

Light electric vehicles — Identification —

Vehicle identifier, marking and
association of the traction battery

Status	Working draft for comment. This document is not a standard and has no standing as one.
Intended for	Consideration by IEC/TC 125 (Personal e-Transporters) and its national mirror committees, SAE International, and certification bodies for personal e-transporters.
Editor	Cardog Inc., Newmarket, Ontario, Canada. Reviewers are named in each subsequent draft.
Comments	By 20 November 2026, clause by clause, to sam@cardog.app.

This draft applies the structure of the vehicle identification number used on road vehicles to personal e-transporters, which fall outside the vehicle types to which ISO 3779 applies, so that every system that reads a road-vehicle identifier can read this one without change.

Foreword

This working draft is circulated for technical comment. It is offered for adoption, in whole or in part, by a standards body. On adoption, the editor's role ends and the text belongs to that body.

The draft uses the drafting conventions of the ISO/IEC Directives, Part 2: *shall* states a requirement, *should* a recommendation, *may* a permission.

Introduction

Personal e-transporters, and electric kick-scooters in particular, are sold in large numbers, carry lithium-ion traction batteries, and are subject to recalls, theft and battery fires. In most jurisdictions they carry no identifier that ties an individual unit to its manufacturer, its traction battery or its certification.

ISO 3779 specifies the content and structure of the vehicle identification number for motor vehicles, towed vehicles, motorcycles and mopeds as defined in ISO 3833. Personal e-transporters are not among them. This document applies the same structure, so that existing registration, insurance, recall and police systems can read the identifier without modification. It adds what road-vehicle identification does not cover: the association of the vehicle with its traction battery, which may be replaced during the vehicle's life.

One national rule already requires a comparable identifier. Germany's rule for e-scooters, as amended in 2026, requires an identifier in the ISO 3779 structure, without a check digit or a year code, marked so that it cannot be removed. Annex D gives the correspondence.

1 Scope

This document specifies:

- a) the content and structure of an identifier for personal e-transporters;
- b) the marking of that identifier on the vehicle;
- c) the identification of the traction battery and its association with the vehicle identifier;
- d) the minimum data elements of an identification record and the publication of decoding information.

It applies to personal e-transporters as defined in IEC 63281-1 that have a standing platform and are intended for use on public roads or in public spaces (electric kick-scooters).

It does not apply to electrically power assisted cycles, or to vehicles that the law of the place of sale requires to bear a vehicle identification number under ISO 3779.

Note Extension to seated personal e-transporters and to other light electric vehicles is foreseen in a later edition.

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 3779:2009, *Road vehicles — Vehicle identification number (VIN) — Content and structure*

ISO 3780:2009, *Road vehicles — World manufacturer identifier (WMI) code*

ISO 4030:1983, *Road vehicles — Vehicle identification number (VIN) — Location and attachment*

IEC 63281-1:2023, *E-Transporters — Part 1: Terminology and classification*

ISO/IEC 16022, *Information technology — Automatic identification and data capture techniques — Data Matrix bar code symbology specification*

ISO/IEC 18004, *Information technology — Automatic identification and data capture techniques — QR Code bar code symbology specification*

ISO/IEC 15459 (all parts), *Information technology — Automatic identification and data capture techniques — Unique identification*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 63281-1 and the following apply.

3.1 electric kick-scooter

Personal e-transporter with a standing platform, a steering handlebar and two or more wheels, propelled by an electric motor supplied from a traction battery.

3.2 vehicle identifier

Structured combination of 17 characters assigned by the manufacturer to an individual vehicle for the purpose of identification.

3.3 world manufacturer identifier WMI

First section of the vehicle identifier, assigned in accordance with ISO 3780 to identify the manufacturer.

3.4 traction battery

Rechargeable battery that supplies energy to the propulsion motor of the vehicle.

3.5 battery identifier

Identifier, unique worldwide, assigned to an individual traction battery by the party that places the battery pack on the market.

3.6 identification record

Set of data elements associated with one vehicle identifier, as specified in Clause 7.

3.7 decoding information

Information published by the manufacturer that states the meaning of each code used in positions 4 to 8, 10 and 11 of its vehicle identifiers.

3.8 battery replacement

Fitting of a traction battery other than the one recorded against the vehicle identifier.

4 Vehicle identifier

4.1 General

Each vehicle shall bear one vehicle identifier. A manufacturer shall not assign the same identifier to more than one vehicle within a period of 30 years.

The identifier shall consist of 17 characters in three sections, in the structure specified in ISO 3779:

Positions	Section	Content
1 to 3	World manufacturer identifier (WMI)	4.3
4 to 9	Vehicle descriptor section (VDS)	4.4 and 4.5
10 to 17	Vehicle indicator section (VIS)	4.6

This document is a restriction of ISO 3779. It additionally requires a check digit in position 9 and a year code in position 10, as required for road vehicles in Canada (C.R.C., c. 1038, Schedule IV, s. 115) and the United States (49 CFR Part 565). ISO 3779 requires neither.



