



SLOVENSKI STANDARD
oSIST prEN 16494:2023
01-januar-2023

Železniške naprave - Zahteve za signalne/opozorilne table ERTMS vzdolž proge

Railway applications - Requirements for ERTMS Trackside Boards

Bahnanwendungen - Anforderungen an ERTMS-Strecken- und Signaltafeln

Applications ferroviaires - Exigences relatives aux pancartes ERTMS

Ta slovenski standard je istoveten z: prEN 16494

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ICS:

03.220.30	Železniški transport	Transport by rail
93.100	Gradnja železnic	Construction of railways

oSIST prEN 16494:2023

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

DRAFT
prEN 16494

November 2022

ICS 03.220.30; 33.070.50

Will supersede EN 16494:2015

English Version

Railway applications - Requirements for ERTMS Trackside Boards

Applications ferroviaires - Exigences relatives aux pancartes ERTMS

Bahnanwendungen - Anforderungen an ERTMS-Strecken- und Signaltafeln

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 256.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 16494:2022) has been prepared by Technical Committee CEN/TC 256 “Railway applications”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 16494:2015.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s) / Regulation(s).

For relationship with EU Directive(s) / Regulation(s), see informative Annex ZA, which is an integral part of this document.

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Introduction

This document was produced for the specification and harmonization of a specific set of ERTMS trackside boards to support ETCS and GSM-R operations.

In EN 16494:2015, ETCS and electrification trackside boards were harmonized and these were specified in a square format only.

In this version of the document, the following changes were made:

- Clarification of Scope to exclude mobile, backlit and temporary signs;
- Dimensional corrections to the ETCS Stop Marker and ETCS Location Marker;
- New trackside boards were introduced (traction system 25 kV, 15 kV, 3000 V, 1500 V and 750 V, audible warning device, safe stopping area, non-stopping area, inhibition of magnetic shoe brake, inhibition of eddy current brake, inhibition of regenerative brake, close air-conditioning, open air-conditioning, and level crossing marker);
- An option for diamond-shaped trackside boards (electrification MBs only);
- Clarification to existing maintenance requirements;
- Revision of the options for standard dimensions;

This document contains colour images for indicational purposes only.

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1 Scope

This document is applicable to the heavy rail system.

This document defines the requirements for the provision, visibility, readability, maintenance and testing of a specific set of ERTMS trackside boards associated with the following DMI and ETCS track conditions:

- ETCS stop marker,
- ETCS location marker,
- level transition, corresponding to transitions between ETCS levels,
- lower pantograph,
- pantograph lowered,
- raise pantograph,
- neutral section announcement,
- neutral section,
- end of neutral section,
- GSM-R network border marker,
- no traction system fitted announcement,
- no traction system fitted indication,
- traction system AC 25 kV 50 Hz announcement,
- traction system AC 25 kV 50 Hz indication,
- traction system AC 15 kV 16,7 Hz announcement,
- traction system AC 15 kV 16,7 Hz indication,
- traction system DC 3 kV announcement,
- traction system DC 3 kV indication,
- traction system DC 1,5 kV announcement,
- traction system DC 1,5 kV indication,
- traction system DC 600/750 V announcement,
- traction system DC 600/750 V indication,
- activate the audible warning device (horn) indication,
- safe stopping area announcement,
- safe stopping area indication for start,

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- safe stopping area indication for end,
- safe stopping area semi-continuous indication for in-between,
- non-stopping area announcement,
- non stopping area indication for start,
- non stopping area indication for end,
- non stopping area indication semi-continuous indication for in-between,
- inhibition of magnetic shoe brake announcement,
- inhibition of magnetic shoe brake indication for start,
- inhibition of magnetic shoe brake indication for revocation,
- inhibition of eddy current brake announcement,
- inhibition of eddy current brake indication for start,
- inhibition of eddy current brake indication for revocation,
- inhibition of regenerative brake announcement,
- inhibition of regenerative brake indication for start,
- inhibition of regenerative brake indication for revocation,
- close air conditioning intake announcement,
- close air conditioning intake indication,
- open air conditioning intake announcement,
- open air conditioning intake indication,
- level crossing marker.

This document includes the arrangement of the boards and their interface with existing systems (track, cab design including cab sight lines, visibility by the driver and train head lamps).

Mobile, backlit and temporary signs are not within the scope of this document.

The application of ERTMS trackside boards is not within the scope of this document.

Sighting requirements are not within the scope of this document. The sighting process needs to be implemented in accordance with national safety rules.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 12899-1:2007, *Fixed, vertical road traffic signs - Part 1: Fixed signs*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

cab sight lines

viewing directions achievable by the driver in the normal driving position

3.2

ETCS track conditions

ETCS operating conditions which include the normal and degraded mode

3.3

ERTMS trackside boards

fixed permanent boards which provide trackside visual information to train drivers operating under ERTMS

3.4

readability

characteristic of a sign by which, when it is viewed under the conditions defined for the sign by a person just meeting the relevant eyesight standard, the message it conveys is understandable

4 Symbols and abbreviations

For the purposes of this document, the following symbols and abbreviations apply.

DMI	Driver-Machine Interface
ERTMS	European Rail Traffic Management System
ETCS	European Train Control System
GSM-R	Global System for Mobile communication — Rail
LT	Level Transition
TSI	Technical Specification for Interoperability

5 Requirements

5.1 General

To assist in readability, the ERTMS trackside boards shall comply with the following:

- physical requirements for the trackside boards, as set out in 5.2;
- optical requirements, as set out in 5.3;
- mechanical performance in environmental conditions, as set out in 5.4;
- maintenance requirements, as set out in 5.5.

