

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			



RESEARCH DESIGNS & STANDARDS ORGANIZATION

Manak Nagar, Lucknow – 226011

SPECIFICATION FOR

FAIL-SAFE ELECTRONIC TIME-DELAY DEVICE FOR RAILWAY SIGNALLING

1.0 Amendment History:

S. No.	Specification No.	Version	Amendment	Reasons for Amendment	Date of Effective
1.0	IRS:S 61-2000	00	01	Change in Input Voltage and Out Voltage range	Feb-2001
2.0	IRS:S 61-2000	1.0	02	Change in Clause no. 3.4.1 & 3.4.2	11.02.2013

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 1 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

0. FOREWORD

- 0.1 This specification is issued under the fixed serial No. S 61. The final number indicates the year of original adoption as standard or, in the event of revision, the year of last revision.

ADOPTED 1981 First Revision 2000

- 0.2 This specification requires reference to the following Indian Railways Standard (IRS) specification, Indian Standards (IS) specification & British Railways Specifications (BRS).

IRS:S 23	- Electrical Signalling and Interlocking Equipment.
IRS:S 34	- Testing of Railway Signalling Relays (General)
IRS:S 46	- D.C. Neutral Line Relay (Proved Type) for Railway signalling.
RDSO/SPN/144	- Reliability & Safety Requirement of Electronic & Signalling Equipments.
IS: 7405 (Part I)	- Printed wiring boards-General requirement and tests.
BRS:930-A	- Miniature Tractive Armature D.C. Neutral Line Relay Plug-in type for Railway Signalling purposes.
IS:9000 (Pt. I to IV)	- Basic environment testing procedures for electronic and electrical items.

- 0.3 Above specifications are referred to by number only, without mentioning the year of issue. The latest issue of all specifications is implied.

1. SCOPE

- 1.1 This specification relates to the design and performance requirements for fail-safe Electronic Time Delay Device (FST) to control railway signalling circuits where a set time-delay is required.
- 1.2 This device shall work on 24 or 60 volts DC from primary or secondary cells or unsmooth full-wave rectified supply from single phase, 50Hz, sinusoidal A.C. supply and shall give 24 or 60 volts D.C. output to energise D.C. Line relays after a time-delay of 10 or 20 or 30 or 60 or 120 second, as specified by the purchaser.
- 1.3 This specification is intended chiefly to cover the technical provisions and does not include all the necessary provisions of a contract.

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 2 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

2. TERMINOLOGY

2.1 For the purpose of this specification, terminology given in IRS:S 23 and IRS:S 34, in addition to the following, shall apply.

2.2 OPERATE TIME-DELAY

Operate time-delay is the time interval between the instant of switching on of the time-delay device and closing of the time-delay contacts.

2.3 SET TIME-DELAY

Set time-delay is the time interval for which the time-delay device is set to close the time-delay contacts from the instant of switching on of the device.

2.4 TIME-DELAY CONTACT

A contact which closes after the operate time-delay to control an external circuit.

2.5 NORMAL CONTACT

A contact which is intended to control an external circuit when the time-delay device has not operated.

2.6 SETTING ACCURACY

Setting accuracy of the time-delay device is the ratio of the differences of the operate time-delay and set time-delay to set time-delay.

$$\text{Percentage Setting accuracy} = \frac{T_o - T_s}{T_s} \times 100$$

Where T_o = Operate time-delay

T_s = Set time-delay

2.7 REPEAT ACCURACY

The repeat accuracy of the time-delay is the ratio of half of the variation between maximum and minimum operate time-delay at any particular setting, to the mean of all the observed operate time-delays.

$$\text{Percentage Repeat accuracy} = \frac{(T_1 - T_2)/2}{(\Sigma T/N)} \times 100$$

Where T_1 = maximum operate time-delay in seconds

T_2 = minimum operate time-delay in seconds.

T = actual operate time-delay in seconds for each operation

N = number of operations.