Figure 1 — Structure of the vehicle identifier, with the example of Annex A (illustrative; ZZ9 is not an assigned WMI)

4.2 Characters

Only the Arabic numerals 0 to 9 and the capital Latin letters A to Z shall be used, excluding I, O and Q. No spaces or separators shall form part of the identifier.

4.3 World manufacturer identifier

Positions 1 to 3 shall contain a WMI assigned in accordance with ISO 3780:2009 by the national organization of the country in which the manufacturer has its principal place of business or, where none exists, by the international agency (SAE International). A manufacturer that qualifies as a small-volume manufacturer under the rules of the agency assigning its WMI may use a WMI with the digit 9 in position 3; positions 12 to 14 then identify the manufacturer, as assigned by that agency.

Note In the United States, SAE International assigns WMIs directly. In Germany, the Kraftfahrt-Bundesamt assigns them.

4.4 Descriptor positions 4 to 8

Positions 4 to 8 shall encode at least the following attributes, such that each is determinable from the identifier together with the manufacturer's decoding information (Annex C):

- a) device type;
- b) rated continuous motor power;
- c) maximum design speed;

- d) traction battery family as manufactured, including chemistry and nominal voltage;
- e) model and variant.

Attributes are those of the vehicle as delivered by the manufacturer. A later change to firmware or to the traction battery does not change the identifier.

Note Annex B gives a recommended coding. A common coding allows a vehicle to be described without the manufacturer's tables; its use is not required.

4.5 Check digit

Position 9 shall contain a check digit calculated in accordance with Annex A. The calculation is identical to that of 49 CFR Part 565.

4.6 Indicator positions 10 to 17

Position 10 shall indicate the model year in accordance with Table A.3. Model year means the year declared by the manufacturer in the decoding information or, where the manufacturer declares none, the calendar year of manufacture. Position 11 shall indicate the plant of manufacture. Positions 12 to 17 shall contain a sequential production number, and positions 14 to 17 shall be numeric. Where a 9 is used in position 3 (4.3), positions 15 to 17 contain the production number.

4.7 Identifiers assigned under national rules

An identifier assigned under a national rule that meets 4.1 to 4.6 conforms to this document and shall not be replaced. An identifier of fewer than 17 characters assigned under a national rule does not conform; a vehicle bearing one shall in addition be assigned a 17-character identifier under this clause, and the identification record shall hold both.

5 Marking

5.1 Direct marking

The vehicle identifier shall be marked directly, by engraving, stamping, punching or laser etching, on a structural part of the vehicle that is not normally replaced in service, on the right-hand side where the design allows, in the sense of ISO 4030. The marking shall be legible without disassembly of the vehicle. Characters shall be at least 4 mm high. It shall not be possible to remove or alter the marking without visible damage.

5.2 Identification label

In addition, the vehicle shall carry a durable label adjacent to the direct marking, showing:

- a) the manufacturer's name;
- b) the vehicle identifier;
- c) the month and year of manufacture;
- d) the maximum design speed;
- e) the nominal voltage and rated energy of the traction battery;
- f) a reference to each product safety certification held;
- g) a two-dimensional symbol in accordance with ISO/IEC 16022 or ISO/IEC 18004 that encodes the 17 characters of the vehicle identifier.

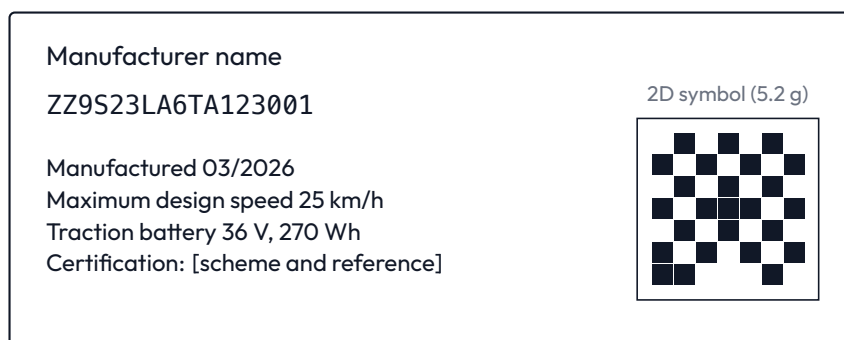


Figure 2 — Example of an identification label (informative layout; values illustrative; ZZ9 is not an assigned WMI)

The symbol may additionally encode a reference to the identification record. It shall not encode personal data. Characters of the vehicle identifier on the label shall be at least 2 mm high. The label shall remain legible for the service life of the vehicle; a certification body may verify this by the marking durability test of the safety standard under which the vehicle is certified.

