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Entwurf

Intelligente Verkehrssysteme – Graphisches Verzeichnis – Teil 1: Spezifikation (ISO/DIS 14823-1:2022); Englische Fassung prEN ISO 14823-1:2022

Intelligent transport systems –
Graphic data dictionary –
Part 1: Specification (ISO/DIS 14823-1:2022);
English version prEN ISO 14823-1:2022

Systèmes de transport intelligents –
Dictionnaire de données graphiques –
Partie 1: Spécification (ISO/DIS 14823-1:2022);
Version anglaise prEN ISO 14823-1:2022

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Weil die beabsichtigte Norm von der vorliegenden Fassung abweichen kann, ist die Anwendung dieses Entwurfs besonders zu vereinbaren.

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Gesamtumfang 85 Seiten

DIN-Normenausschuss Automobiltechnik (NAAutomobil)

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Nationales Vorwort

Dieses Dokument (prEN ISO 14823-1:2022) wurde vom Technischen Komitee ISO/TC 204 „Intelligent Transport Systems“ in Zusammenarbeit mit dem Technischen Komitee CEN/TC 278 „Intelligente Verkehrssysteme“, dessen Sekretariat von NEN (Niederlande) gehalten wird, erarbeitet.

Das zuständige deutsche Normungsgremium ist der Gemeinschaftsarbeitsausschuss NA 052-00-71 GA „Gemeinschaftsarbeitsausschuss NAAutomobil/DKE: Intelligente Verkehrssysteme“ des DIN-Normenausschusses Automobiltechnik (NAAutomobil).

Dieses Dokument ist derzeit zur parallelen Abstimmung vorgelegt.

Dieses Dokument enthält unter Berücksichtigung des DIN-Präsidialbeschlusses 1/2004 nur die englische Originalfassung von EN ISO 14823-1.

Diese Norm definiert ein graphisches Datenverzeichnis. Dieses wurde mit der Absicht entwickelt, um eine gemeinsame Basis zu erhalten zur Übertragung graphischer Informationen, die unabhängig von Sprache oder regionalen Unterschieden, von Anwendern wie Verkehrskontrollzentren, Verkehrsinformationszentren oder Dienstanbietern entschlüsselt und somit verstanden werden können. Die Anpassung einheitlicher Graphikdaten verbessert für den Anwender das Verständnis für graphische Informationen und somit die Anwenderfreundlichkeit. Die Norm unterstützt IVS-Anwendungen wie z. B. Anzeige von Verkehrszeichen oder anderer Informationen im Fahrzeug.

Aktuelle Informationen zu diesem Dokument können über die Internetseiten von DIN (www.din.de) durch eine Suche nach der Dokumentennummer aufgerufen werden.

Änderungen

Gegenüber DIN EN ISO 14823:2017-08 wurden folgende Änderungen vorgenommen:

a) Einführung eines Mechanismus für den relativen Objektbezeichner;

b) Löschung von redundantem Piktogramm Codes bzw. Einführung neuer Piktogramm Codes;

c) Löschung von redundanten Attributen bzw. Einführung neuer Attribute;

d) Korrekturen in den bestehenden Attributen.

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Nationaler Anhang NA
(informativ)

Begriffe

Die Benummerung der folgenden Begriffe und Abkürzungen ist identisch mit der Benummerung in der englischen Fassung.

Für die Anwendung dieses Dokuments gelten die folgenden Begriffe.

ISO und IEC stellen terminologische Datenbanken für die Verwendung in der Normung unter den folgenden Adressen bereit:

— IEC Electropedia: verfügbar unter http://www.electropedia.org/

— ISO Online Browsing Platform: verfügbar unter http://www.iso.org/obp

3.1
Attribut
en attribute
Kodierung, die an das *Piktogramm* (3.4) angehängt ist, um die Bedeutung des Piktogramms zu erklären

3.2
Länderkodierung
en country code
international erkannte Kodierungen, die nach ISO 3166-1 für den Bezug von Ländern und Unterteilungen von Ländern vereinbart wurden

3.3
grafisches Datenverzeichnis
en graphic data dictionary
systematisch organisierter Katalog von *Piktogramm*kodierungen (3.4)

3.4
Piktogramm
en pictogram
Zeichen oder Symbol, welches auf einer Anzeige oder einem IT-System, wie einem Computer oder einem variablen Botschaftszeichen (en: Variable Message Sign; VMS), wiedergegeben wird, um Reisende über Verkehrsregeln oder öffentliche Einrichtungen zu informieren

