

Ref	NR/SP/SIG/I0060
Issue	I
Date	February 1999

Vital Signalling Timer (formerly RT/E/S/I0060)

This temporary front sheet facilitates change to the new Network Rail Standards referencing nomenclature.

The Ref above will be formally allocated to this standard when it is next changed in the meantime the contents, date and issue number of this Network Rail Standard are **UNCHANGED and with immediate effect it should be referred to as “(new ref) formerly (old ref)”.**

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Published & Issued by: Network Rail; 40 Melton Street, London NW1 2EE



RAILTRACK LINE SPECIFICATION

VITAL SIGNALLING TIMER

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LONDON
NW1 2EE

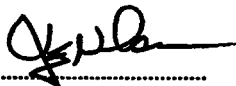
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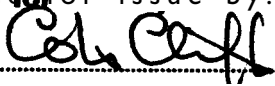
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Summary

This document has been prepared to define the performance requirements for a “Vital Signalling Timer” unit for use in signalling circuitry.

Issue/Revision Record

This specification will be updated when necessary by the distribution of a complete document. Amendments will be marked by vertical black line in the adjacent right hand margin. The latest issue of this standard shall be implemented immediately upon receipt.

Issue	Date	Comments
1	February 1999	New issue

Implementation

The requirements of this standard are mandatory and shall be enforced for the approval of new vital signalling timers procured to this standard from the date of publication unless express written permission is obtained for any deviation from the Professional Head of Signal Engineering. The introduction of this standard does not mandate the replacement of timers which are in service and have been procured to a different specification. The following documents are superseded.

Superseded document reference number	Issue	Date
Nil		

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All persons are reminded that all appropriate safety precautions must be observed when undertaking the work covered by this document.

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1. PURPOSE

This specification defines the minimum performance requirements for a Vital Signalling Timer procured for use in signalling applications. Common requirements for all timers are given in the main body of the specification and the requirements specific to the different variants are given in the Appendices A to D. The pin registration codes are allocated to the timers in accordance with GK/RT0330.

2. SCOPE

This standard applies to vital signalling timers which energise an output after a pre-determined time. It does not include the remote electrical controlling circuitry. The introduction of this standard does not mandate the replacement of timers which are in service and have been procured to a different specification.

The timer is not a replacement for ratchet type timers or those for which a suitable appendix does not exist.

3. DEFINITIONS

Contact	A term applied to a two state switched output used to interface with external circuitry. The output device may be electro-mechanical or solid state with equivalent performance.
Back contact	A term applied to a contact which is normally closed when no power supply is present.
Front contact	A term applied to a contact which is normally open when no power supply is present.
Delayed output	A term applied when an output is given after the selected time delay has elapsed.
Vital	A term applied to equipment whose correct operation is essential to the integrity of the signalling system.
Wrong Side Failure	A term applied to any failure of the timer which results in the selected time delay being reduced.

4. ABBREVIATIONS

MTBF	Mean time between failure
MTBWSF	Mean time between wrong side failure
A	Arm
B	Back
F/B	Front/Back changeover
F	Front

5. GENERAL

5.1 General Description

- 5.1.1 The device described in this specification is a timing device which is intended for use in vital signalling circuitry. The timer shall give an output after a prescribed time delay has elapsed unless otherwise stated in the appropriate Appendix.

5.2 Construction

- 5.2.1 The timer shall be constructed such that it is robust enough to be suitable for use within a railway environment with a service life of 25 years. To achieve this service life the design of the timer shall consider the availability of spares and avoidance of component obsolescence to allow the repair of failed units.
- 5.2.2 The dimensions of the timer shall be as defined in BR930.
- 5.2.3 The timer shall be constructed such that it is compatible with a plugboard as defined in BR930 and BR829.
- 5.2.4 The relay shall be secured to the plugboard using a relay retaining clip as defined in BR930.
- 5.2.5 The timer shall function as specified when affixed to a plugboard mounted on a vertical relay rack in accordance with drawing BRS-SM 440 S27.
- 5.2.6 The maximum weight of the timer shall be 2kg.
- 5.2.7 The centre of gravity of the unit shall be suitable to ensure that the unit fits securely into the plugboard when retained by a retaining clip.

5.2.8 No moving parts shall be exposed once the timing adjuster is sealed.

5.2.9 The timer shall have no sharp edges or protrusions which may cause injury to staff.

5.3 Contacts

5.3.1 The performance of the contact units shall be equal to or better than that required for contacts as defined in BR930.

5.4 Tooling

5.4.1 No special tools shall be required for the installation of the timer, adjustment of the time delay or for sealing the timing mechanism.

5.5 Timing Adjustment

5.5.1 Timing adjustment shall be simple and quick to achieve without the need for special competency or training other than written instruction.

5.5.2 Once adjusted, it shall be possible to seal the timing mechanism to deter and detect unauthorised tampering. The seal shall not require specialist tooling.

5.6 Time Delay Indication

5.6.1 A non-volatile visual indicator shall be provided to display the time setting of the device.

5.6.2 The indication shall be accurate to $\pm 10\%$ of the actual time setting.

5.6.3 The indication shall have a resolution of 1 second unless otherwise specified.

5.7 Availability

5.7.1 The timer shall require a settling period following installation of no more than 1 minute. Any settling requirements shall be clearly identified in user documentation.

5.7.2 Following timing adjustment the timer shall be operationally available for testing purposes within no more than 1 minute.

6. ELECTRICAL REQUIREMENTS

6.1 General

6.1.1 The timer shall not dissipate more than 3W of electrical power.