6 Traction battery

6.1 Battery identifier

Each traction battery, removable or not, shall bear a battery identifier that is unique worldwide, constructed in accordance with ISO/IEC 15459 with an issuing agency code, and assigned by the party that places the battery pack on the market. The identifier shall be marked on the enclosure in plain characters and in a two-dimensional symbol in accordance with ISO/IEC 16022 or ISO/IEC 18004 that encodes the battery identifier, and shall be legible without opening the enclosure.

Note Where Regulation (EU) 2023/1542 requires a battery passport (for batteries of light means of transport from 18 February 2027), the unique identifier of the battery passport may be used as the battery identifier.

6.2 Association at manufacture

The vehicle manufacturer shall record in the identification record, for each vehicle, the battery identifier of each traction battery fitted and the model of charger supplied.

6.3 Replacement

On battery replacement, the battery identifier of the new battery should be recorded against the vehicle identifier by the person replacing it, and shall be so recorded where that person is the manufacturer or acts on its behalf. The vehicle identifier shall not change.

7 Identification record and decoding information

7.1 Minimum data elements

The manufacturer shall create an identification record for each vehicle at manufacture, containing the elements of Table 1 entered by the manufacturer. The record shall provide for the other elements of Table 1. The column “Entered by” is informative.

Data element	Entered by	When	Access
Vehicle identifier; manufacturer; model; model year	Manufacturer	Manufacture	Public
Attributes 4.4 a) to e)	Manufacturer	Manufacture	Public
Product safety certification references	Manufacturer	Manufacture	Public
Battery identifier(s); charger model	Manufacturer	Manufacture	Public
Recall campaign and remedy status	Manufacturer	On recall	Public
Battery replacement: new battery identifier	Repairer	On replacement	Public
Battery replacement: replacing party	Repairer	On replacement	Restricted
First retail sale (date, seller)	Seller	On sale	Restricted
Theft report reference	Police or owner	On report	Restricted
Fire investigation reference	Fire service	On investigation	Restricted
Registration reference	Registering authority	On registration	Restricted
Building or premises register reference	Building operator	On registration	Restricted
Insurance claim reference	Insurer	On claim	Restricted
End of life of the traction battery	Recycler	On recycling	Restricted

Table 1 — Minimum data elements of the identification record

Personal data shall not form part of the public data elements. Access to restricted elements shall be limited to parties with a lawful interest, as determined by the competent authority.

7.2 Custody

The manufacturer shall make the identification record available to any registry designated by a competent authority. Records shall be exchangeable in a format to be specified in a later draft. Any competent authority may hold a complete copy of the records relating to its jurisdiction. This document does not designate, or set conditions for, any registry operator.

7.3 Decoding information

The manufacturer shall publish decoding information in accordance with Annex C before the first sale of a vehicle bearing a new code, and shall keep it available for 30 years.

8 Conformity

Conformity with this document is verified on a sample of vehicles selected by the certification body, by:

- a) checking the structure, characters and check digit of the identifier (Clause 4, Annex A);
- b) inspecting the location, legibility, character height and permanence of the direct marking (5.1);
- c) verifying the content of the label and that the two-dimensional symbol decodes to the marked identifier (5.2);
- d) verifying the battery identifier marking and its entry in the identification record (Clause 6);
- e) verifying that decoding information is published and resolves positions 4 to 8, 10 and 11 of the sample (7.3);
- f) verifying that an identification record exists for each sampled vehicle and holds the elements of Table 1 entered by the manufacturer (7.1);
- g) a written declaration by the manufacturer of uniqueness under 4.1.

Annex A

(normative)

Check digit and model year code

A.1 Calculation. Each character of the identifier is assigned a numerical value from Table A.1 and multiplied by the weight for its position in Table A.2. The products are summed and the sum divided by 11. The remainder is the check digit; a remainder of 10 is written as the letter X. The weight of position 9 is zero.

A,J	B,K,S	C,L,T	D,M,U	E,N,V	F,W	G,P,X	H,Y	R,Z	0-9
1	2	3	4	5	6	7	8	9	face value

Table A.1 — Values of characters

Position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Weight	8	7	6	5	4	3	2	10	0	9	8	7	6	5	4	3	2

Table A.2 — Weights by position

A.2 Worked example. For the identifier ZZ9S23LA?TA123001, the products by position are 72, 63, 54, 10, 8, 9, 6, 10, 0, 27, 8, 7, 12, 15, 0, 0, 2. Their sum is 303; 303 divided by 11 leaves a remainder of 6. The identifier is ZZ9S23LA6TA123001 (illustrative; ZZ9 is not an assigned WMI).

