

**INSTALLATION INSTRUCTIONS
FOR S1 ETS1,S1 ETM1,S1 ESD1.**

INTRODUCTION :-

Thank you for selecting and purchasing MINILEC make Time delay relays.

The following installation instructions would guide you in installing your S1 ETS1,S1 ETM1,S1 ESD1 making the best of it.

CAUTION



1.Ensure that all above relay are-

- * Not installed near any heat sources like Burner, Sunlight,Electric arc etc.
- * Not subjected to abnormal vibration.
- * Installed as near to starter as possible.
- * Not subjected to Direct heat,Sunlight,Rain.

2.If the product is not installed as per guideline given by Minilec, our company will not be responsible for any wrong connection, damage,injury, accident, Etc

MOUNTING -

This model is suitable for DIN RAIL mounting.

ELECTRICAL CONNECTION

See fig.1, 2 & 3 for installation of unit in the power and control wiring .

**INSTALLATION INSTRUCTION
FOR TIME DELAY RELAYS
S1 ETS1,S1 ETM1,S1 ESD1**



WARRANTY

AGAINST ALL
MANUFACTURING DEFECTS
FOR 18 MONTHS FROM DATE
OF SUPPLY OR 12 MONTHS
FROM DATE OF INSTALLATION
WHICHEVER IS EARLIER

MANUFACTURED BY:

minilec[®]
www.minilecgroup.com

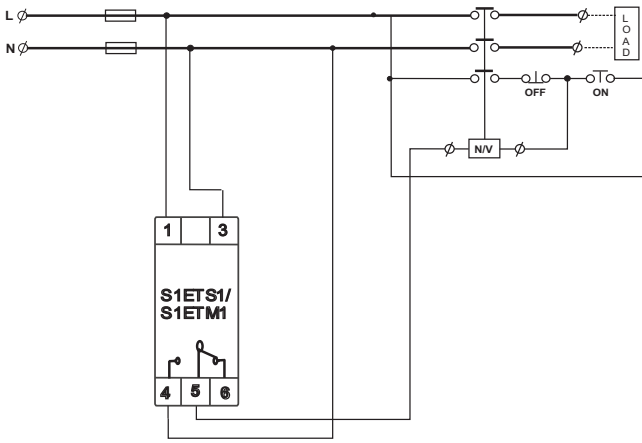
S. NO. 1073/ 1-2-3, AT POST
: PIRANGUT, TAL: MULSHI,
DIST: PUNE (INDIA) PIN : 412 111
VERSION 02 (14/12/2011)

TECHNICAL SPECIFICATION

Sr. No	PARAMETERS	S1 ETS1	S1 ETM1	S1 ESD1
1.	System supply voltage	100-120 / 220-240 / 380-440 VAC \pm 20 % 12VDC / 24VDC (-10% + 20 %)	100-120 / 220-240 / 380-440 VAC \pm 20 % 12VDC / 24VDC (-10% + 20 %)	100-120 / 220-240 / 380-440 VAC \pm 20 %
2.	Frequency	50 / 60 Hz.	50 / 60 Hz.	50 / 60 Hz.
3.	Power consumption	28 VA max.	28 VA max.	28 VA max.
4.	Output relay contact	1CO.	1CO.	1NO for Star & 1NO for Delta.
5.	Output contact rating	5 Amp, 240VAC [resistive]	5 Amp, 240VAC [resistive]	5 Amp, 240VAC [resistive]
6.	Life expectancy	0.5 X 10 ⁶ operations	0.5 X 10 ⁶ operations	0.5 X 10 ⁶ operations
7.	Set Accuracy	\pm 5% OF Full scale	\pm 5% OF Full scale	\pm 5% OF Full scale
8.	Repeat Accuracy	Less than \pm 1% at rated Aux.supply at 25 ^o C A) For temp. Variation of 25 ^o C to 60 ^o C: \pm 3% max of set value. B) For supply Variation of 10% : \pm 3% max of set value. C) For frequency Variation of 1% : \pm 2% max of set value.		
9.	Time ranges Star Time Star to Delta Transfer Time	0 - 30 Sec / 0- 60 Sec. ----- -----	0 - 30 min / 0- 60 min ----- -----	0.75- 60 Sec. 50/100mSec
10.	Resetting	At power on	At power on	At power on
11.	Indications : On / ST Rly / DT	Power on Relay on	Power on Relay on	Star Relay on Delta Relay on
12.	Enclosure	S1 series - ABS / PC- ABS	S1 series - ABS / PC- ABS	S1 series - ABS / PC- ABS
13.	Dimensions	90 X 18 X 60(Approx.)	90 X 18 X 60(Approx.)	90 X 18 X 60(Approx.)
14.	Mounting	35 mm rail mounting	35 mm rail mounting	35 mm rail mounting
15.	Operating conditions Temperature Humidity	-5 ^o C to + 60 ^o C Up to 95% Rh	-5 ^o C to + 60 ^o C Up to 95% Rh	-5 ^o C to + 60 ^o C Up to 95% Rh
16.	Weight	90 gms (approx.)	90 gms (approx.)	120 gms (approx.)

