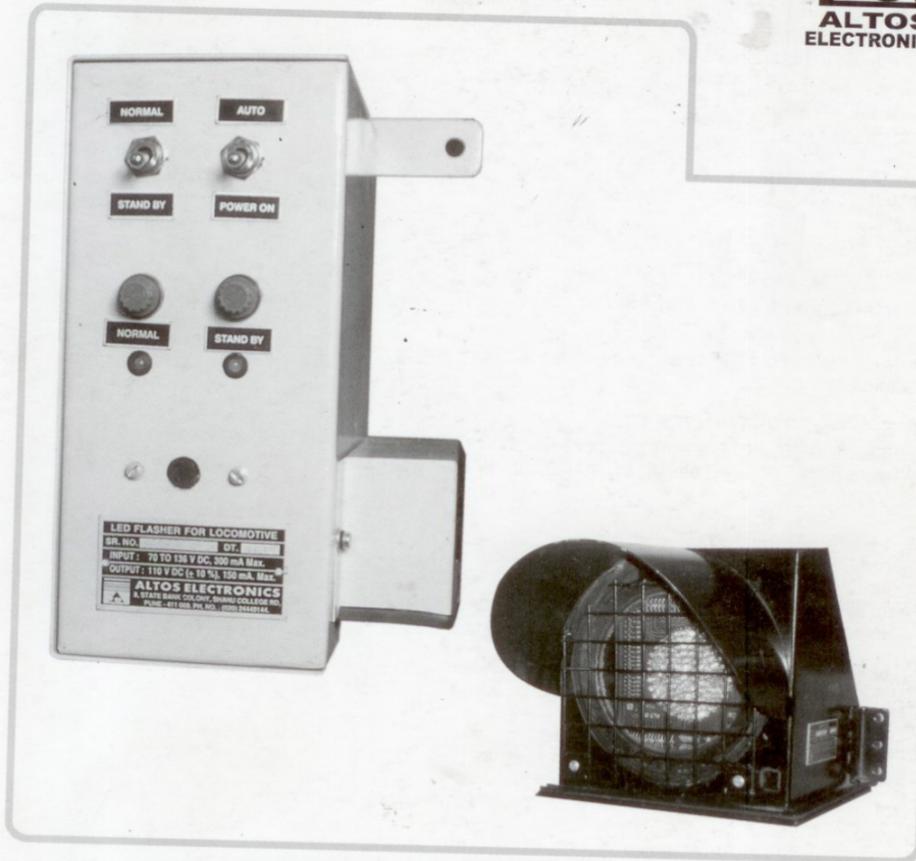


ISO 9001: 2000 Company



LED FLASHER FOR LOCOMOTIVE
SR. NO. _____ DT. _____
INPUT : 70 TO 120 V DC, 300 mA Max.
OUTPUT : 110 V DC (± 10 %), 150 mA Max.
ALTOS ELECTRONICS
B-10/20, BANGS COLONY, CHENNAI-600036 INDIA
PHONE - 8773 005 FAX NO. 8000 334234/44

**Operation and maintenance manual
for LED based Flasher Light system
for EMUs DMUs**

**as Per RDSO specification
No. ELRS/SPEC/LFL/0017(Rev.1, Sep.2004)**

GUIDE LINE FOR TROUBLE SHOOTING

LAMP UNIT

1) If voltage at i/p side is 110V+/-5% DC but Lamp is not glowing Check the fuse link & connection to lamp card there on .If fuse link is burnt out, replace the fuse link with proper size and proper rating.(500mA, 5mmx20mm)