3. GENERAL REQUIREMENTS

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 3 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

3.1 DESIGN, MATERIAL AND DRAWINGS

- 3.1.1 The electronic time-delay device shall be of substantial design, robust and capable of withstanding such handling as may be encountered in service, storage, transit and installation. It shall meet the requirements of the relevant specifications for material, design, assembly, finish etc. in their entirety.
- 3.1.2 The time delay required for the operation of the device may be obtained by charging and discharging of capacitors or by counting of clock pulses or by use of integrated circuits or by any other electronic means. The design of the circuit shall be of fail-safe nature so that in case of failure or open circuit/short circuit or ageing of any component or any momentary switching OFF/ON of the power supply or external surges due to picking up and dropping of relays connected across the supply to the time-delay device, it shall not lead to any output being available from the time-delay contact earlier than the specified time delay.
- 3.1.3 Time delay offered by FST shall be indicated on the unit for easy identification.
- 3.1.4 The device shall be provided with protection against reverse polarity of supply.
- 3.1.5 Relays, if any used in the device, shall normally be vital relays. Non-vital relays, if any used, shall be of a proved type having special feature of proving the energised and de-energised contacts of the relays in sequence in normal working. The relays used shall conform to approved specifications.
- 3.1.6 Glass epoxy copper clad laminates conforming to IS:7405 (Pt-I), climatic severity class 2, shall be used for printed circuit card. The thickness of laminate shall not be less than 1.6 mm. The thickness of the copper foil shall not be less than 35 microns, corresponding to a weight of 305 grams per square meter.
- 3.1.7 Solid-state components of industrial grade shall only be employed for mounting on the printed circuit cards.
- 3.1.8 The printed circuit cards shall be designed to suit the circuitry and no extra wires shall be used for interconnections of components on the printed circuit cards. Soldering of the components shall be neat and flat preferably of wave soldering. If double sided PCBs are used, all resistors and components have to be lifted by 2 mm., wherever conducting track travels underneath the components.
- 3.1.9 The maker's name and trademark shall be printed on the printed circuit cards. The printed circuit cards shall be provided with testing points and the corresponding voltages and waveforms shall be indicated in the fault diagnosis procedure in the service manual.
- 3.1.10 All the resistors used shall be at least double the power capacity which is supposed to be dissipated in them. The voltage rating of capacitors shall be at least 50% above peak value.
- 3.1.11 After assembly and soldering of components and testing, the printed circuit shall be coated with transparent epoxy painting to a thickness of not less than 5 microns for environmental protection.
- 3.1.12 The device shall be mounted on Q series relay and enclosed within Q series relay cover as per Cl. 5 of BRS: 930A or on K-50 relay base within K-50 relay cover as per standard Siemens K-50 relay, standard mini group. The whole assembly shall be capable of being mounted on a relay rack and shall be protected against dust and moisture. Gasketing by suitable material conforming to IS: 11149 shall be provided.

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 4 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

- 3.1.13 Registration pins shall be provided to identify the time-delay setting. The pin configuration code shall be as per Cl. 3.4.2.
- 3.1.14 LEDs shall be provided to indicate the presence of clock pulses and the completion of the time-delay period. The LEDs shall be conspicuously visible.
- 3.1.15 A protective fuse replaceable without breaking the seal shall be provided in the device in the input side of the supply.
- 3.1.16 The material for the cover shall be transparent polycarbonate. The cover shall be tough, self-extinguishing, non-hygroscopic, smooth, homogeneous and free from surface streaks, splash marks, surface sinking, joints and repairs.
- 3.1.17 Electronic time delay device shall have two control input (positive & negative) and one delayed output (positive) terminals. These terminals shall be suitably marked by etching/engraving/embossing followed by indelible printing.
- 3.1.18 On a Q-base plug-board, the input & output terminals shall be located as under:-

Input (positive) - R1
Input (negative or common) - R2
Output (positive) - A1

- 3.1.19 The current carrying capacity of the wires and cables used shall be double of the actual current flowing. The wires and cables used shall conform to IRS:S 76 and shall be procured only from the suppliers approved by RDSO for manufacture and supply of Railway signalling indoor cables. The input, output and earth terminals shall be 20±2 mm away from the nearest registration pin for the relays. The output terminal shall be on the left side facing the registration pins and the earth terminal shall be in the middle.
- 3.1.20 The device shall be suitably protected from high voltage.
- 3.1.21 Rating / value of each component shall be given in the circuit diagram to be supplied with the device.
- 3.1.22 Handle clip and handle support shall be made of stainless steel.