ELECTRICAL CONNECTION IN POWER & CONTROL WIRING FOR S1 ETS1 ,S1 ETM1

Figure 1



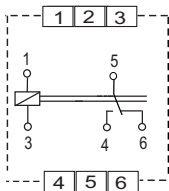
NOTE : RELAY CONTACTS SHOWN FOR RELAY IN POWER OFF CONDITION.

ENCLOSURE DIMENSIONS



TERMINAL DETAILS, S1 ETS1,S1 ETM1

Fig. 2



INDICATIONS

- L1 (Green) : ON
- L2 (Red) : Rly

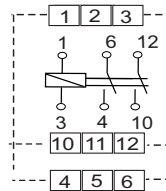
TERMINAL DETAILS	
1 - 3	AUX. SUPPLY (AS MARKED ON UNIT)
5 - 4 - 6	C - NO - NC

NOTES :

- AUX. SUPPLY TO BE CONNECTED AS MENTIONED ON THE UNIT.
- RELAY CONTACTS SHOWN FOR POWER OFF CONDITION.
- FOR DC SUPPLY CONNECT +VE TO 1 AND -VE TO 3 TERMINAL

TERMINAL DETAILS,S1 ESD1

Fig. 2



INDICATIONS

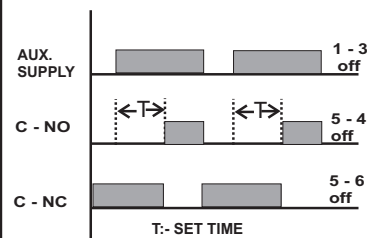
- ST (Red) : Star Relay ON
- DT (Red) : Delta Relay ON

TERMINAL DETAILS	
1 - 3	AUX. SUPPLY (AS MARKED ON UNIT)
4 - 6	NO - C (STAR)
12 - 10	NO - C (DELTA)

NOTES :

- AUX. SUPPLY TO BE CONNECTED AS MENTIONED ON THE UNIT.
- RELAY CONTACTS SHOWN FOR POWER OFF CONDITION.
- FOR DC SUPPLY CONNECT +VE TO 1 AND -VE TO 3 TERMINAL

TIMING DIAGRAM for S1 ETS1,S1 ETM1



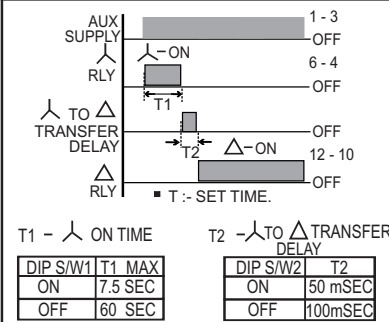
FUNCTIONING

Set the desired time by front potentiometer. Before Aux.supply voltage is switched on , output relay contacts are in de-energised state (NO).After switching ON the supply, the Timer starts counting the timing and when set time delay elapses the o/p contact change their state from original status. (From NO to NC)

RESETTING :-

Unit will reset only if Aux.supply of unit is removed from the point 1 and 3. And will restart its Set time Cycle when unit is switched ON.

TIMING DIAGRAM for S1 ESD1



FUNCTIONING

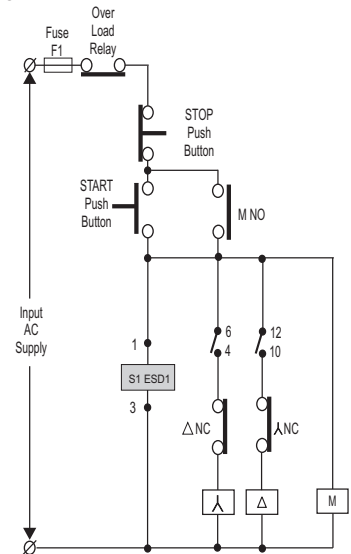
Set the desired STAR time by DIP S/W 1 & front potentiometer & STAR to DELTA transfer time by DIP S/W 2. Before Aux . Supply voltage is switched on both relay contacts are in de-energised state(NO). After switching ON the supply , STAR relay is energised.After the set STAR time(T1),STAR relay is de-energised. For the set STAR to DELTA Transfer time (T2) both relays remain de-energised.At the end of T2, DELTA relay is energised & remain ON till power is ON.

RESETTING :-

S1 ESD1 unit will reset only if Aux. supply of unit is removed from the point 1 & 3 and will restart its set time cycle when unit is switched ON.

TYPICAL APPLICATION DIAGRAM FOR STAR-DELTA STARTER MODE for S1 ESD1

Fig. 3



Λ, M and Δ are STAR, MAINS and DELTA contactors