SVENSK STANDARD SS-EN 62290-2

Fastställd	Utgåva	Sida	Ansvarig kommitté
2012-04-11	1	1 (1+73)	SEK TK 9

Järnvägsanläggningar – System för ledning och styrning av spårbunden tätortstrafik (UGTMS) – Del 2: Specifikation av funktionsfordringar

Railway applications – Urban guided transport management and command/control systems – Part 2: Functional requirements specification

Som svensk standard gäller europastandarden EN 62290-2:2011. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62290-2:2011.

Nationellt förord

Europastandarden EN 62290-2:2011

består av:

– **europastandardens ikraftsättningsdokument,** utarbetat inom CENELEC
– **IEC 62290-2, First edition, 2011 - Railway applications - Urban guided transport management and command/control systems - Part 2: Functional requirements specification**

utarbetad inom International Electrotechnical Commission, IEC.

ICS 45.060

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62290-2

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English version

Railway applications - Urban guided transport management and command/control systems - Part 2: Functional requirements specification

(IEC 62290-2:2011)

Applications ferroviaires - Systèmes de contrôle/commande et de gestion des transports guidés urbains - Partie 2: Spécification des exigences fonctionnelles
(CEI 62290-2:2011)

Bahnanwendungen - Betriebsleit- und Zugsicherungssysteme für den städtischen schienengebundenen Personennahverkehr - Teil 2: Funktionale Anforderungsspezifikation
(IEC 62290-2:2011)

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Management Centre: Avenue Marnix 17, B - 1000 Brussels

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SEK Svensk Elstandard

Foreword

The text of document 9/1529/FDIS, future edition 1 of IEC 62290-2, prepared by IEC TC 9, Electrical equipment and systems for railways, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 62290-2 on 2011-07-26.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

The following dates were fixed:

– latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2012-04-26
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2014-07-26

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 62290-2:2011 was approved by CENELEC as a European Standard without any modification.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following referenced documents are indispensable for the application 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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 62290-1	-	Railway applications - Urban guided transport management and command/control systems - Part 1: System principles and fundamental concepts	EN 62290-1	-

CONTENTS

INTRODUCTION 6
1 Scope 9
2 Normative references 9
3 Terms, definitions and abbreviations 9
3.1 Terms and definitions 9
3.2 Abbreviations 11
4 Operational concept 11
4.1 Organisation of operation for urban guided transport 11
4.2 Basic operational principles 13
4.3 Principles to ensure safe route 14
4.4 Principles to ensure safe separation of trains 14
4.5 Principles to ensure safe speed 14
4.6 Degraded modes of train operation 15
5 Functions for train operation 16
5.1 Ensure safe movement of trains 16
5.1.1 Ensure safe route 16
5.1.2 Ensure safe separation of trains 20
5.1.3 Determine permitted speed 23
5.1.4 Authorize train movement 24
5.1.5 Supervise train movement 28
5.1.6 Provide interface with external interlocking 31
5.2 Drive train 32
5.2.1 Determine operating speed profile 32
5.2.2 Control train movement in accordance with train operating speed profile 33
5.2.3 Stop train in station 34
5.3 Supervise guideway 35
5.3.1 Prevent collision with obstacles 35
5.3.2 Prevent collisions with persons on tracks 37
5.3.3 Protect staff on track 40
5.4 Supervise passenger transfer 41
5.4.1 Control train and platform doors 41
5.4.2 Prevent person injuries between cars or between platform and train 44
5.4.3 Ensure starting conditions 45
5.5 Operate a train 46
5.5.1 Put in or take out of operation 46
5.5.2 Manage driving modes 47
5.5.3 Manage movement of trains between two operational stops 48
5.5.4 Manage depots and stabling areas 49
5.5.5 Manage UGTMS transfer tracks 49
5.5.6 Restrict train entry to station 49
5.5.7 Change the travel direction 50
5.5.8 Couple and split a train 50
5.5.9 Supervise the status of the train 51
5.5.10 Manage traction power supply on train 53

