

Document Title : **FAIL SAFE ELECTRONIC TIME DELAY DEVICE /  
FAIL SAFE ELECTRONIC FLASHER DEVICE**



**GOVERNMENT OF INDIA**

**Ministry of Railways**

**SCHEDULE OF TECHNICAL REQUIREMENT (STR)**

**FOR**

**FAIL SAFE ELECTRONIC TIME DELAY DEVICE (FSETDD) /  
FAIL SAFE ELECTRONIC FLASHER DEVICE (FSEFD)**

**Signal Directorate  
Research Designs & Standards Organisation  
Manak Nagar Lucknow – 226 011**

SSE/Signal	Director / Signal
Prepared By :	Checked & Issued By :

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## DOCUMENT DATASHEET

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<p><b>Abstract</b> <b>This document defines STR for FAIL SAFE ELECTRONIC TIME DELAY DEVICE / FAIL SAFE ELECTRONIC FLASHER DEVICE</b></p>		

<u>Version</u>	<u>Chapter/ Annexes</u>	<u>Amendments</u>	<u>Issue date</u>
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## **FAIL SAFE ELECTRONIC TIME DELAY DEVICE / FAIL SAFE ELECTRONIC FLASHER DEVICE**

### Revision sheet

<u>Version</u>	<u>Chapter/ Annexes</u>	<u>Amendments</u>	<u>Issue date</u>
<b>Ver. 0.0</b>		First issue: <b>SIQ/0422</b>	<b>23/01/2009</b>
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### List of specifications

<b>S. No.</b>	Item Description	<b>Specification No.</b>
1.	FAIL SAFE ELECTRONIC TIME DELAY DEVICE	IRS:S 61/2000 (Amend. No. 3) or latest
2.	FAIL SAFE ELECTRONIC FLASHER DEVICE	RDSO/SPN/173/2002 (Amend. No. 2) or latest

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**I. ESSENTIAL PLANT & MACHINERY REQUIRED FOR PRODUCTION**

1. **Electrically Operated Bench** Drilling machine
2. **PLC Based** Injection moulding machine (in-house/outsourced)
3. **Electroplating ( In house/outsourced)**
  - a) Passive plant
  - b) Bright dipping plant
  - c) Lacquering plant
  - d) Polishing/Buffering machine
4. Temperature controlled soldering machine
5. Test jigs & fixtures
6. Hot & cold climate chambers for temperature cycling
7. ~~Burn in chamber~~
8. ROM Programmer & UV Eraser (programmer & eraser as required for embedded software)
9. Flow solder line
10. Component forming machine
11. PCB populating machine
12. Air-conditioned space for final assembly & testing of device. Remaining working space including store shall be dust free.

**II. ESSENTIAL TESTING EQUIPMENTS REQUIRED FOR QUALITY ASSURANCE**

1. Insulation tester, 500V DC
2. Digital time interval meter
3. High voltage break down tester, up to 5KV AC
4. DC regulated power supplies
5. Registration and code checking jig
6. Variable voltage Auto-transformer (0 to 260V)
7. Digital micrometer
8. Digital vernier calipers
9. Endurance Test facility in a separate room
10. Storage dual beam oscilloscope/**Digital storage Oscilloscope**
11. Digital multimeters – 4 ½ digits or better.
12. Test stations for testing electronic sub-assemblies/PCBs.
13. Frequency counter
14. Digital IC tester.
15. Digital LCRQ meter.
16. ~~Automatic test set up with auto record/print facility for measurement of important electrical parameters.~~
17. ~~All measuring equipment shall be compatible to work with PC/Micro processor based test set ups.~~

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**Note :-**

1. Plant, machinery and testing equipments given above are only indicative. All necessary plant and machinery of adequate capacity and testing equipments as necessary to manufacture the product as per RDSO specification and drawings and to ensure quality shall be provided.
2. Outsourcing, if any, of any component/ sub assembly shall be indicated in the 'Quality Assurance Plan' and approval of RDSO, Lucknow shall be obtained. Outsourcing of a vital component/ sub assembly shall be from ISO-9000 certified manufacturer. In case of outsourcing, the ultimate responsibility to ensure quality, reliability and compliance of RDSO specification & drawings for the outsourced component/ sub assembly shall be of the vendor of the Fail Safe Electronic Time Delay device/Fail Safe Electronic Flasher device and all necessary tests and checks shall be done by him to ensure the same. Sampling plan and details of tests and checks proposed to be conducted by him on outsourced components/sub-assembly shall be indicated in the QAP. Proper test record with traceability to the final product shall be maintained.  
**ISO certificate of outsourced firm should be included in QAP**  
  
In case manufacturing of some component/ sub assembly is outsourced, plant & machinery as required for manufacturing of that component/ sub assembly may be considered optional for the vendor applying for registration/ approved by RDSO.
3. Audit of the manufacturing process of outsourced component/ sub assembly in the manufacturing premises shall be carried out by the vendor of the Fail Safe Electronic Time Delay device/Fail Safe Electronic Flasher device atleast once a year and report submitted to Director/QA/RDSO. Duly qualified persons having knowledge of the outsourced manufacturing process shall be deputed for audit. Proper audit record shall be maintained.
4. Checks and tests shown in the Quality Assurance Flow Charts are only indicative. All necessary checks and tests as necessary to ensure quality shall be carried out at every stage of manufacturing and proper record of all checks and tests shall be maintained.
5. This STR shall be applicable to all new vendors applying for registration.
6. All existing approved vendors shall be advised for implementation of new STR. **A reasonable period for compliance shall be six months from date of issue of STR.**
7. **Except item no.1 and 6 of plant and machinery all other items are mandatory to be in house.**

**III. Copy Holder :-** ED/QA/S&T  
DSIG-IV  
DSIG-VIII  
ADE/Signal/Test

SSE/Signal	Director / Signal
Prepared By :	Checked & Issued By :

## Quality Assurance flow chart for Fail Safe Electronic Time Delay Device / Fail Safe Electronic Flasher Device

