

# TECHNICAL INSTRUCTION

TI 101  
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## NETWORK RAIL - SIGNAL ENGINEERING Signalling Circuits Carried Over Telecoms Transmission Systems -Impact On Train Describer Specifications

**Relevant Standard:** NR/L3/SIG/00009 Message Handling & Data Transmission Requirements Between Processor Based Systems and BR800 Specification for Train Describers

### Purpose

The purpose of the TI is to mandate the use of Headers in accordance with NR/L3/SIG/00009 for all Train Describer communications between Adjacent Signal Boxes and Fringe Signal Boxes

### Scope

This instruction applies to all new Train Describer installations and modifications to existing Train Describers which utilise communication links between Adjacent Signal Boxes and Fringe Signal Boxes.

### Abbreviations & Definitions

FTN – Fixed Telecommunications Network  
21CN – British Telecom 21<sup>st</sup> Century Network

### Background

The Asset Management Policy re-issued in October 2007 (in support of the Strategic Business Plan) states that all new signalling systems requiring a telecoms link between equipment sites should utilise the FTN system. In the past, where "railway" telecoms links have been unavailable, British Telecom leased lines have been used for some links. Within the next few years, British Telecom is expected to cease supply of leased lines as they are converting their infrastructure to an Internet Protocol Network architecture under their 21CN project. The FTN system, BT Leased lines, and BT IP circuits (21CN) are all Open Networks (as defined in BS EN 50159-2:2001).

The Asset Management Policy states:

Signals 39 – FTN shall be used as the preferred fixed bearer for signalling system digital communications.

Signals 40 – All new, digital signalling systems will be capable of operating using open communications principles on non-dedicated bearers.

At present NR/L3/SIG/00009 clause 6.12 implies that headers are optional, however they are now mandatory and the specification will be updated to reflect this change.

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## Details

In compliance with the policy, Product Acceptance for the Westinghouse Train Describer has recently been updated (PA05/01854). Constraints on the new approval include:

- Headers are to be provided in accordance with NR/PS/SIG/00009.
- Small TDs shall be used at Fringe Boxes (a Fringe Box Unit is NOT to be used).
- Small TDs shall be used at Adjacent Signal Boxes to interface to the existing TD where this cannot implement the headers by a data change.

Source and destination identities for the header are controlled by Network Records Group (NRG).

## Compliance Requirements

This TI is mandatory and shall be complied with by Network Rail and its contractors from 1st January 2009.

When this TI is implemented, it is permissible for all projects that have formally completed GRIP Stage 4 to continue to comply with the Issue of any relevant Network Rail Standards current when GRIP Stage 4 was reached and not to comply with requirements contained herein, unless the Head of Signal Engineering has stipulated otherwise.

## Action Required when Specifying Train Describers For Future Projects

When specifying new schemes:

- Headers shall be provided in all instances regardless of the transmission medium, to allow for subsequent migration to an open network and also for the forthcoming GSM-R interface for CSR, without further data change being required. A future update to NR/L3/SIG/00009 will mandate the use of headers.
- This therefore means that Small TDs shall always be provided in place of Fringe Box Units.
- Where connections to adjacent signal box TDs are affected and the existing TD is not capable of providing headers, Small TDs or other product approved interface units shall always be provided at the adjacent signal box to interface the existing TDs to the transmission system.
- Designers shall assume provision of an open network in all cases. However in exceptional circumstances this may be relaxed by prior written agreement with the Head of Signal Engineering if:
  - a. A link to an existing adjacent TD is being reused AND
  - b. that link is over a closed network AND
  - c. Replacement of the adjacent TD is expected before migration to FTN

This guidance applies irrespective of the prospective supplier of the equipment.

## Staff to be Briefed

All Signal Project Engineering Staff.

## Expiry Date

To be withdrawn on update of NR/L3/SIG/00009

END