3.5
Piktogram Kategorie-Kodierung
en pictogram category code
Kodierungen, die für eine höher detailliertere Kategorie einer *Piktogramm*art (3.4) unter der Dienstkategorie erstellt wurden

3.6
Kennzeichner
en qualifier
*Attribut*parameter (3.1), der für die quantitativ ausgedrückte Bedeutung eines *Piktogramms* (3.4) verwendet wird

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3.7
relativer Objektbezeichner
en relative object identifier
Wert, der ein Objekt mit dessen Position, relativ zu einigen bekannten Objektbezeichnern bezeichnet

[QUELLE: ISO/IEC 8824-1:2021]

3.8
Dienstkategorie-Kodierung
en service category code
Kodierungen, die zur Unterscheidung der Dienstkategorien, wie eine Regulierung oder öffentliche Einrichtungen, erstellt wurden

3.9
Spezialisierung
en specialization
Beziehung zwischen einer eher allgemeinen Klasse (der Stamm) und einer eher spezifischen Klasse (der Nachfolger), die vollständig konsistent zur allgemeinen Klasse ist und somit zusätzliche Informationen ergänzt

[QUELLE: 11179-3:2013, Anmerkungen wurden gelöscht]

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 204, *Intelligent transport systems*.

The second edition of Graphic Data Dictionary has been developed by introducing the mechanism of RELATIVE OBJECT IDENTIFIER specified in 7.3.

In addition to that, the following changes also have been made.

— Deletion of redundant pictogram codes

— Addition of new pictogram codes requested by some countries

— Addition of new attributes to copy with new signs

— Deletion of redundant attributes

— Changes of existing attributes to be more flexible and to be harmonized with existing standards.

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Introduction

0.1 Design principle

This document specifies a Graphic Data Dictionary (GDD) that has been developed with the intent of creating a common basis for transmitting encoded information for existing road traffic signs and pictograms. The coding system has been developed to be language independent, such that data that can be interpreted, irrespective of language or regional differences. It supports Intelligent Transport System (ITS) application such as in-vehicle signage or in-vehicle information.

This document supports

— the efficient IT-centric encoding for ITS messaging to represent specific road traffic signs and pictograms, and

— the consistent decoding of encoded road traffic signs and pictogram data for display in ITS.

This document can support the translation of signs and pictograms with a similar purpose from the representation used in one country to the representation used in another country.

0.2 Background of revision

The first edition of Graphic Data Dictionary was published in 2017.

This first edition used the country code stipulated by ISO 3166 1 to distinguish the country where Graphic Data Dictionary is provided and used the following numbering structure to identify the pictogram codes stipulated in the 8.

— The two-digit category of the sign

— The one-digit nature of the sign

— The two-digit serial number of the sign

However, this mechanism lacked a global identification of pictogram codes and a flexibility when adding new pictogram codes.

To cope with these issues, the second edition of Graphic Data Dictionary has been developed.

0.3 Backward compatibility

The second edition of Graphic Data Dictionary has been developed to be backward compatible with the first edition of the Graphic Data Dictionary to assist in transitions from earlier implementations, while not hindering spreads of the first edition of Graphic Data Dictionary and being able to support many new features.

Specifically, the Graphic Data Dictionary allows the selection of 2 versions described in 7.1.

The Graphic Data Dictionary allows to use both the ASN.1 description specified in Annex A for the second version and in Annex E for the first version, and both the attributes specified in Annex B for the second version and in Annex F for the first version.

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Intelligent transport systems — Graphic data dictionary

1 Scope

This document specifies a graphic data dictionary, a system of standardised codes for existing road traffic signs and pictograms used to deliver Traffic and Traveller Information (TTI). The coding system can be used in the formation of messages within intelligent transport 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.

ISO 8601, *Data elements and interchange formats — Information interchange — Representation of dates and times*

ISO/IEC 8824-1:2015, *Abstract Syntax Notation One (ASN.1): Specification of basic notation*

ISO 3166-1:2020,*Codes for the representation of names of countries and their subdivisions — Part 1: Country code*

ISO/IEC 19505-1:2012,*Information technology — Object Management Group Unified Modeling Language (OMG UML) — Part 1: Infrastructure*

ISO/IEC 8859-1:1998, *Information technology — 8-bit single-byte coded graphic character sets — Part 1: Latin alphabet No. 1*

ISO/IEC 9834-1:2012, *Information technology — Procedures for the operation of object identifier registration authorities: General procedures and top arcs of the international object identifier tree — Part 1*