3.2 DIMENSIONS

- 3.2.1 All the dimensions of the FST with plug-board shall be in accordance with the Cl. 5.1 of BRS:930A.
- 3.2.2 The retaining clip for FST shall be in accordance with the Cl. 5.2 of BRS:930A.
- 3.2.3 FSTs with the same registration pin coding shall be interchangeable.

3.3 STORAGE LIFE

The unit shall be considered as having a possible period of up to 2 years in reasonable storage conditions prior to being brought into use without verification or examination and without any adverse effect on its operating characteristics.

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 5 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

3.4 OPERATING CHARACTERISTICS

3.4.1 The electronic time-delay device shall operate satisfactorily either from primary or secondary cells or unsmooth full-wave rectifier supply from single phase, 50 Hz sinusoidal AC supply. The rated current, voltage and ambient temperature shall be as follows:-

- (1) Input voltage - 24V or 60V DC (as specified by the purchaser) +20%,-10%
- (2) Output voltage - 24V or 60V DC (as specified by the purchaser) +20%,-10%
- (3) Output current - 150 mA (Max.)
- (4) Operating temperature range - -10°C to 55°C
- (5) Fixed time-delay – 10 or 20 or 30 or 60 or 120 second (as specified by the purchaser)
- (6) Input Current Limit- 500 mA(Max)

3.4.2 The registration code (pin configuration) for the electronic time delay device shall be as under:-

S.No.	Fixed timing of FST	Registration Code (Pin Configuration)	
		24V	60V
1	10 Second	AFNKY	ACNJY
2	20 Second	AFMKY	ACMJY
3	30 Second	AFLKY	ACLJY
4.	60 seconds	AFHKY	ACGJY
2.	120 seconds	AFGKY	ACEJY

3.4.2.1 Variation in operate time-delay over extreme limits of voltage and temperature as per Cl. 3.4.1. +10%

3.4.2.2 The manufacturer shall provide a suitable sealing arrangement to the cover.

4 MARKING AND IDENTIFICATION

4.1 Input and output terminals and their polarities shall be marked by indelible printing.

4.2 A nameplate shall be provided in a conspicuous position giving the following information:-

- (a) Manufacturer's name
- (b) Month and year of manufacture
- (c) Serial number of the device
- (d) Set time-delay in second
- (e) Rated input and output voltage
- (f) Specification number

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 6 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

- 4.3 The words “INDIAN RAILWAY PROPERTY” shall be etched/engraved/embossed on the device at a conspicuous position.

5 TESTS AND PERFORMANCE REQUIREMENT

- 5.1 Unless otherwise specified, all tests shall be carried out under ambient atmospheric condition.

- 5.1.1 For inspection of material relevant clauses of IRS:S 23 & IRS:S 34 shall also apply.

5.2 TYPE TEST

- 5.2.1 The following shall constitute type tests and shall be carried out once in three years, or earlier, at the discretion of inspecting authority.

(a) Visual inspection	Cl. 6.9
(b) Dimensional check	Cl. 3.2
(c) Dielectric strength test	Cl. 6.1
(d) Insulation resistance test	Cl. 6.2
(e) Operating characteristics test	Cl. 6.3
(f) Setting accuracy test	Cl. 6.4
(g) Fail-safe feature test	Cl. 6.8
(h) Repeat accuracy test	Cl. 6.5
(i) Climatic severity test on two samples	Cl. 6.7
(j) Endurance life test on two samples	Cl. 6.6
(k) Vibration test	Cl. 6.7.5

- 5.2.2 Test samples – Total 5 samples shall be required for complete range of type tests as per Cl. 5.2. These samples shall be selected at random, as far as possible from at least 10% of the production lot. These samples shall be selected and sealed by the Inspecting Officer. Samples of electronic time-delay device identified for type tests shall not form part of the supply. Tests covered by Cl. 5.2.1 (a) to (h) shall be carried out as per sample plan given in Cl. 8.4.

5.3 ACCEPTANCE TEST

- 5.3.1 The following shall constitute acceptance tests

(a) Visual inspection	Cl. 6.9
(b) Dimensional check	Cl. 3.2
(c) Dielectric strength test	Cl. 6.1
(d) Insulation resistance test	Cl. 6.2
(e) Operating characteristics test	Cl. 6.3
(f) Setting accuracy test	Cl. 6.4
(g) Repeat accuracy test	Cl. 6.5

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 7 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

Sampling plan as per Cl. 8 shall be followed.