The installation of a given trackside board shall require an assessment to determine:

- location, as set out in 5.6;
- selection of the appropriate size from the alternatives given in Tables 3 and 4;
- alignment, as set out in 5.6.

5.2 Physical requirements for ERTMS trackside boards

5.2.1 General

The design and dimensions of the ERTMS trackside boards are specified in 5.2.2 and 5.2.3.

All characters shall be typeface “Arial Bold”

By agreement between contractors the format of the electrification trackside boards (i.e. Table 1 plus the voltage indication MB) may be modified such that they are diamond-shaped. In this case, the icons and characters shall be the same as shown in Tables 1, 2 and 3; only the background areas shall change in format. In all cases of diamond-shaped trackside boards, equivalent readability shall be provided.

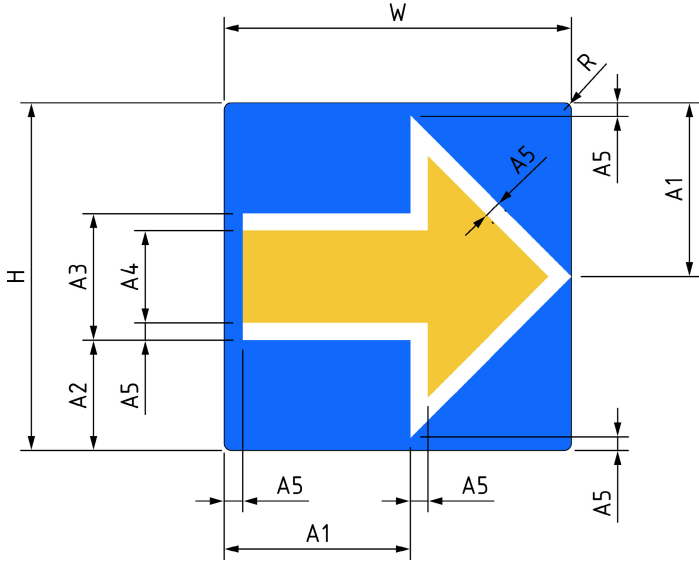
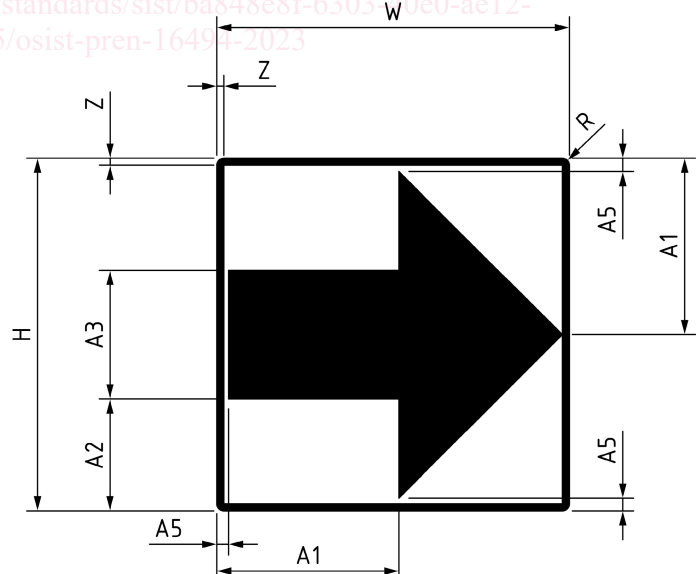
5.2.2 Design

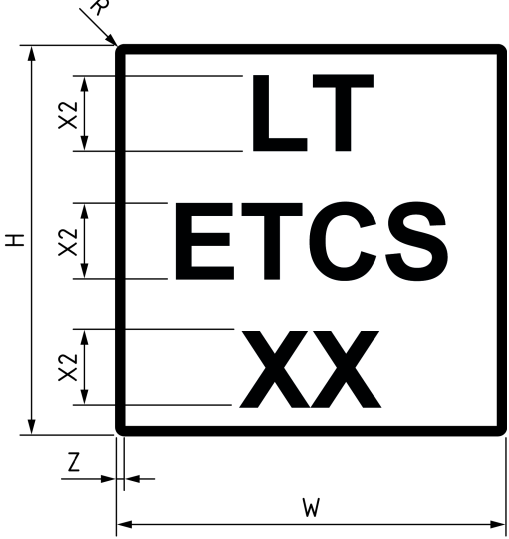
The designs of the ERTMS trackside boards are shown in Table 1 for the ETCS trackside boards and in Table 2 for GSM-R trackside board. The designs of the ETCS track conditions are shown in Table 3.

NOTE 1 The colours are not representative of the specification.

NOTE 2 The drawings shown in Tables 1, 2 and 3 are not to scale.

Table 1 — Design of ETCS trackside boards

Description applicable to DMI	Description provided for information only	Symbol Note dimensions refer to Table 4
N/A	ETCS Stop Marker	 <p>Note that the arrow may face to the left, down or to the right, according to the line to which it refers.</p> <p>In addition to the symbol given above, an identification plate shall be provided. National rules shall apply to the design and positioning of this identification plate.</p> <p>NOTE For completeness, this symbol is reproduced for information only, and has been developed from EEIG 06E068.</p>
N/A	ETCS location marker	 <p>Note that the arrow may face to the left, down or to the right, according to the line to which it refers.</p> <p>In addition to the symbol given above, an identification plate shall normally be provided. National rules shall apply to the design and positioning of this identification plate. Exceptionally, where an on-board geographic positioning function is provided, the identification plate is not required.</p>

Description applicable to DMI	Description provided for information only	Symbol Note dimensions refer to Table 4
N/A	Level transition board	 <p>NOTE: XX denotes optional level information. In the case where X is not used, the information should be vertically centred.</p>
Lower pantograph	Lower pantograph Instruction to the driver for the pantograph to be lowered	