ISO/IEC 8825-5:2021, *Information technology – ASN.1 encoding rules: Mapping W3C XML schema definitions into ASN.1*

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
Attribute

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coded information which can be associated to a pictogram (3.4) in order to clarify the meaning of the pictogram

3.2
country code
internationally recognised codes stipulated by ISO 3166-1 when referring to countries and subdivisions of countries

3.3
graphic data dictionary
catalogue of codes for *pictograms* (3.4) organised systematically

3.4
pictogram
graphic or icon on static signs or rendered on a display of IT system, such as a monitor or a VMS pictogram display, to inform travellers of information such as road conditions, traffic elements, traffic regulations or public facilities

3.5
pictogram category code
codes assigned to the more detailed category of a *pictogram* (3.4) type under the service category

3.6
qualifier
parameter for an *attribute* (3.1) used to express the meaning of *pictogram* (3.4) quantitatively

3.7
relative object identifier
value which identifies an object by its position relative to some known object identifier
[ISO/IEC 8824-1:2021]

3.8
service category code
codes assigned to distinguish the service category such as a regulation or public facilities

3.9
specialization
relationship between a more general class (the parent) and a more specific class (the child) that is fully consistent with the general class and that adds additional information
[SOURCE: 11179-3:2013, notes removed]

4 Abbreviated terms

ASN.1	Abstract Syntax Notation One
ITS	Intelligent Transport Systems
IT	Information Technology
OID	Object identifier
UML	Unified Modeling Language
U.N.	United Nations
VMS	Variable Message Sign

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5 Conformance

An implementation is conformant with this document when the following conditions are met.

— The implementation and transmission of graphic data shall comply with requirements listed in this document.

— The pictogram code shall be selected from the categorized codes listed in this document.

6 Requirements

The intended usage of this document is to support the efficient IT-centric encoding for ITS messaging to represent specific road traffic signs and pictograms and the consistent decoding of encoded road traffic signs and pictogram data for display in ITS.

This document supports the translation of pictograms with similar purpose from the representation used in one country to the representation used in another country. For illustrative purposes, it is foreseen that this document can be used to encode information concerning a specific pictogram that is then embedded into other information to be exchanged; if needed, on receipt of this information, the receiver can use the contents of this document to decode the information concerning the specific pictogram to support display across a range of dissemination systems. Examples of these dissemination systems may include: Traffic Control Centre system user interfaces; Variable Message Signs; Public Access Terminals; mobile personal information systems; and, on-board units.

Requirements for ITS applications which utilize the Graphic Data Dictionary are as follows.

— Graphic data shall consist of a version number, relative object identifier or country code, and optionally Attribute indicator.

— Category code shall be decided based on Table 1.

— Warning pictogram code shall be selected from Table 2.

— Regulatory pictogram code shall be selected from Table 3.

— Guide pictogram code shall be selected from Table 4.

— Public facilities pictogram code shall be selected from Table 5.

— Supplementary panel and additional panel pictogram code shall be selected from Table 6.

— Integer value which indicate the direction shall be determined based on Table B.3 or D.3.

— If Attribute indicator is on, graphic data shall include attributes listed in Table B.1 or D.1.

— When transmitting Graphic data, it shall be coded based on the ASN.1 module specified in Annex A or on the ASN.1 module specified in Annex E.

NOTE For transmission efficiency purposes, compression can be considered. This is outside the scope of this document.

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7 Structure of Graphic Data Dictionary

7.1 General

The Graphic Data Dictionary provides a taxonomy of all registered sign types by assigning each sign type with a globally unique category code. This category code allows the meaning of virtually any sign used for surface transport to be adequately conveyed in a language independent manner with a very short identifier coupled with optional attributes.

There are 2 versions when determining the structure of the Graphic Data Dictionary.

The first one uses the sequence of the country code and category code as specified by the GddStructure in Annex E.

This version is expected to be used mainly when expanding or maintaining the existing C-ITS applications which presently use GDD edition 1 (ISO 14823:2017).

The second one uses the object identifier of the category code by using the ASN.1 RELATIVE OID specified in 7.3. This mechanism has been introduced to cope with a global identification of pictogram codes and a flexibility when adding new pictogram codes.

In addition, some of the elements have been harmonised with DATEX II to be used in VMS signs.

It is up to each application or service to define how to use these versions.

However, for reasons of facilitating implementations, it is recommended to avoid mixing versions in the same applications or service.

Details of version 2 can be found in the Annex A, B, C and D while details of version 1 can be found in the Annex E, F and G.