The lot shall be offered to the inspecting authority within two months of the month of manufacture along with the Routine Test Report.

In case results of acceptance test vary by more than 5% from the results of routine test, the lot shall be rejected. For calculation of percentage variation result of routine test shall be taken as initial value.

5.4 ROUTINE TEST

The following shall constitute routine tests

(h) Visual inspection	Cl. 6.9
(i) Dimensional check	Cl. 3.2
(j) Dielectric strength test	Cl. 6.1
(a) Insulation resistance test	Cl. 6.2
(b) Operating characteristics test	Cl. 6.3
(c) Setting accuracy test	Cl. 6.4
(d) Repeat accuracy test	Cl. 6.5
(e) Fail-safe feature test	Cl. 6.8

- 5.4.1 The results of routine test shall be made available to the inspecting authority along with the inspection call letter.

6.0 TESTS

6.1 DIELECTRIC STRENGTH TEST

The time-delay device shall withstand for one minute a test voltage of 1KV (r.m.s.), 50Hz AC, approximately sine wave, applied between all parts of electric circuits and other metallic parts insulated therefrom.

6.2 INSULATION RESISTANCE TEST

Immediately after the dielectric strength test as per Cl. 6.1, the insulation resistance shall be measured between all parts of electric circuits and other metallic parts insulated therefrom at potential not less than 500V DC. The insulation resistance shall not be less than 50 Mega ohm.

6.3 OPERATING CHARACTERISTICS TEST

After dielectric and insulation resistance tests, the device shall be tested for its operating characteristics at the minimum, maximum and rated input voltage as per Cl. 3.4. The output voltage, current and time-delay shall be measured. It shall be within specified limits. This test shall be conducted at minimum, maximum and at ambient temperature as specified in Cl. 3.4. However, for acceptance test the device shall be tested at ambient temperature.

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 8 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

6.4 SETTING ACCURACY TEST

The device shall be operated 10 times at the rated voltage and ambient temperature, an interval of one minute being allowed between successive operations. The average operate time-delay of these 10 operations shall be recorded as “To”. The setting accuracy shall be calculated as per Cl. 2.6 and shall be less than +10%.

6.5 REPEAT ACCURACY TEST

The device shall be operated 10 times at the rated voltage, observing the max. (T_1) and min. (T_2) of the operate time-delay. The repeat accuracy of the device at the rated voltage and at ambient temperature shall be calculated as per Cl. 2.7 and shall be within +10%.

6.6 ENDURANCE LIFE TEST

The time-delay device shall be subjected to 10^5 (one lakh) operations at ambient temperature. A time interval of 30 seconds shall be allowed between the commencement of the following cycle and the end of the previous cycle. Each cycle shall include energisation of a Neutral Line Relay to specification BRS:1659 or BRS:930A, as the case may be. Throughout the test the device shall operate efficiently and without failure. After the completion of the test the operate time-delay shall be within +10% of the set time-delay.

6.7 CLIMATIC SEVERITY TEST

6.7.1 DRY HEAT TEST

This test shall be conducted as per IS:9000 (Part-III, Section 3) for 16 hours at $55 \pm 2^\circ\text{C}$. The time-delay device shall be energised with the external, relay load during this test. On completion of the test, the insulation resistance of the device and the operate time-delay shall be measured with the time-delay device kept inside the chamber. The insulation resistance shall not be less than 50 Mega ohm. The operate time-delay shall be within +10% of the set time-delay. The device shall then be removed from the chamber and visually inspected to see that no part is damaged or cracked.

6.7.2 DAMP HEAT (ACCELERATED) TEST - FIRST CYCLE

This test shall be conducted as per IS:9000 (Part V, Section 1) at $55 \pm 2^\circ\text{C}$ and relative humidity 90-95%. The device shall not be energised during this test. After removal from the test chamber, the device shall be wiped with a dry cloth to remove condensed water from the surface and the insulation resistance measured as per Cl. 6.2 after a period of 1 to 2 hours shall not be less than 1 Mega ohm.

