
Železniške naprave - Krmilnik vlakovnega prikazovalnika v strojevodjemem prostoru (TDC) - 3. del: Drugi vlakovni sistemi (FIS)

Railway applications - Driver's cab train Display Controller (TDC) - Part 3: Other train systems FIS

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ICS:

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| 35.240.60 | Uporabniške rešitve IT v prometu | IT applications in transport |
| 45.020 | Železniška tehnika na splošno | Railway engineering in general |

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TECHNICAL REPORT
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December 2016

ICS 35.240.60; 45.020

English Version

**Railway applications - Driver's cab train Display Controller (TDC)
- Part 3: Other train systems FIS**

Bahnanwendungen - Train Display Controller (TDC) im
Führerraum - Teil 3: Spezifikation der Funktionalen
Schnittstelle (FIS) Andere Zugsysteme

This Technical Report was approved by CENELEC on 2016-11-21.

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European Committee for Electrotechnical Standardization
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Europäisches Komitee für Elektrotechnische Normung

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European foreword

This document (CLC/TR 50542-3:2016) has been prepared by CLC/TC 9X "Electrical and electronic applications for railways".

This document is currently submitted to voting in accordance with the Internal Regulations, Part 2, Subclause 11.4.3.3 (simple majority) for acceptance as a CENELEC Technical Report.

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Introduction

The perimeter of CLC/TR 50542-3 is the functional interface between the Other Train Systems (OTS) and the TDC.

The functional definition of this interface is a key feature in the process to increase market development, for instance:

- by introducing more suppliers for new rolling stock development and for driver's cab refurbishment.
- by easing the control of maintenance and the replacement processes.
- by decreasing the related equipment Life cycle cost.

In this document, the train borne systems and the TDC are considered only regarding their functionalities and not as physical devices.

The CLC/TR 50542 series consists of three documents:

- this document
- CLC/TR 50542-1, Railway applications — Driver's cab Train Display Controller (TDC) — Part 1: General architecture.
- CLC/TR 50542-2, Railway applications — Driver's cab Train Display Controller (TDC) — Part 2: Display systems FIS.

These documents should not be interpreted as standards but as a study on the future view of the system. They do not describe an existing solution for the TDS.

These documents are not written to be used in call for tenders because they are not sufficient. However they can serve as a basis for future development and standardization including new technologies. These documents are a first step, and may be completed later.

NOTE In case of existing discrepancies between CLC/TR 50542-1:2014 and CLC/TR 50542-3:2016, the present document prevails.

1 Scope

The scope of this document is the definition of the functional interface between TDC and other train systems. These “Other Train Systems” are the train systems interfacing with the TDC excluding the displays (CLC/TR 50542-2), ETCS/STM onboard (Subset-121) and already designed class B ATP systems.

The functional interface deals with data exchanged between TDC and these train systems.

The TDC is defined in document CLC/TR 50542-1.

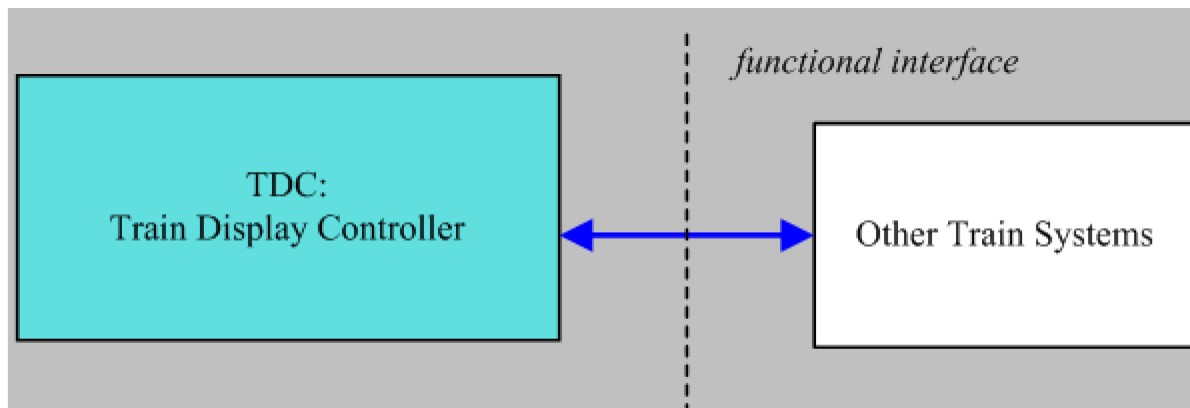


Figure 1 — TDC- OTS functional interface

NOTE The conversion of physical signals into numerical representation is out of scope.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CLC/TR 50542-1:2014, *Railway applications - Driver's cab train display controller (TDC) - Part 1: General architecture*

CLC/TR 50542-2:2016, *Railway applications — Driver's cab Train Display Controller (TDC) — Part 2: Display systems FIS*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply in addition to the terms defined in CLC/TR 50542-1:2014 and CLC/TR 50542-2:2016.