7.2 Current and deprecated signs

There are a number of signs in the previous edition of ISO 14823: 2017 that are deprecated (no longer relevant or duplicated). Each sign code in this edition of the GDD is labelled “current” or “deprecated” together with a date of revision. Using this labelling enables legacy applications to continue to use these deprecated sign codes but signals to new users that it is wise to use only current labelled codes. To ensure backward compatibility no code is reused, so that if a deprecated code is transmitted and the receiver does not recognise it no action is taken. In the future it is possible that some codes might be set to “obsolete”.

7.3 Relative object identifier

International object identifier tree is a tree whose root corresponds to this Recommendation or International Standard and whose nodes correspond to Registration Authorities responsible for allocating arcs from a parent node.

The pictogram codes are registered on the international object identifier tree under the arc { joint-iso-itu-t(2) its(28) gdd(5) }. The first three sub-arcs follow the numbering structure:

— The two-digit service category of the sign

— The one-digit nature category of the sign

— The two-digit serial number of the sign

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The taxonomy defined by the Graphic Data Dictionary allows maximum interoperability among implementations that might differ in their level of support of GDD details. In other words, while the GDD has been designed to support numerous potential use cases that require various levels of detail and virtually all sign types that might be encountered within surface transport, GDD has also been designed to accommodate applications (especially receiving applications) that might not support the full scope of the GDD. Specifically, the taxonomic structure of GDD allows a sender to provide a very detailed category code; if the receiver does not understand the complete taxonomic sequence, it should still be able to classify the sign under a parent category (or understand that it is safe to ignore).

For example, if a receiving application is notified of a sign with an object identifier of { joint(2) its(28) gdd(5) warning(11) warning3(3) wildAnimal(63) unspecified(0) au(36) kangaroo(x) }), it might be able to display the intended Australian-specific kangaroo crossing warning sign to the driver. Another application might generalize all object identifiers starting with { joint(2) its(28) gdd(5) warning(11) warning3(3) wildAnimal(63) } sign to a generic wild animal crossing sign. And another application might generalize all object identifiers starting with { joint(2) its(28) gdd(5) warning(11) } to be a generic warning sign. The level of detail supported by an application is dependent upon the purpose of the receiving application and is beyond the scope of the GDD.

To ensure that all signs described by the GDD are placed into this taxonomy, the GDD conveys the object identifier of the category code by using the ASN.1 RELATIVE OID type with a root node of { joint(2) its(28) gdd(5) }. This allows a more efficient encoding of the object identifier while also ensuring that all codes can be generalized according to the defined taxonomy. This structure still allows for further regional specializations of the category codes defined within this standard according to the process defined in Annex D.

7.4 Country code

ISO 3166-1 is used to encode the countryCode in GddStructure.pictogramCode using two-letter codes in uppercase in ISO/IEC 8859-1 encoding. For example, if the on-board unit has multiple countries' pictograms, it can render pictogram on the display in accordance to each county code when the traveller driving through adjacent countries.

7.5 Pictogram code and OID node information

Category code consists of a service category code and a pictogram category code. Service category has following four types of categories:

— Traffic signs are officially established pictograms in each country to control traffic using warning, regulatory or informative sign.

— Public facilities indicate the existence of certain public facilities and their service details (e.g. toilets, restaurants, first aid facilities, etc.).

— Ambient conditions indicate weather condition on the road (e.g. rainfall, flood, fog, etc) and road conditions (traffic congestion, accident, etc) which may effect the traffic flow.

— Supplemental panels are attached to the main signs to provide supplemental information using text or numbers.

Pictograms to be used for information display may vary from country to country, political jurisdiction to political jurisdiction, or system operator to system operator.

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Table 1 — Pictogram code and OID node information

Pictogram code and OID node information					
Service category code			Pictogram category code		
Category number and name	Sub category number and name	OID node number and mnemonic	Nature category number and name	OID node code and mnemonic	Serial number
1: Traffic sign	1: Danger warning	11: dangerWarning	1: Danger warning	1: warning1	1–99
			2: Danger warning	2: warning2	
			3: Danger warning	3: warning3	
	2: Regulatory	12: regulatory	1: Priority	1: priority1	
			4: Prohibition or restriction	4: prohibitionOrRestriction1	
			5: Prohibition or restriction	5: prohibitionOrRestriction2	
			6: Prohibition or restriction	6: prohibitionOrRestriction3	
			7: Mandatory	7: mandatory1	
			8: Mandatory	8: mandatory2	
			9: Mandatory	9: mandatory3	
	3: informative	13: informative	1: Advance direction	1: advanceDirection1	
			2:	2: advanceDirection2	