A.3 Model year. Position 10 indicates the model year by the code in Table A.3. The cycle repeats every 30 years.

2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
A	B	C	D	E	F	G	H	J	K
2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
L	M	N	P	R	S	T	V	W	X
2030	2031	2032	2033	2034	2035	2036	2037	2038	2039
Y	1	2	3	4	5	6	7	8	9

Table A.3 — Model year code (the cycle repeats from 2040; U, Z and O are not used)

Annex B

(informative)

Recommended coding of positions 4 to 8

Position	Attribute	Recommended codes
4	Device type	S = electric kick-scooter, standing; other codes reserved
5	Rated continuous motor power	1 = up to 250 W; 2 = over 250 up to 350 W; 3 = over 350 up to 500 W; 4 = over 500 up to 750 W; 5 = over 750 up to 1 000 W; 6 = over 1 000 W
6	Maximum design speed	1 = up to 20 km/h; 2 = over 20 up to 24 km/h; 3 = over 24 up to 25 km/h; 4 = over 25 up to 32 km/h; 5 = over 32 km/h, only where no road-vehicle identification number is required
7	Traction battery family	Manufacturer's code, defined in the decoding information
8	Model and variant	Manufacturer's code, defined in the decoding information

In the example of A.2, S23 reads as a standing kick-scooter with a rated motor power over 250 W up to 350 W and a maximum design speed over 24 up to 25 km/h. Attributes are as delivered by the manufacturer (4.4).

The coding of this annex should be used only under a WMI, or a range of position 4 codes, that the manufacturer reserves for personal e-transporters. Uniqueness under 4.1 applies to the full 17 characters.

Annex C

(normative)

Content of decoding information

Decoding information shall state, for each WMI used by the manufacturer:

- the manufacturer's name, address and a contact for identification matters;
- for each of positions 4 to 8, every code used and its meaning, with the model years to which it applies;
- the codes used in position 11 and the plant each designates;
- where a 9 is used in position 3, the code assigned in positions 12 to 14;
- the date of publication and of each amendment.

Decoding information shall be published in a machine-readable form.

Annex D

(informative)

Correspondence with the German rule for e-scooters

Germany's regulation on small electric vehicles (Elektrokleinstfahrzeuge-Verordnung, eKFV), Annex 1, as amended in 2026, requires a factory plate and an identifier marked so that it cannot be erased, altered or removed, on the right-hand side of the vehicle.

Element	eKFV Annex 1	This document
Structure	WMI, VDS, VIS	As ISO 3779 (4.1)
Manufacturer without WMI	14 characters; national manufacturer key in VDS characters 3 to 6	Does not conform; a 17-character identifier is also assigned (4.7)
Fewer than 150 vehicles a year worldwide	9 in WMI position 3; VIS characters 3 to 5 assigned by the authority	9 in position 3 under the assigning agency's rules (4.3)
Check digit, year, plant	Not required	Required (4.5, 4.6)
Permanence	Cannot be erased, altered or removed	5.1
Location	Right-hand side, on an easily accessible part, without exception	Right-hand side where the design allows (5.1); narrower in Annex 1
Plate	Manufacturer, type, year, identifier, top speed, approval number; no other data on the plate	5.2, plus battery and machine-readable symbol; the 5.2 label is separate from, or beside, the plate
Traction battery	Not addressed in Annex 1	Clause 6

A 17-character identifier assigned under the German rule conforms to Clause 4 only where position 9 carries the check digit of Annex A, position 10 the code of Table A.3 and position 11 a plant code, and the decoding information resolves the attributes of 4.4. Annex 1 requires none of these.

Annex E

(informative)

Questions for reviewers

1. Manufacturers. Do the attributes in 4.4 match how you describe your models? What does the identifier on your German units contain today?
2. Fire services and investigators. Is the direct marking in 5.1 legible after a battery fire? What must be readable at the scene?
3. Police. Which data elements does a theft report need to lead to recovery?
4. Sellers. Can the symbol in 5.2 g) be checked at the point of sale in under ten seconds?
5. Certification bodies. Where should the requirements of Clauses 5 and 6 sit in existing certification programmes for personal e-transporters?
6. Authorities. Which existing rule could refer to this document without a new one?
7. All. Should seated e-scooters, e-bikes and e-mopeds come into scope in the next draft?

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UL 2272, *Electrical Systems for Personal E-Mobility Devices*

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49 CFR Part 565, *Vehicle Identification Number (VIN) Requirements (United States)*

Motor Vehicle Safety Regulations, C.R.C., c. 1038, Schedule IV, section 115, *Vehicle Identification Number (Canada)*

Elektrokleinstfahrzeuge-Verordnung (eKFV) of 6 June 2019, Annex 1, as amended 30 January 2026 (Germany)

Regulation (EU) 2023/1542 concerning batteries and waste batteries