ AC1
Switching voltage	250VAC / 24VDC
Min.breaking capacity DC	500mW
Output indication	red LED
Mechanical life	1 x 10 ⁷
Electrical life(AC1)	1 x 10 ⁶
Reset time	max.200ms
Operating temperature	-20°C to +55°C(-4°F to 131°F)
Storage temperature	-35°C to +75°C(-22°F to 158°F)
Mounting/DIN rail	Din rail EN/IEC 60715
Protection degree	IP40 for front panel / IP20 terminals
Operating position	Any
Overvoltage category	III.
Pollution degree	2
Max. cable size (mm ²)	Solid wire max 1x2.5 or 2x1.5 / With sleeve max. 1x2.5 (AWG 12)
Dimensions	90 × 18 × 64mm
Weight	1 × SPDT: W240 - 62g, A230 - 60g
Standards	IEC / EN 61812-1, IEC / EN61010-1

Function Diagrams

A: On Delay (Power On)

When the input voltage U is applied, timing delay t begins. Relay contacts R change state after time delay is complete. Contacts R return to their shelf state when input voltage U is removed. Trigger switch is not used in this function.



B: Interval (Power On)

When input voltage U is applied, relay contacts R change state immediately and timing cycle begins. When time delay is complete, contacts return to shelf state. When input voltage U is removed, contacts will also return to their shelf state. Trigger switch is not used in this function.



C: Repeat Cycle (Starting Off)

When input voltage U is applied, time delay t begins. When time delay t is complete, relay contacts R change state for time delay t. This cycle will repeat until input voltage U is removed. Trigger switch is not used in this function.



D: Repeat Cycle (Starting On)

When input voltage U is applied, relay contacts R change state immediately and time delay t begins. When time delay t is complete, contacts return to their shelf state for time delay t. This cycle will repeat until input voltage U is removed. Trigger switch is not used in this function.



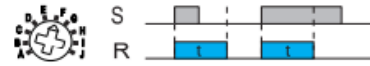
E: Off Delay (S Break)

Input voltage U must be applied continuously. When trigger switch S is closed, relay contacts R change state. When trigger switch S is opened, delay t begins. When delay t is complete, contacts R return to their shelf state. If trigger switch S is closed before time delay t is complete, then time is reset. When trigger switch S is opened, the delay begins again, and relay contacts R remain in their energized state. If input voltage U is removed, relay contacts R return to their shelf state.



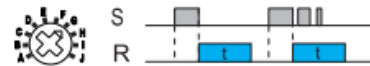
F: Single Shot

Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time t begins. During time-out, the trigger signal S is ignored. The relay resets by applying the trigger switch S when the relay is not energized.



G: Single Shot Trailing Edge (Non-Retriggerable)

Upon application of input voltage U, the relay is ready to accept trigger signal S. Upon application of the trigger signal S, the relay contacts R transfer and the preset time t begins. At the end of the preset time t, the relay contacts R return to their normal condition unless the trigger switch S is opened and closed prior to time out t (before preset time elapses). Continuous cycling of the trigger switch S at a rate faster than the preset time will cause the relay contacts R to remain closed. If input voltage U is removed, relay contacts R return to their shelf state.



H: On/Off Delay

Input voltage U must be applied continuously. When trigger switch S is closed, time delay t begins. When time delay t is complete, relay contacts R change state and remain transferred until trigger switch S is opened. If input voltage U is removed, relay contacts R return to their shelf state.



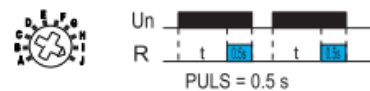
I: Latching relay

Input voltage U must be applied continuously. Output changes state with every trigger switch S closure. If input voltage U is removed, relay contacts R return to their shelf state.



J: Pulse generator

Upon application of input voltage U, a single output pulse of 0.5 seconds is delivered to relay after time delay t. Power must be removed and re-applied to repeat pulse. Trigger switch is not used in this function.



Time Diagrams



0.1 - 1s



1 - 10s



6 - 60s



1 - 10min



6 - 60min



1 - 10hr



0.1 - 1day



1 - 10day



only ON



only OFF

Dimensions