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			Advance direction	
			3: Advance direction	3: advanceDirection3
			4: Instruction	4 : instruction
			5: Notification	5: notification
			6: Lane guidance	6: laneGuidance
			7: Alert	7: alert
			8: Road/place identification	8: roadOrPlaceIdentification1
			9: Road/place identification	9: roadOrPlaceIdentification1
2: Public facilities	1: Public facilities	21: publicFacilities	1: Public facilities and services	1: publicFacilitiesAndServices1
			2: Public facilities and services	2: publicFacilitiesAndServices2
3: Ambient /road conditions	1: Ambient conditions	31: ambientConditions	1: Ambient conditions	1: ambientConditions1
			2: Ambient conditions	2: ambientConditions2
	2: road conditions	32: roadConditions	1: roadConditions	1: roadConditions1
4: Supplementary panel and	1: Supplementary panel and additional panel	41: supplementaryPanelAndAdditionalPanel	1: Supplementary panel and additional panel	1: supplementaryPanelAndAdditionalPanel1

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addition al panel					

8 Numbering of pictogram codes

8.1 General

The Graphic Data Dictionary specifies the Pictogram Category code and the rule for generating a mnemonic associated with each Pictogram Category code.

8.2 Mnemonic of the Pictogram code

A mnemonic of the Pictogram Category code shall be generated by transforming each Category code name defined in the following clauses in compliance with the following rules.

— In lower CamelCase notation

— The ASN.1 rules (e.g., no spaces, no parenthesis)

— No articles (the, a, an)

Table 2 — Examples of mnemonic

Pictogram code		Pictogram code name	mnemonic
Service category code	Pictogram category code		
11	**111**	Intersection where the priority is prescribed by the general priority rule (Crossroads)	intersectionWherePriorityIsPrescribedGeneralByPriorityRuleCrossroads
	114	Forked (off to upper right) intersection where the priority is prescribed by the general priority rule	forkedOffToUpperRightIntersectionWherePriorityIsPrescribedRyGeneralPriorityRule
	116	Intersection where the priority is prescribed by the general priority rule (T junction)	intersectionWherePriorityIsPrescribedByGeneralPriorityRuleTJunction)

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8.3 Pictogram code no. 11111-11999: Traffic sign pictograms (warning)

Pictograms falling under this category shall be used to give the road users advance warning for an adverse road condition, any hazards to safe driving, or any other conditions to which they should take notice.

Table 3 — List of warning sign codes

Category code no		Category code name	Definition	Status C=current D=deprecated
Service category	Pictogram category			
11	111	Intersection where the priority is prescribed by the general priority rule (Crossroads)	Warning of the existence of a cross-shaped intersection ahead.	C
	112	Intersection where the priority is prescribed by the general priority rule (Side road right)	Warning of the existence of a side road ahead.	C
	113	Intersection where the priority is prescribed by the general priority rule (Side road left)	Warning of a side road ahead (Reverse type of code no. 112).	C
	114	Forked (off to upper right) intersection where the priority is prescribed by the general priority rule	Warning of the existence of a side road. Fork (off to upper right) type of code no. 112.	C
	115	Forked (off to upper left) intersection where the priority is prescribed by the general priority rule	Warning of the existence of a side road. Fork (off to upper left) type of code no. 113.	C
	116	Intersection where the priority is prescribed by the general priority rule	Warning of a T-shaped level junction at the end of the road	C

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Category code no		Category code name	Definition	Status C=current D=deprecated
Service category	Pictogram category			
		(T junction)		
	117	Intersection where the priority is prescribed by the general priority rule (Y intersection)	Warning of a Y-shaped level intersection ahead.	C
	118	Intersection where the priority is prescribed by the general priority rule (Staggered intersection)	Warning of a staggered level intersection ahead.	C
	119	Junction on bend ahead	Warning of a junction unseen on bend ahead.	C
	120~ 131	Reserved for future use		
	132	Intersection with a road the users of which must give way	Warning of a priority road at intersection.	C
	133	Intersection with a road the users of which must give way T-shaped crossing left	Warning of a priority road at T-shaped intersection where traffic joining from the left must give way.	C
	134	Intersection with a road the users of which must give way T-shaped crossing right	Warning of a priority road at T-shaped intersection where traffic joining from the right must give way.	C
	135	Intersection with a road the users of which must give way T-shaped crossing of fork type Lower left	Warning of a priority road at T-shaped forked intersection where the joining traffic from the left must give way.	C
	136	Intersection with a road the users of which must give way	Warning of a priority road at reversed T-shaped forked intersection where the joining traffic from the right must give way.	C