6.7.3 COLD TEST (AFTER FIRST CYCLE OF DAMP HEAT)

This test shall be conducted as per IS:9000 (Part-II, Section 3) for 2 hours at -10°C . The device shall be operated ten times at the end of the test, with an interval of one minute

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 9 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

between successive operations of the device to see that the device is working satisfactorily and that there is no seizure. The device shall be visually inspected to see that no part is damaged or cracked.

6.7.4 DAMP HEAT (ACCELERATED) REMAINING 5 CYCLES TEST

The heat cycle test shall be performed as per Cl. 6.7.2. The insulation resistance measured after each damp heat cycle shall not be less than 1 Mega ohm and not less than 10 Mega ohm after final cycle and full recovery period.

6.7.5 VIBRATION (SINUSOIDAL) TEST

This test shall be conducted on the device [as per IS:9000, Pt. VIII, Vibration (Sinusoidal) Test 1981] with following severities -

i) Frequency range	1 Hz - 35 Hz
ii) Amplitude	0.15 mm or 2g
iii) No. of axes	3
iv) Number of sweep cycle	10
v) Total duration for the 10 sweep cycles	1 hour 45 min. when frequency of vibrations is changed as per Cl. 6.3 of IS:9000 (Pt. VIII)-1981 during each sweep.
vi) If resonance is observed, endurance test at resonant frequencies.	10 minutes at each resonant frequency.

After the test device shall be visually inspected to see that no part is damaged or cracked and time delay function under specified input voltage range is normal.

6.8 FAIL-SAFE FEATURE TEST

6.8.1 Fail-safe feature of the device shall be tested by opening/short-circuiting the device by momentarily switching off the power supply, by picking up and dropping of the relays connected across the power supply and creating a fault in the circuit. The device shall satisfy clauses 3.1.2 of the specification.

6.9 VISUAL INSPECTION

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 10 of 11

ISO9001:2008	Document No. IRS:S 61-2000	Ver. : 1.0	Date effective from 11.02.2013
Document Title : Fail Safe Electronic Time-Delay Device for Railway Signalling			

- 6.9.1 The physical condition of the device shall be visually inspected as per Cl. 3.1 and it shall be free from any physical defect as mentioned therein.

7.0 PACKING

- 7.1 The time-delay device shall be so packed as to permit convenient handling and to protect against loss or damage and ingress of moisture during transit and storage.
- 7.2 The package/box containing time-delay devices and meant for transport to the consignee shall be plainly marked on the outside with the following particulars:-
- Name and address of consignee and consignor
 - Packing number
 - Number of devices packed and their serial numbers
 - Purchase order number and date
 - The marking "FRAGILE" and "HANDLE WITH CARE", each letter being not less than 50 mm in height
- 7.3 Each package shall contain an operation manual for the device, incorporating general description, operating characteristics, schematic diagram showing each component and its value, overall dimensions of the device, etc.

8.0 SAMPLING

- 8.1 All the devices having the same rated voltage, time setting and similar construction shall constitute a lot.
- 8.2 For taking samples, the device shall be chosen at random from the lot.
- 8.3 The number of devices taken for acceptance test shall be 20% of the lot.
- 8.4 The sampling plan for the different tests shall be as follows:-

a) Dimensional check	Cl. 3.2	On 2% of the sampled devices, subject to a minimum of one.
b) Visual inspection	Cl. 6.9	On 100% of the sampled devices
c) Dielectric strength test	Cl. 6.1	-do-
d) Insulation resistance test	Cl. 6.2	-do-
e) Operating characteristics test	Cl. 6.3	-do-
f) Setting accuracy test	Cl. 6.4	-do-
g) Repeat accuracy test	Cl. 6.5	-do-
h) Fail-safe feature test	Cl. 6.8	On 2% of the sampled devices, subject to a minimum of one.

