

Ref	NR/PS/SIG/00011
Issue	I
Date	April 2001

Train Protection & Warning System (TPWS) - Failure Indication Unit (formerly RT/E/PS/00011)

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



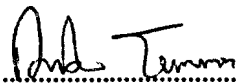
RAILTRACK COMPANY

SPECIFICATION

TRAIN PROTECTION & WARNING SYSTEM (TPWS) - FAILURE INDICATION UNIT

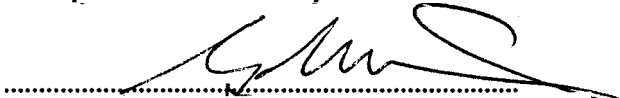
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Published and Issued by
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Summary

This specification has been prepared to define the requirements for a Train Protection and Warning System (TPWS) Failure Indication Unit that is to be provided for the reporting of failed TPWS trackside sub-systems within mechanically signalled areas.

Issue/Revision Record

This specification will be updated when necessary by the distribution of a complete document. Amendments will be marked by a vertical black line in the adjacent right hand margin.

Issue	Date	Comments
One	April 2001	Original issue

Implementation

The requirements of this specification are mandatory for TPWS Failure Indication Units for mechanically signalled areas. The following documents are superseded.

Superseded document reference number	Issue	Date
None		

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1. PURPOSE

The purpose of this product specification is to define the performance requirements for a Train Protection and Warning System (TPWS) Failure Indication Unit (FIU) that will be used for reporting of failed TPWS track sub-system in mechanically signalled areas where there are no existing circuits for the proving of lamp alight in the signal in rear.

2. SCOPE

This product specification applies to TPWS FIUs for TPWS trackside sub-systems when the associated TPWS fitted signal is mechanically operated and controlled i.e. a signal without the ability for the signal in rear to be replaced to danger automatically in the event of TPWS failure. It may also be used for failure reporting of TPWS at Permanent Speed Restrictions (PSRs) or buffer stops in areas where signals are mechanically operated and controlled.

This product specification should be read in conjunction with RAILTRACK COMPANY Specification RT/E/S/10133 TPWS Signalling Interface Design Requirements.

3. ABBREVIATIONS

AC	Alternating Current
CCTV	Closed Circuit Television
DC	Direct Current
FIU	Failure Indication Unit
PSR	Permanent Speed Restriction
RETB	Radio Electronic Token Block
THD	Total Harmonic Distortion
TPWS	Train Protection and Warning System
UPS	Uninterruptible Power Supply

4. FITMENT CRITERIA

4.1 The TPWS FIU is for fitment to mechanically operated and controlled signalling to meet the requirement that the Signaller shall be made immediately aware of failure of TPWS equipment. The TPWS FIU shall be installed with a separate indication for each signal.

4.2 For signals within a mechanical signal box that are colour light and have a lamp proving circuit indicated within the signal box with the ability to replace the signal in rear to danger, failure of TPWS may be reported using the lamp proving circuit as per relay based signalling.

5. REQUIREMENTS FOR TPWS FAILURE INDICATION UNITS

5.1 Functional requirements.

5.1.1 The TPWS FIU shall be available as either a single stand alone unit capable of providing indications for only one TPWS installation, or as a multiple unit arrangement capable of providing indications for a number of TPWS installations with common controls and audible alarm. This may take the form of either a master unit with slave units utilising the controls of the master unit, or as multiple installations of single self-contained units.

5.1.2 The TPWS FIU shall:

- a) give an indication that the electrical supply to the unit is on by illuminating a white Power On indicator. A master and slave arrangement may share a common Power On indication;
- b) where an Uninterruptible Power Supply (UPS) is provided for the operation of TPWS, have either an additional indication which indicates the status of the UPS or cause the power on indication to flash should the UPS be in any state other than fully operational. A master and slave arrangement may share a common UPS Status indication;
- c) have an Indication Test push-button which tests the blue TPWS Failed Indication and the UPS Status indication. For a master and slave arrangement, this test push-button shall include proving that the circuitry between units is capable of operating the Audible Alarm on the master unit if a single Audible Alarm is provided. The Indication Test push-button shall be a self returning push-button which naturally rests in the off position. Note that a master and slave arrangement may share a common Indication Test push-button;
- d) have a two position Acknowledge Switch for each TPWS fitment which shall have labels to indicate the Normal and Acknowledge positions. The Acknowledge Switch shall be a rotary switch, which is retained in the position set by the operator;
- e) give a discrete visual indication that the TPWS fitment has failed to operate when required to do so. This indication shall be by a blue TPWS Failed Indication flashing when the TPWS fitment has failed, and becoming steadily illuminated when the appropriate Acknowledge Switch is set to the Acknowledge position. The illumination flashes when the Indication Test push-button is pushed in order to prove the indication.
- f) sound an integral Audible Alarm when any TPWS fitment monitored has failed to operate when required to do so. A common Audible Alarm may be shared in a master and slave arrangement but then the Audible Alarm shall also sound if the cabling between an operational master unit and any of its slave units is broken or disconnected;