5.6 Ensure detection and management of emergency situations 54
5.6.1 React to detected fire/smoke 54
5.6.2 React to detected derailment 55
5.6.3 React to detected or suspected broken rail 55
5.6.4 Manage passenger requests 56
5.6.5 React to loss of train integrity 58
5.6.6 Supervise closed and locked status of train doors 58
6 Functions for operation management and supervision 59
6.1 Manage the daily timetable 59
6.1.1 Import timetables 59
6.1.2 Select the timetable 59
6.1.3 Modify the operational timetable 60
6.2 Manage the train service 60
6.2.1 Manage train missions 60
6.2.2 Set routes automatically 62
6.2.3 Regulate trains 63
6.2.4 Ensure connecting services 64
6.2.5 Manage operational disturbances 64
6.2.6 Dispatch trains 65
6.3 Supervise train operations 65
6.3.1 Supervise train tracking 65
6.3.2 Supervise trains and wayside equipment 66
6.3.3 Supervise passengers 67
6.4 Control traction power 68
6.4.1 Monitor traction power supply 68
6.4.2 Command traction power supply 68
6.4.3 Control Regenerative Braking 68
6.5 Manage the interface with the HMI 69
6.5.1 Manage the interface with operation control HMI 69
6.5.2 Manage the interface with the train HMI 69
6.6 Provide interface with the communication system for passengers and staff 70
6.7 Provide interface with the passengers information system 70
6.8 Provide interface with passenger surveillance system 70
6.9 Support maintenance 70
6.10 Manage rolling stock and staff resources 71
6.10.1 Assign rolling stock to operation needs 71
6.10.2 Assign or reassign train staff 71
Bibliography 73

Figure 1 – The three-step process followed by the UGTMS standard 7
Figure 2 – Organisation of operation 12
Figure 3 –Train protection profile and speed supervision 15
Figure 4 – Specification of a safe route 17

INTRODUCTION

IEC 62290 standard series specifies the functional, system and interface requirements for the command, control, and management systems intended to be used on urban, guided passenger transport lines and networks. This series does not apply to lines that are operated under specific railway regulations, unless otherwise specified by the authority having jurisdiction.

These systems are designated here as Urban Guided Transport Management and Command/Control Systems (UGTMS). UGTMS cover a wide range of operations needs from non-automated (GOA1) to unattended (GOA4) operation. A line may be equipped with UGTMS on its full length or only partly equipped.

This series does not specifically address security issues. However, aspects of safety requirements may apply to assuring security within the urban guided transit system.

The main objective of this series is to achieve interoperability, interchangeability and compatibility.

This series defines a catalogue of UGTMS functional requirements split into mandatory and optional functions, as well as customisation principles. The functions used are based on the given grade of automation taking into account the grade of line. By fulfilling the requirements, a supplier can create one or more generic applications including all mandatory functions and all or a subset of optional functions. A generic application will achieve interoperability within the defined specific application conditions. Customising a generic application will create a specific application taking into account of local conditions like track layout and headway requirements. It is in the choice of supplier and transport authority to add additional functions to a generic or specific application. These additional functions are not described in this series.

The application of this series is the responsibility of the transport authority concerned in accordance with the authority having jurisdiction.

According to IEC 62278, it is the responsibility of the transport authority, in agreement with the authority having jurisdiction, to decide, taking into account their risk acceptance principles to conduct specific hazard and risk analysis for each specific application.

Terms like "safety related command", "safety conditions", "safe station departure" are mentioned without having performed any hazard analysis.

The safety levels for the functions of each specific application have to be determined by a specific hazard analysis.

This series is a recommendation for those transport authorities, wishing to introduce interoperable, interchangeable and compatible equipment. It is the responsibility of transport authorities, in accordance with authorities having jurisdiction, to take into account their particular needs in the application of the series.

IEC 62290 series is also intended to support applications for upgrading existing signalling and command control systems. In this case, interchangeability and compatibility could be ensured only for the additional UGTMS equipment. Checking the possibility for upgrading existing equipment and the level of interoperability is the responsibility of the transport authority concerned. The definition of generic interfaces with existing equipment is taken into account in the IEC 62290 series.

Application of the series should take into account the differences between the various networks operated in different nations. Those differences include operational and regulatory requirements as well as different safety cultures.