9.0 INFORMATION TO BE SUPPLIED BY THE PURCHASER

- 9.1 Input and output voltages
- 9.2 Fixed time-delay

			Printed:
Prepared By: JE/Signal	Checked By : DD/Signal-I	Issued By: ED/Signal	Page 11 of 11

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Government of India - Ministry of Railways
**Research Designs & Standards
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No. STS/E/Relays/Genl. Misc. Vol. XII

25th July 2017

मुख्य संकेत एवं दूरसंचार अभियन्ता, मुख्य संकेत एवं दूरसंचार अभियन्ता (निर्माण), मुख्य संकेत एवं दूरसंचार अभियन्ता (प्रॉजेक्ट)	Chief Signal & Telecom Engineer, Chief Signal & Telecom Engineer (Const.), Chief Signal & Telecom Engineer (Project)
मध्य रेलवे, मुम्बई सी.एस.टी. – 400 001	Central Rly, Mumbai CST – 400 001
पश्चिम रेलवे, चर्च गेट, मुम्बई – 400 020	Western Rly, Churchgate, Mumbai – 400 020
पूर्व रेलवे, फेयरली प्लेस, कोलकाता – 700 001	Eastern Rly, Fairlie Place, Kolkata – 700 001
दक्षिण पूर्व रेलवे, गार्डन रीच, कोलकाता – 700 043	South Eastern Rly., Garden Reach, Kolkata – 43
उत्तर रेलवे, बडौदा हाउस, नई दिल्ली – 110 001	Northern Rly., Baroda House, New Delhi – 01
पूर्वोत्तर रेलवे, गोरखपुर – 273 012	Northeastern Rly., Gorakhpur – 273 012
पूर्वोत्तर सीमान्त रेलवे, मालीगांव, गुवाहाटी – 780 011	North Frontier Rly., Maligaon, Guwahati – 011
दक्षिण रेलवे, पार्क टाउन, चेन्नई – 600 003	Southern Rly., Park Town, Chennai – 600 003
दक्षिण मध्य रेलवे, सिकन्दराबाद – 500 371	South Central Rly, Rail Nilayam, Secunderabad– 71
पूर्व मध्य रेलवे, हाजीपुर – 841 101	East Central Railway, Hazipur - 841 101
उत्तर पश्चिम रेलवे, जयपुर – 302 006	North Western Railway, Jaipur – 302 006
पूर्व तटीय रेलवे, ग्राउन्ड तल, उत्तरी ब्लॉक, समन्त विहार, भुवनेश्वर – 17	East Coast Railway, Rail Vihar, Ground floor, North Block, Samant Vihar, Bhubaneswar – 17
उत्तर मध्य रेलवे, गंगा कॉम्प्लेक्स, सूबेदारगंज, इलाहाबाद	North Central Railway, Ganga Complex, Subedarganj, Allahabad
दक्षिण पश्चिम रेलवे, मुख्य कार्यालय, क्लब रोड, केशवपुर, हुबली – 580 023	South Western Railway, Main Office, Club Road, Keshavpur, Hubli – 23
पश्चिम मध्य रेलवे, द्वितीय तल, डी.आर.एम. ऑफिस, जबलपुर – 482 001	West Central Railway, II nd Floor, DRM Office, Jabalpur – 482 001
दक्षिण पूर्व मध्य रेलवे, आर0ई0 ऑफिस कॉम्प्लेक्स, बिलासपुर – 495 004	South East Central Railway, R. E. Office Complex, Bilaspur – 495 004
मेट्रो रेलवे, 33/1, जवाहर लाल नेहरू रोड, कोलकाता – 700 071	Metro Railway, 33/1, Jawaharlal Nehru Road, Kolkata – 700071
कोर , नवाब युसुफ रोड, सिविल लाइन्स, इलाहाबाद – 211 001	CORE, Nawab Yusuf Road, Civil Lines, Allahabad – 211 001
निदेशक/इरिसेट, तारनाका रोड, लालागुडा, पी. ओ. सिकन्दराबाद – 17	Director/IRISET, Tarnaka Road Lallaguda, P.O. Secunderabad – 17

Sub: Amendment No. 3 to Specification No. IRS : S - 61/2000 for Fail Safe Electronic Time Delay Device for Railway Signalling.

In compliance to Vigilance Cell/RDSO's letter No. 13/Vig/Policy dt. 26.07.16 & 08.09.16, Amendment No. 3 to Specification No. IRS: S - 61/2000 for Fail Safe Electronic Time Delay Device for Railway Signalling is hereby issued with the approval of competent authority for information & implementation please.

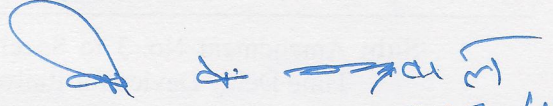
DA: Copy of Amendment No. 3 to the
Specification No. IRS : S - 61/2000.