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Category code no		Category code name	Definition	Status
Service category	Pictogram category			C=current D=deprecated
		T-shaped crossing of fork type Lower right		
	137~147	Reserved for future use		
	148	Warning of roundabout (Clockwise)	Warning of a clockwise roundabout ahead.	D
	149	Warning of roundabout	Warning of a roundabout ahead.	C
	150~160	Reserved for future use		
	161	Bend to right	Warning of a dangerous single curve to the right ahead.	C
	162	Bend to left	Warning of a dangerous single curve to the left ahead.	C
	163~173	Reserved for future use		
	174	Right turn	Warning of a single sharp curve (turn) to the right. A turn is differentiated from a curve by combining all elements of speed, radius of curve, road rate of incline, intersection angle and visible distance.	C
	175	Left turn	Notice of a single sharp curve (turn) to the left. A turn is differentiated from a curve by combining all elements of speed, radius of curve, road rate of incline, intersection angle and visible distance.	C
	176~186	Reserved for future use		
	187	Reverse curve (right and left)	Warning of a combination of two curves (right and left) ahead (S-bend).	C
	188	Reverse curve (left and right)	Warning of a combination of two curves (left and right) ahead (S-bend).	C
	189~210	Reserved for future use		
	211	Double bend, first to right	Warning of dangerous double or multiple bends which start with a right curve.	C
	212	Double bend, first to left	Warning of dangerous double or multiple bends which start with a left curve.	C
	213~223	Reserved for future use		

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Category code no		Category code name	Definition	Status C=current D=deprecated
Service category	Pictogram category			
	224	Winding road (first to the right)	Warning of a winding section, which start with a right curve.	D
	225	Winding road (first to the left)	Warning of a winding section, which start with a left curve.	D
	226~ 235	Reserved for future use		
	236	Level crossing with gate or barrier	Warning of the existence of a level railway crossing with gates or barrier ahead.	C
	237	Level crossing without gate or barrier	Warning of a level railroad crossing point without gate or barrier ahead.	C
	238	Intersection with a tramway line	Warning of an intersection with a tramway line ahead.	C
	239	School crossing ahead	Warning of an area where children may exit from a school or playground frequently pass by and cross the road from the right side.	D
	240	Reserved for future use		
	241	Pedestrian crossing	Warning of an area where pedestrians frequently pass by and cross the road from the right side.	C
	242	Vulnerable pedestrians likely to cross road ahead	Warning of an area where vulnerable pedestrians likely pass by and cross the road ahead.	C
	243	Reserved for future use		
	244	Children	Warning of children	C
	245	Pedestrians crossing	Warning of a crosswalk where pedestrians frequently pass by and cross the road.	D
	246	Pedestrian crossing ahead	Warning of a crosswalk where pedestrians frequently pass by and cross the road.	D
	247	Pedestrian crossing ahead	Warning of a crosswalk where pedestrians frequently pass by and cross the road.	C
	248	People on the road	Warning that people are on the road.	C
	249~ 252	Reserved for future use		
	253	Light signals	Give warning of a section of road on which traffic is regulated by three-colour light signals, because road users would not expect such a section.	C

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Category code no		Category code name	Definition	Status
Service category	Pictogram category			C=current D=deprecated
	254	Slippery road	Warning of a slippery road surface that may hinder travelling at normal speeds.	C
	255	Falling rocks	Warning of the possibility of falling rocks or the presence of fallen rocks on road surface.	C
	256	Loose gravel	Warning of a section of road on which gravel may be thrown up.	C
	257	Dangerous shoulders	Warning of a dangerous road shoulder.	C
	258	Falling rocks	Warning of the possibility of falling rocks or the presence of fallen rocks on road surface.	D
	259	Rainfall	Warning of rainfall.	C
	260	Reserved for future use		
	261	Slippery section of road ahead because of ice or snow	Warning of slippery section of road ahead because of ice or snow.	C
	262	Fog	Warning of fog.	C
	263	Poor visibility through snow, rain or fog	Warning of poor visibility through snow, rain or fog	C
	264	Flood	Warning of flood.	C
	265~ 267	Reserved for future use		
	268	Uneven road	Warning of a bumpy section ahead that may hinder travelling at normal speeds.	C
	269	Uneven road (hump bridge)	Warning of a road humps or series of road humps on road surface ahead that may hinder travelling at normal speeds.	C
	270	Reserved for future use		
	271	Uneven road (dip)	Warning of a section with a large single dip on road surface ahead that may hinder travelling at normal speeds.	C
	272~ 282	Reserved for future use		
	283	Traffic merging from the right	Warning of a merge of an inflow lane from the right into through traffic.	C
	284	Reserved for future use		
	285	Traffic merging from left	Warning of a merge of an inflow lane from the left into through traffic.	C

