

Public transport - Reference data model - Part 10:
Alternative Modes

EESTI STANDARDI EESSÕNA

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ICS 35.240.60

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English Version

Public transport - Reference data model - Part 10: Alternative Modes

Transports publics - Modèle de données de référence -
Partie 10 : Modes alternatifs

Öffentlicher Verkehr - Datenreferenzmodell - Teil 10:
Alternative Modi

This European Standard was approved by CEN on 18 September 2022.

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European foreword

This document (EN 12896-10:2022) 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of an identical text or by endorsement, at the latest by May 2023, and conflicting national standards shall be withdrawn at the latest by May 2023.

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 supersedes CEN/TS 17413:2019.

In comparison with the previous edition, the following technical modifications have been made:

This new publication takes into account the revision of the conceptual model by the project team TC278 PT0303 working on the implementation of the 'alternative modes' model.

EN12896-10, complementing the series of EN12896-x, establishes the semantic reference for the alternative modes data domain and thus facilitates the integration of these modes into the overall mobility environment, in particular into multimodal travel services (e.g., trip planning systems).

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

The European Delegated Regulation EU 1926/2017 requires the publication of information related to the alternative modes of transport, in particular by means of data exchange standards derived from Transmodel (EN12896). Based on the conceptual data model published by CEN TS 17413 (already based upon Transmodel) a data exchange format is elaborated as NeTEx – Part 5. Transmodel – Part 10 concerns the alternative modes aspects and completes the Transmodel eco-system ensuring coherence between the semantic model (Transmodel) and its implementation (as NeTEx/SIRI).

Public Transport Reference Data Model (EN12896) - Part 10 introduces extensions of Transmodel v6.

Most of them have been elaborated within CEN TC278 WG17 and published as CEN TS 17413:2019. The implementation of this model as NeTEx-Part 5 generates further refinements of the conceptual model.

EN12896-10 includes both achievements and creates a coherent set of standards (Transmodel-NeTEx-SIRI).

The series is 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 & statistics; and*

— *Public transport – Reference data model – Part 9: Informative documentation* [CEN/TR].

Together these create version 6 of the European Standard EN 12896, known as “Transmodel”.

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

Introduction

This document 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.

Part 2 of this European Standard presents space-related data structures.

Part 3 presents time-related data structures referring to the time-related Tactical Planning Components and to Vehicle Scheduling.

Part 4 presents data referring to daily operations (i.e., to operational days), different from those planned for day types (space-related data structures and tactical planning components) and including operational raw data referring to operations follow-up.

Part 5 presents fares structures including sales, validation and control.

Part 6 presents Passenger Information (planned and real-time).

Part 7 presents Driver Management including Driver Scheduling (day-type related driver schedules), Rostering (ordering of driver duties into sequences according to some chosen methods) and Driving Personnel Disposition (assignment of logical drivers to physical drivers and recording of driver performance).

Part 8 presents Management Information and Statistics.

Part 9 presents the Informative documentation.

Part 10 (this part) presents the data structures for alternative modes.

1 Scope

1.1 General Scope of the Standard

The main objective of the present standard is to present the Reference Data Model for Public Transport, based on:

- the Reference Data Model, EN12896, known as Transmodel V6,

incorporating the requirements of

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

A particular attention is drawn to the data model structure and methodology:

- the data model is described in a modular form in order to facilitate the understanding and the 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.

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)
- Fare Management (fare structure, sales, validation, control)
- Operations Monitoring and Control: operating day-related data, vehicle follow-up , control actions
- 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).

This part corresponds to the Transmodel V6.0 Alternative Modes

The data modules dedicated to cover most functions of the above domains are 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.

The functional domains related to the present document are described in chapter 5 below.

1.3 Particular Scope of this Document

This document defines new modes in a reference data model, in order to allow integration of these modes into urban multimodal travel services (e.g., trip planning systems).

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 12896-1, *Public transport - Reference data model - Part 1: Common concepts*

EN 12896-2, *Public transport - Reference data model - Part 2: Public transport network*

EN 12896-3, *Public Transport — Reference Data Model — Part 3: Timing Information and Vehicle Scheduling*

EN 12896-4, *Public Transport — Reference Data Model — Part 4: Operations Monitoring and Control*

EN 12896-5, *Public Transport — Reference Data Model — Part 5: Fare Management*