(V. K. Agarwal)
Jt. Director/Signal
for Director General/Signal

Copy to :-

कार्यकारी निदेशक / गुणवत्ता आश्वासन / अ०अ०मा०सं०, लखनऊ	Executive Director/QA/S&T/RDSO/Lucknow
निदेशक / गुणवत्ता आश्वासन / सिगनल एवं दूरसंचार, / अ०अ०मा०सं०, निकट इरकॉट बिल्डिंग, शंकर मार्केट के पीछे, शिवाजी ब्रिज, नई दिल्ली – 110 001	Director/QA./S&T/RDSO, 1st Floor, Near IRCOT Building, Behind Shanker Market, Shivaji Bridge, New Delhi – 110 001
निदेशक / गुणवत्ता आश्वासन / संकेत एवं दूरसंचार, / अ०अ०मा०सं०, प्रथम तल, न्यू एनेक्सी बिल्डिंग, चर्चगेट, पश्चिम रेलवे, मुम्बई – 400 020	Director/QA./S&T/RDSO, 1st Floor, New Annexe Building., Western Railway, Churchgate, Mumbai – 400 020
निदेशक / गुणवत्ता आश्वासन / सिगनल एवं दूरसंचार, / अ०अ०मा०सं०, भूतल, डी०आर०एम० ऑफिस, बंगलोर – 560 023	Director/QA./S&T/RDSO, Ground Floor, DRM Office, Bangalore – 560 023
निदेशक / गुणवत्ता आश्वासन / सिगनल एवं दूरसंचार, / अ०अ०मा०सं०, चौथी मंजिल, 17 एन.एस. रोड, वैस्ट विंग, फेयरली प्लेस, कोलकाता – 700 001	Director/QA./S&T/RDSO, 4th Floor, 17 N.S. Road, West Wing, Fairlie Place, Kolkata – 700 001
निदेशक / गुणवत्ता आश्वासन / सिगनल एवं दूरसंचार, / अ०अ०मा०सं०, हसनपुरा रोड, जयपुर – 302 006	Director/QA./S&T/RDSO, Hasanpura Road, In Front of Railway Hospital, JAIPUR – 302 006
1. M/s. Epsilon Electronic Equipment & Co. Ltd., B-2, Electronic Industrial Estate, ECIL CROSS Road, Kushaiguda, Hyderabad – 500 062	
2. M/s. Digital Communication & Control Pvt. Ltd., Webal Industrial Estate, Room No. 213/215/217, P-1, Taratalla Road, Kolkata – 700 088.	
3. M/s. G.G. Tronics, Plot No. 10, 3rd Phase, 6 th Main, Peenya Industrial Area, Peenya, Bangalore – 560 058	
4. M/s. Ram Electronics, Plot No. 149-D, Sector-I, Lane-8, Phase-II, IDA, Cherlapally, Hyderabad – 51	
5. M/s. Anu Vidyut, C-1 Industrial Estate, Roorkee – 247 667	
6. The Chief Workshop Manager, Signal Workshop, Southern Railway, Podanur – 641 023	
7. M/s. Surya Electronics, Plot No. 115- ALEAP Industrial Area, Gajularamaram Village, Qutabullapur Mandal, RR District, Hyderabad – 500 055	
8. M/s. Ultra Electronics Pvt. Ltd., 32B, Ganesh Chandra Avenue, Gr. Floor, Kolkata – 700 013	

DA: Copy of Amendment No. 3 to the
Specification No. IRS : S - 61/2000.


(V. K. Agarwal) 25/07/17
Jt. Director/Signal
for Director General/Signal

Amendment No. 3

To

RDSO Specification No. IRS : S - 61/2000

For

Fail Safe Electronic Time Delay Device for Railway Signalling

Following new clause is added to the Specification No. IRS : S - 61/2000 for Fail Safe Electronic Time Delay Device for Railway Signalling.

Clause No. 10

“All the provisions contained in RDSO’s ISO procedures laid down in Document No. QO-D-7.1-11 dated 19.07.2016 (titled “Vendor Changes in approved status”) and subsequent versions/amendments thereof, shall be binding and applicable on the successful vendor/vendors in the contracts floated by Railways to maintain quality of products supplied to Railways”.

End of Amendment No. 3