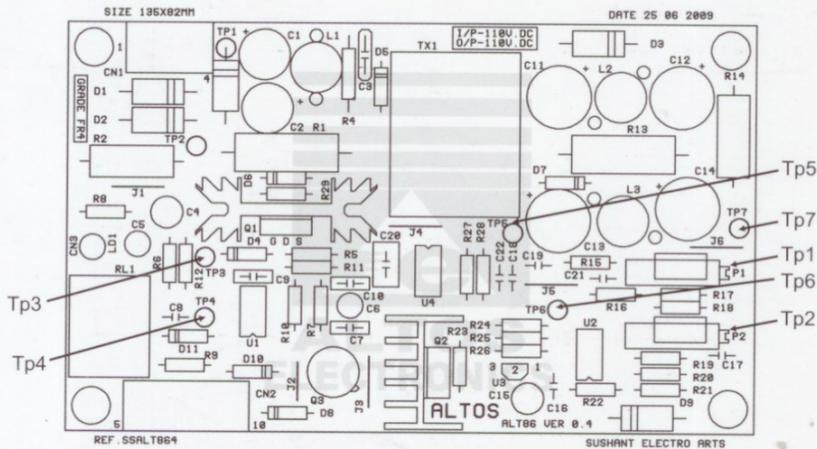
CONTROL UNIT

1) If controller is dead see the fuse link. If fuse link is burnt out, replace it with 1A.

2) If lamp is glowing but if there is no buzzer sound and status indication i.e. red led is not flashing, then check Lamp Unit is connected & all LEDs are glowing.
If the problem persists, then rotate the preset p2 in clockwise direction till buzzer sound. If still there is no buzzer sound, rotate preset p1 in clockwise direction till buzzer sound and status indication glow's .

3) If status indication is glowing but if there is no buzzer sound, buzzer is faulty replace it by new one.

4) For troubleshooting at card level refer table.