3.1

other train systems

train on board systems interfaced with the TDC excluding ETCS/STM onboard, class B ATP systems, and the displays

EXAMPLE Train borne systems could be the train systems interacting with the driver through the TDC (e.g. brake system, HVAC systems, traction system, CCTV).

Note 1 to entry: The interface between the TDC and the ETCS/STM onboard is described in Subset 121 (see Bibliography).

Note 2 to entry: The interface between the TDC and the displays is described in CLC/TR 50542-2:2016.

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3.2

input

information going from the Other Train Systems (OTS) to TDC. See Figure 2

3.3

output

information going from TDC to the OTS. See Figure 2 — Functional Input and Output definitions

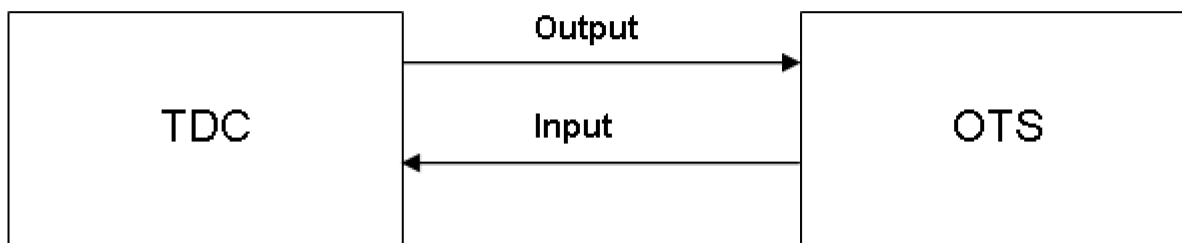


Figure 2 — Functional Input and Output definitions

4 Symbols and abbreviations

| | |
|------|--|
| ATP | Automatic Train Protection |
| CCS | Control Command and Signalling |
| CCTV | Close Control Circuit Television |
| ETCS | European Train Control System |
| FIS | Functional Interface Specification |
| HVAC | Heating Ventilation and Air Conditioning |
| I | Input |
| OTS | Other Train Systems |
| O | Output |
| STM | Specific Transmission Module |
| TDC | Train Display Controller |
| TSI | Technical Specification for Interoperability |

5 General principles

This document identifies the functions at the interface between TDC and OTS.

NOTE 1 From a functional point of view, the OTS are interfacing with the TDC independently from the architecture of the TDS.

NOTE 2 ETCS related data are out of scope of this FIS. This is to avoid discrepancies with TSI CCS related specifications.

The goal of this document is to define functions in order to simplify exchanging or refurbishing OTS or TDCs. This document in combination with CLC/TR 50542-1:2014 and CLC/TR 50542-2:2016 intends to simplify exchanging or updating TDCs (e.g. for maintenance or for obsolescence management purpose).

The documents listed in the Bibliography have been used as reference documents to help writing this Technical Report. They should not be considered as part of the current interface definition.

The performance of the data interface (e.g. transmission speed, availability, etc.) is not defined in this document.

6 Functions

6.1 General

The functions described below are those needed to manage the dialogue between the TDC and the OTS.

Generic template of the functions description:

- Functional description: short description of the function.
- Direction: Input or Output according definitions in Clause 3. It may also be bidirectional.
- Parameter: single or set of data complementary to the function.
- Feedback: information whether the request has been properly processed.
- Safety related: indicates that the function is safety related.
- Status: start/stop of the function.

NOTE Flashing for a frame or symbol is not useful for the functions above because this is only managed by the TDC.

6.2 State

- Functional description: the OTS sends state information to the TDC. This state information is used by the TDC to send information to the displays.
- Direction: input.
- Parameter: optional.
- Feedback: optional.
- Safety related: optional.
- Status: not applicable.

Corresponding to CLC/TR 50542-2:2016 functions: Display Button (output), Display Indicator (output), Display Text Message (output), Play Sound (output), Display Values (output).

6.3 Command

- Functional description: the TDC sends a request to an OTS.
- Direction: output.
- Parameter: optional.
- Feedback: optional.
- Safety related: optional.
- Status: not applicable.

Corresponding to CLC/TR 50542-2:2016 functions: Display Button (input), Confirm Data (input).