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Category code no		Category code name	Definition	Status C=current D=deprecated
Service category	Pictogram category			
	286~ 295	Reserved for future use		
	296	Carriageway narrows from the right	Warning that the number of lanes is reduced from the right.	C
	297	Carriageway narrows from the left	Warning that the number of lanes is reduced from the left.	C
	298	Narrow lanes ahead	Warning of narrow lanes ahead.	C
	299~ 318	Reserved for future use		
	319	Carriageway narrows	Warning that the width of the carriageway is reduced.	C
	320~ 331	Reserved for future use		
	332	Two-way traffic	Warning that the road being approached is for two-way traffic.	C
	333~ 345	Reserved for future use		
	346	Steep ascent	Warning that there is a steep hill upwards with the indicated rate of incline (%).	C
	347	Dangerous descent	Warning that there is a steep dangerous hill downwards with the indicated rate of incline (%).	C
	348	Road works	Warning that there is a section where work is in progress.	C
	349~ 360	Reserved for future use		
	361	Cross-wind	Warning of the possibility of sudden side wind that may hinder travelling at normal speeds.	C
	362	Airfield	Warning of the existence of low flying aircraft or sudden aircraft noise.	C
	363	Wild animal crossing	Warning of the possibility of wild animals crossing the road.	C
	364	Domestic animal crossing	Warning of the possibility of domestic animal crossing the road.	C
	365	Cross-wind	Warning of the possibility of cross-wind.	D
	366	Airfield	Warning of a section of road likely to be flown over at low altitude by aircraft taking off from or landing on an airfield..	D

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Category code no		Category code name	Definition	Status C=current D=deprecated
Service category	Pictogram category			
	367	Wild animal crossing	Warning of the possibility of wild animals, crossing from the left side.	D
	368	Domestic animal crossing	Warning of the possibility of domestic animal crossing from the left side.	D
	369-377	Reserved for future use		
	378	Swing bridge	Warning of an opening of swing bridge ahead.	C
	379	Road leads to quayside or river bank	Warning of a quayside or river bank ahead.	C
	380	Reserved for future use		C
	381	Cyclist entering or crossing	Warning of a cycle route.	C
	382	Cyclist entering or crossing	Warning of a cycle route.	D
	383~394	Reserved for future use		
	395	A crossing where drivers must give way to traffic on the road ahead	Warning of a crossing where drivers must give way to traffic on the road ahead	D
	396	Give way at specified distance ahead	Warning of a crossing where drivers must give way the right-of-way to the road at specified distance ahead. A distance to the crossing from the sign is suffixed to this information.	D
	397	Warning for an automatically rising bollard	Warning of an automatically deployed bollard that may rise from the road surface.	C
	398	Warning for wrong way driving	Warning of wrong way driving where drivers may misunderstand the direction for driving.	C
	399	Stop ahead	Warning of a crossing where drivers must stop ahead.	C
	400~410	Reserved for future use		
	411	Level-crossings position	Warning of an immediate vicinity of level-crossings.	C
	412	Level-crossings (horizontally long)	Warning of a horizontally long level-crossings ahead.	D

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Category code no		Category code name	Definition	Status C=current D=deprecated
Service category	Pictogram category			
	413	Level-crossings Two or more tracks	Warning of a vertically long level-crossings for two or more tracks ahead.	C
	414	Level-crossings Two or more tracks (horizontally long)	Warning of a horizontally long level-crossings for two or more tracks ahead.	D
	415	Additional signs at an approach to level-crossing or swing bridges	Warning of an additional signs at an approach to level-crossing or swing bridges.	D
	416~ 420	Reserved for future use		
	421	Traffic congestion	Warning of traffic congestion.	C
	422	Accident	Warning of accident.	C
	423	Vehicle on fire	Warning of Vehicle on fire.	C
	424	Shed loads(s)	Warning of shed loads(s).	C
	425	Slow moving maintenance vehicle	Warning of slow-moving maintenance vehicle.	C
	426	Breakdown vehicle	Warning of broken-down vehicle.	C
	427	Tunnel closed	Warning that tunnel is closed.	C
	428	Danger of fire	Warning of danger of fire.	C
	429	Bridge closed	Warning of bridge closed	
	429~ 997	Reserved for future use		
	998	Caution	Indicates auxiliary sign to alert.	C
	999	Other dangers	Warning of some possible danger. This sign is used in case where no other Warning Signs are applicable.	C