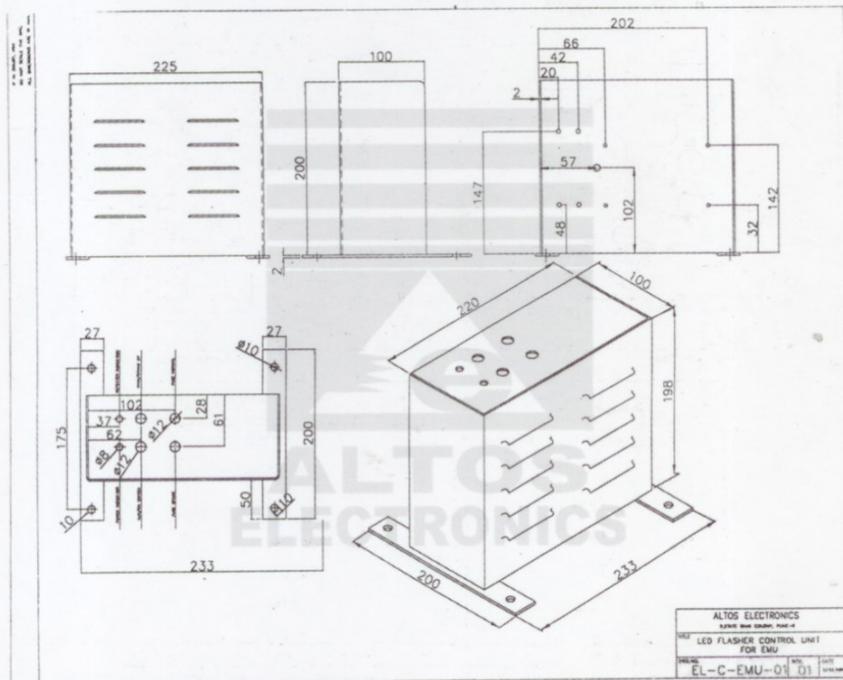


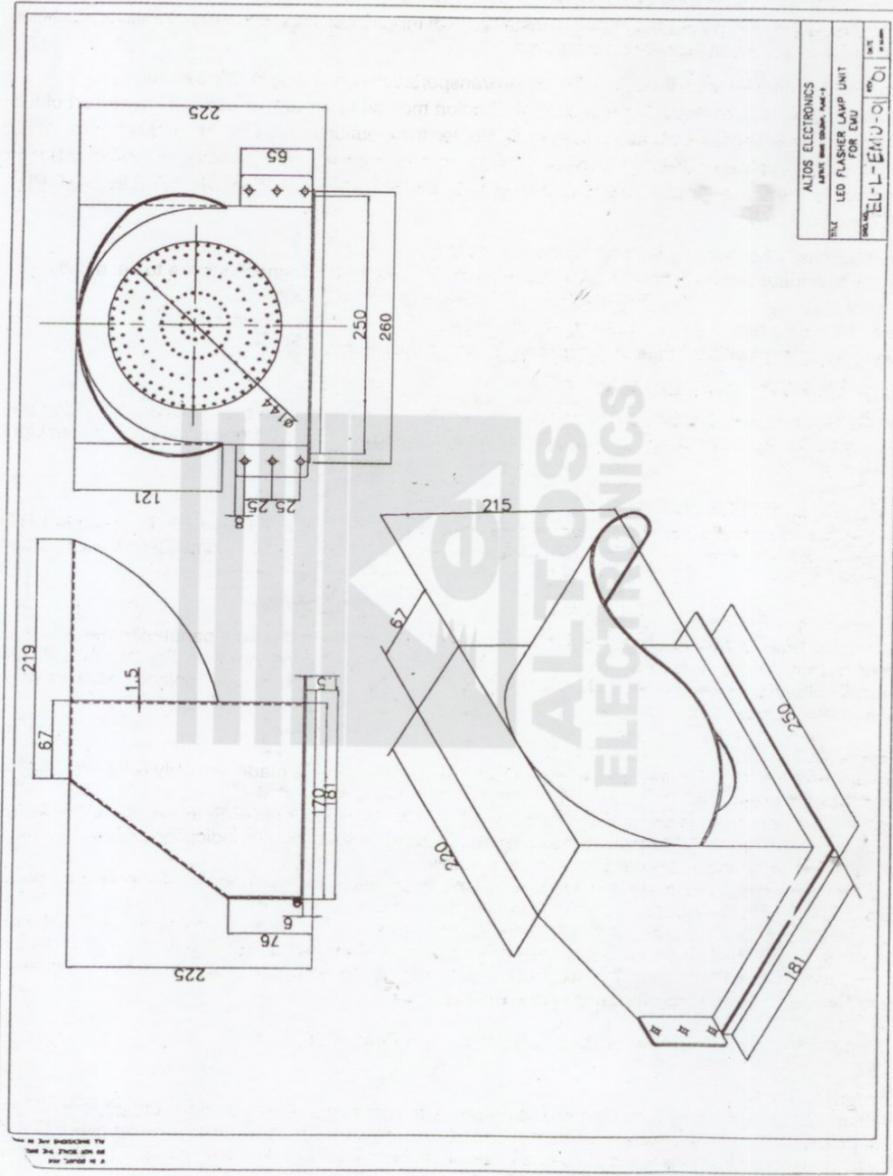
| TEST POINTS | RESPECTIVE VOLTAGES |
|-------------|---------------------|
| TP1 | 110V+VE |
| TP2 | 110V-VE |
| TP3 | 12V-16V |
| TP4 | 5V |
| TP5 | 2.5V |
| TP6 | 12V |
| TP7 | 110V |

Note: TP1, TP3, TP4, TP5, TP6, TP7 all voltages are w.r.t. TP2

Spare For Led Based Flasher Light system (for EMUs DMUs)

| Description | Part No |
|---|--|
| Flasher Controller Card | ALT-E-86 VER 03 |
| LED Lamp Card | ALT-92 |
| Auto / POWER ON Switch | ALT-SW-01 ALT-SW-MTA 102 |
| Normal / Stand by Switch | ALT-INT-SW-02 ALT-SW-MTA201E |
| Status Indicator assembly | ALT-BI-05 |
| Fuse for controller | ALT-F-1A |
| Fuse for lamp unit | ALT-F-500mA |
| Lamp enclosure with front glass | ALT-ENCL-LM-M - EMU |
| Terminal block for electrical connections | ALT-TB-08 |
| Gasket for Lamp Base Plate | ALT-ELB-01 |
| Gasket for front glass of Lamp | ALT-LUG-NO1 |

