

ILNAS

Institut luxembourgeois de la normalisation
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des produits et services

ILNAS-EN 12896-2:2016

Public transport - Reference data model - Part 2: Public transport network

Öffentlicher Verkehr -
Datenreferenzmodell - Teil 2: Netzwerk
des öffentlichen Verkehrs

Transports publics - Modèle de données
de référence - Partie 2: Réseau de
transports en commun

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National Foreword

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Transports publics - Modèle de données de référence -
Partie 2: Réseau de transports en commun

Öffentlicher Verkehr - Datenreferenzmodell - Teil 2:
Netzwerk des öffentlichen Verkehrs

This European Standard was approved by CEN on 5 May 2016.

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European foreword

This document (EN 12896-2:2016) has been prepared by Technical Committee CEN/TC 278 “Intelligent transport systems”, the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2017, and conflicting national standards shall be withdrawn at the latest by March 2017.

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

This document together with documents EN 12896-1:2016 and EN 12896-3:2016 supersedes EN 12896:2006.

The series composed of the following documents:

Public transport - Reference data model - Part 1: Common concepts

Public transport - Reference data model - Part 2: Public transport network

Public transport - Reference data model - Part 3: Timing information and vehicle scheduling

Public transport - Reference data model - Part 4: Operations monitoring and control

Public transport - Reference data model - Part 5: Fare management

Public transport - Reference Data model - Part 6: Passenger information

Public transport - Reference data model - Part 7: Driver management

Public transport - Reference data model - Part 8: Management information and statistics

Together these create version 6 of the European Standard EN 12896, known as “Transmodel” and thus replace Transmodel V5.1.

The split into several documents intends to ease the task of users interested in particular functional domains. Modularisation of Transmodel, undertaken within the NeTEx project, has contributed significantly to this new edition of Transmodel.

In addition to the eight Parts of this European Standard an informative Technical Report (Public Transport – Reference Data Model – Informative Documentation) is also being prepared to provide additional information to help those implementing projects involving the use of Transmodel. It is intended that this Technical Report will be extended and republished as all the eight parts are completed.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Part 1 of this standard presents the following items:

- rationale for the Transmodel Standard;
- use of the Transmodel Standard;
- applicability of the Transmodel Standard;
- conformance statement;
- transmodel origins ;
- reference to the previous version and other documents.

The data structures represented in Part 1 are generic patterns that are referenced by different other parts. This particular document (Part 2) represents a new edition of EN 12896:2006 of the chapter “description of the network”. Moreover, it incorporates the major part of the IFOPT standard model of stop places and related concepts as updated and harmonized within the NeTEx project.

1 Scope

1.1 General scope of the Standard

The main objective of the present Standard is to present the public transport reference data model based on:

- the public transport reference data model published 2006 as EN 12896 and known as Transmodel V5.1;
- the model for the Identification of Fixed Objects for Public transport, published 2009 as EN 28701 and known as IFOPT;

incorporating the requirements of

- EN 15531-1 to 3 and CEN/TS 15531-4 and CEN/TS 15531-5, *Service interface for real-time information relating to public transport operations (SIRI)*;
- CEN/TS 16614-1 and CEN/TS 16614-2, *Network and Timetable Exchange (NeTEx)*;

in particular the specific needs for long distance train operation.

Particular attention is drawn to the data model structure and methodology:

- the data model is described in a modular form in order to facilitate understanding and use of the model;
- the data model is entirely described in UML.

In particular, a reference data model kernel is described, referring to the data domain:

- network description: routes, lines, journey patterns, timing patterns, service patterns, scheduled stop points and stop places.
- This part corresponds to the network description as in Transmodel V5.1 extended by the relevant parts of IFOPT.
- Furthermore, the following functional domains are considered:
 - timing information and vehicle scheduling (runtimes, vehicle journeys, day type-related vehicle schedules);
 - passenger information (planned and real-time);
 - operations monitoring and control: operating day-related data, vehicle follow-up, control actions;
 - fare management (fare structure and access rights definition, sales, validation, control);
 - management information and statistics (including data dedicated to service performance indicators);
 - driver management:
 - driver scheduling (day-type related driver schedules);

- rostering (ordering of driver duties into sequences according to some chosen methods);
- driving personnel disposition (assignment of logical drivers to physical drivers and recording of driver performance).

The data modules dedicated to cover most functions of the above domains will be specified. Several concepts are shared by the different functional domains. This data domain is called “common concepts”.

1.2 Functional domain description

The different functional domains taken into account in the present Standard and of which the data have been represented as the reference data model are described in “Public transport reference data model - Part 1: Common concepts”.

They are:

- public transport network and stop description;
- timing information and vehicle scheduling;
- passenger information;
- fare management;
- operations monitoring and control;
- management information;
- personnel management: driver scheduling, rostering, personnel disposition.

The aspects of multi-modal operation and multiple operators’ environment are also taken into account.

1.3 Particular Scope of this Document

The present European Standard entitled “Reference data model for Public transport – Part 2: Public transport network” incorporates data structures which form the network topology description of Transmodel V5.1 and the major part of the fixed objects model of IFOPT. It is composed of three data packages:

- network description;
- fixed objects;
- tactical planning components.

The data structures represented in this part form network topology descriptions. They typically reference to structures as described in the “Public transport - Reference data model - Part 1: Common concepts”, such as version frames or generic grouping mechanisms.

This document itself is composed of the following parts:

- Main document (normative) representing the data model for the concepts shared by the different domains covered by Transmodel;
- Annex A (normative), containing the data dictionary, i.e. the list of all the concepts and attribute tables present in the main document together with the definitions;
- Annex B (informative), indicating the data model evolutions.