8.4 Service category code no. 12111-12999: Traffic sign pictograms (regulatory)

Pictograms falling under this category shall be used to inform the road users of special obligations, restrictions, or prohibitions with which they must comply. They are subdivided into the following:

a) priority signs (Pictogram category nos. 111-399);

b) prohibition or restriction signs (Pictogram category nos. 411-699);

c) mandatory signs (Pictogram category nos. 711-999).

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Table 4 — List of regulatory sign codes

Category code no		Description		Status
Service category	Pictogram category	Full name	Definition	C=current D=deprecated
12	111	Priority for oncoming traffic	Notice that drivers must give way to oncoming traffic on a narrow section ahead.	C
	112	STOP	Notice of a point on the road where progressing without stopping is prohibited.	C
	113	Stop specified distance ahead	Notice of a point of the road where progressing without stopping is prohibited at specified distance ahead. A distance to the crossing from the sign is suffixed to this information.	D
	114	Assigned lane for light vehicles or motor cycles	Notice that a certain lane has been assigned for the use of light vehicles and motor cycles.	C
	115	Assigned lane for truck	Notices that specific goods vehicles (trucks) must use this lane.	C
	116	Assigned lane on motorway for trailers	Notice that specific goods vehicles (trailers) must use this lane on the motorway.	C
	117	Give way	Notice of an intersection where drivers must give way to traffic on the road ahead.	C
	118	A crossing where drivers must give way to traffic on the road ahead	Notice of a intersection where drivers must give way to traffic on the road ahead	D
	119	Priority over oncoming traffic	Notice that oncoming traffic must give way on a narrow section ahead.	C
	120~126	Reserved for future use		
	127	Assigned lane for trailers	Notice that vehicles with trailers must use this lane.	C
	128	Assigned lane for buses and cycles	Notice of assigned lane for buses and cycles.	C
	129	Exclusive lane for buses	Notice that a certain lane has been assigned for the exclusive use of buses.	C
	130	Reserved for future use		
	131	Priority lane for route buses and pedal cycles only	Notice that a certain lane has been assigned for the priority use of fixed-route buses and pedal cycles.	C

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Category code no		Description		Status
Service category	Pictogram category	Full name	Definition	C=current D=deprecated
	132	Priority lane for route bus	Notice that a certain lane has been assigned for the priority use of fixed-route buses.	C
	133	Vehicles weighing over the displayed weight are not permitted	Notice that vehicles weighing over the displayed weight are not permitted.	C
	134	High occupancy vehicle lane	Notice that only high occupancy vehicles are permitted in this lane.	C
	135~153	Reserved for future use		
	154	Dual carriageway ahead	Notice of dual carriageway ahead.	C
	155	Turning restriction on a multi-lane approach to an intersection	Notice of layout ahead to facilitate lane selection.	C
	156	Stop line	Notice of the point to stop.	C
	157	Two-step right turn for mopeds	Notice that mopeds (under 50cc) must dismount for right turn.	C
	158	Do not make two-step right turn for mopeds	Notice that mopeds (under 50cc) are prohibited to make two-step right turn.	C
	159	Two-step left turn for mopeds	Notice that mopeds (under 50cc) must dismount for left turn.	C
	160	Do not make two-step left turn for mopeds	Notice that mopeds (under 50cc) are prohibited to make two-step left turn.	C
	161~175	Reserved for future use		
	176	Slow down	Notice that any vehicles must reduce their speed in this zone.	C
	177	Yield right of way	Notice that any vehicles must reduce their speed in this zone. A distance to the crossing from the sign is suffixed to this information.	D
	178	Priority road	Notice that drivers on this road have priority to go through a crossroads which they are approaching.	C
	179	End of priority	Notice of the end of priority road.	C
	180	Distance to end of priority	Notice of the end of priority with distance to it.	C
	181	Priority for oncoming traffic	Notice of priority for oncoming traffic.	D
	182~410	Reserved for future use		
	411	No entry for all vehicles, mopeds, cycles, pedestrians	Notice that all vehicles/mopeds, cycles/pedestrians are forbidden to enter the road.	C

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