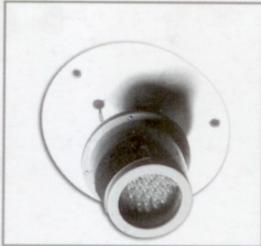




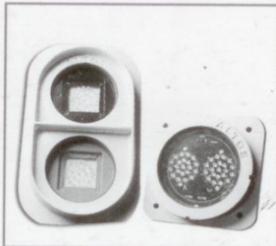
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INDICATING LAMP



WARNING LAMP



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Ph. No.020-24449144,24445245. Tele.FAX :020- 24440573.
E-mail: sales.altos@gmail.com
Website : www.altoselectronics.com

INSTALLATION INSTRUCTIONS

It is assumed that being the safety gadget, installation of this flasher will be done by technically qualified personal having relevant experience of the field.

1. Unpack the unit. Ensure no physical damage in transportation has taken place to the unit.
2. It is recommended to install the unit on Anti vibration mounts or on rubber pads (Not the part of this supply) to avoid shocks & vibrations to the unit. Tighten the mounting bolts with adequate torque.
3. Ensure that supply is off. Wiring is to be done by 1.5sq. mm or 2.5sq. mm size cable, as the current in the system is maximum 1Amp only. CONSIDERING SHORT CKT. CONDITION AT THE OUT PUT TERMINALS.

Termination is to be done by suitable round lugs or U type lugs.

Make the connections as indicated on terminal block. Polarity of the connections are to be strictly followed

Power on the systems by keeping Normal / Stand by switch on Normal Position, (During normal operations, these switches are to be on the same position)

Interfacing with other Equipments

Two (02) Nos. of potential free contacts are provided on terminal block to communicate activation and failure of flasher light. These two contacts are normally opened and closed during working of Flasher Light Systems.

OPERATING INSTRUCTIONS

The Flasher System is designed as per the spec. no. : ELRS/SPEC/LFL/0017(REV-1 Sep-2004) This revised system, IF wired electrically, the flasher system gets switched ON automatically if train parting takes place.

Man-Machine Interface:

The unit consists of two independent circuits Normal & Stand By On the front panel of the unit, two bi-colour (Red & green) indications are provided. The unit has two control switches 'Power ON' switch & 'Normal' / 'Stand By' switch. The unit has two nos. of fuses on front panel, for easy replacement. One each for Normal & Stand By ckt.

Power ON:

Before switching 'ON' for first time, ensure electrical connections are made correctly & fuse in working condition exist in the unit.

Now, flip 'Power ON' switch to 'Power ON' position. If 110V supply at I/P is available, unit will start functioning. The main LED Lamp will start flashing, Buzzer will sound status indication LED on controller start flashing showing red & green indication alternately.

Here red indication shows that the LED lamp Unit is connected & working satisfactorily. And green indication shows the respective Ckt. Is healthy & working normal.

If for any reason, the LED Lamp Unit is not connected or not working, buzzer will not sound & repeater red indication will not flash. It shows only green indication near 'Normal/Stand By switch, indicating, flasher controller is healthy & power at I/P exists but Lamp is not glowing. Also, the same symptoms will appear if more than 20% of LED's from the lamp card are failed.

To switch off, flip 'Power ON' switch to position opposite to 'Power ON'.

Normal / Stand by :

Flasher unit, being a safety device should be fail proof. To ensure this, the controller is provided with Stand by circuit. If for any reason Normal function circuit fails the green indication from the bi-colour Indicator will go off. In this case Turn the switch to stand by position, bi-colour indicator near Stand by mode will start glowing, the unit will resume functioning on Stand by mode.