

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**

JE/SSE/Signal	ADE / Signal-VIII	Director / Signal-VIII
Prepared By :	Checked :	Issued By :

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DOCUMENT DATASHEET

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Abstract This document defines STR for FAIL SAFE ELECTRONIC TIME DELAY DEVICE / FAIL SAFE ELECTRONIC FLASHER DEVICE		

<u>Version</u>	<u>Chapter/ Annexes</u>	<u>Amendments</u>	<u>Issue date</u>
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Revision sheet

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List of specifications

S. No.	Item Description	Specification No.
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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**FAIL SAFE ELECTRONIC TIME DELAY DEVICE /
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I. ESSENTIAL PLANT & MACHINERY REQUIRED FOR PRODUCTION

1. **Electrically Operated Bench** Drilling machine
2. **PLC Based** Injection moulding machine (Medium duty hydraulic)
(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 and **De-soldering Station 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/**Dip Soldering machine**
10. Component forming machine
11. PCB populating machine/ **PCB populating jig**
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. **Digital** Insulation tester, 500V DC
2. Digital time interval meter
3. **Digital** High voltage break down tester, up to 5KV AC
4. Digital 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 with automatic measurement of flash rate and Duty cycle and PC interface.**
11. Digital multimeters – 4 ½ digits or better.
12. Test stations for testing electronic sub-assemblies/PCBs.
13. **Digital** 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 **item related to 2 & 3 of Essential Plants and machinery shall be indicated** in the 'Quality Assurance Plan' and approval of RDSO, Lucknow shall be obtained. Outsourcing of items related to 2&3 of Essential Plants and Machinery as mentioned above shall be from valid ISO certified sources.

In case of outsourcing, the ultimate responsibility to ensure quality, reliability and compliance of RDSO specification & drawings for the outsourced components 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 shall be indicated in the QAP. Proper test record with traceability to the final product shall be maintained.

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 at least 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 by the firm. Audit of the manufacturing process of outsourced component in the manufacturing premises can also be carried out by the RDSO if desire.**
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. **Outsourced process should be clearly marked in the process flow chart in QAP.**
5. This STR shall be applicable to all new vendors applying for registration.
6. Except item no.2 and 3 of plant and machinery all other items are mandatory to be in house.

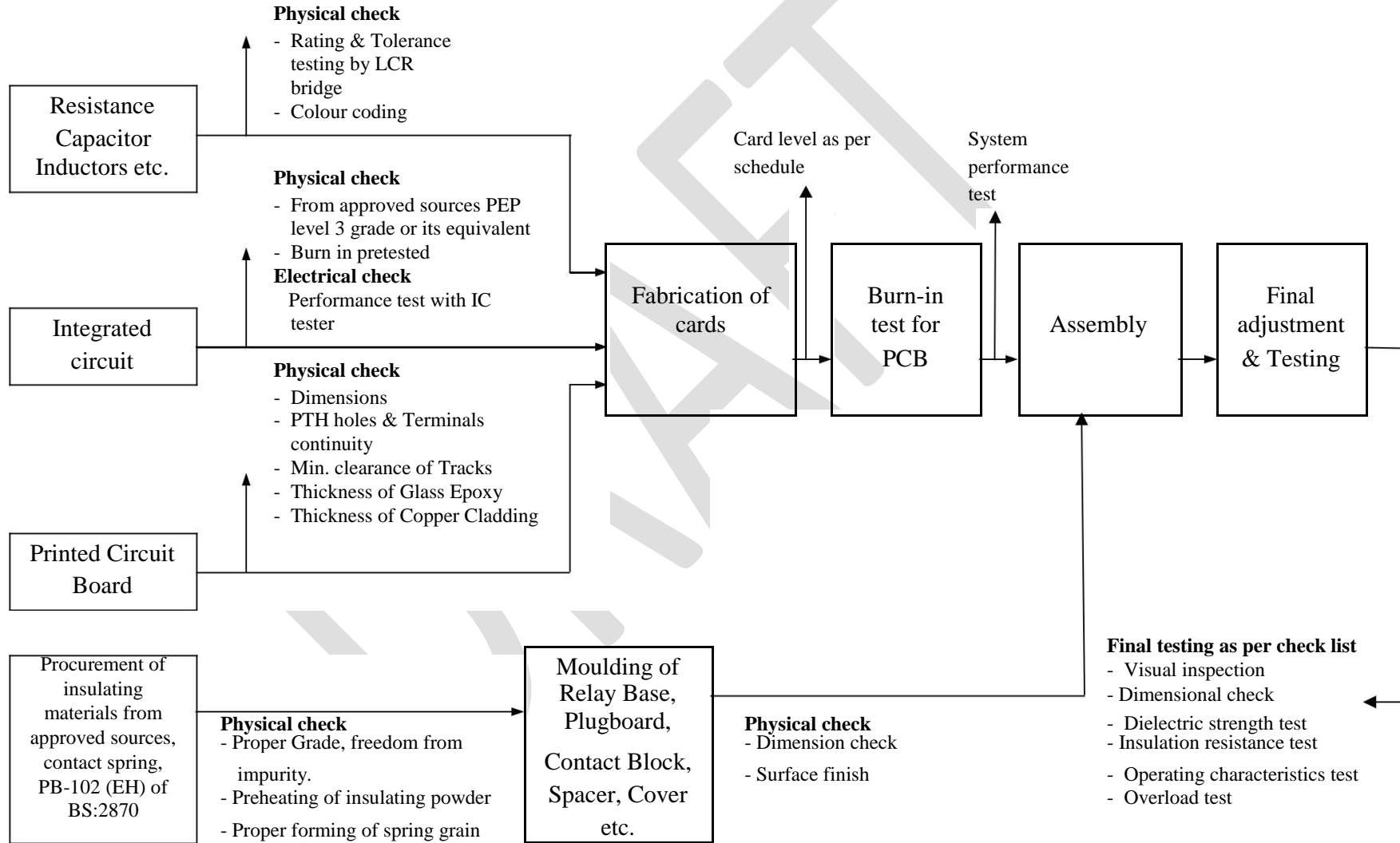
III. Copy Holder :-

ED/QA/S&T

DSIG-VIII

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



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