Standard series IEC 62290 will consist of four parts:

- Part 1 “System principles and fundamental concepts” provides an introduction to the standard and deals with the main concepts, the system definition, the principles and the main functions of UGTMS (Urban Guided Transport Management and Command/Control Systems).

The three other parts correspond to the three steps required in the process of specifying UGTMS and are to be used accordingly.

- Part 2 “Functional requirements specification” specifies the functional requirements associated to the basic functions provided by Part 1, within the system boundaries and interfaces as defined in Figure 4 of Part 1. Safety level allocation can only be done after a hazard and risk analysis has been carried out.

  The FRS (Functional Requirements Specification) identifies and defines the functions that are necessary to operate an urban guided transport system. Two types of functions are distinguished for a given grade of automation taking into account grade of line: mandatory functions (e.g. train detection) and optional functions (e.g. interfaces to passenger information and passenger surveillance systems). Requirements of functions have the same allocation, unless they are marked otherwise.
- Part 3 (under consideration) “System specifications” deals with the architecture of the system and the allocation of the requirements and functions identified in part 2 to architecture constituents (SRS).

  The SRS (System Requirement Specification) specifies the architecture of a UGTMS system, with mandatory and optional constituents.
- Part 4 (under consideration) “Interface specifications” deals with the definition of the interfaces, as well as the data exchanged by them (FIS and FFFIS), for the interoperable and interchangeable constituents identified in part 3.

  For interfaces between UGTMS constituents, the logical interface or FIS (Functional Interface Specification) and/or the physical and logical interface or FFFIS (Form Fit Functional Interface Specification) will be considered.

NOTE The specific structures of part 3 and part 4 will be established following completion of part 2 to accommodate optional and mandatory constituents, and to reflect local conditions. In principle, only one FIS or/and FFFIS will be defined for the same interface. However, when justified in some cases, several FIS or several FFFIS will be defined for the same interface.

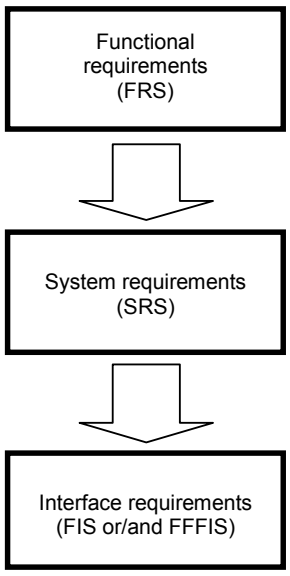

Figure 1 – The three-step process followed by the UGTMS standard

Functional requirements are defined as such requirements, which are necessary to fulfil all operational needs for safe and orderly operation requested by transport authorities without regard to technical solutions.

The chosen level of detail in describing functional requirements enables customers as well as authorities having jurisdiction to be assured that generic applications delivered by different suppliers will cover at least the same functionality as specified in this part of IEC 62290.

Functional requirements which are established by this series are indicated clearly with a requirement identification number related to the function to be covered.

RAILWAY APPLICATIONS – URBAN GUIDED TRANSPORT MANAGEMENT AND COMMAND/CONTROL SYSTEMS –

Part 2: Functional requirements specification

1 Scope

This part of IEC 62290 specifies the functional requirements specification of UGTMS (Urban Guided Transport Management and Command/Control Systems). IEC 62290-2 is applicable for new lines or for upgrading existing signalling and command control systems.

This part of IEC 62290 is applicable to applications using:

- spot or continuous data transmission
- continuous supervision of train movements by train protection profile
- localisation of trains by wayside equipment or reporting trains.

This standard is not applicable to existing command and control systems or projects in progress prior to the effective date of this standard.

Command and control systems which do not use data communications, between wayside equipment and trains, for train protection purposes are outside the scope of this standard.

In this part 2 of the standard, the functional requirements set the framework to which detailed functions should be added to define any complete application, either generic or specific.

Because of that, this part of the standard is not intended to be used as a basis for the definition of complete SRS, FIS nor FFFIS.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including amendments) applies.

IEC 62290-1, *Railway applications – Urban guided transport management and command/control systems – Part 1: System principles and fundamental concepts*