

STN	Uzamykanie reagujúce na alkohol Skúšobné metódy a požiadavky na funkčné vlastnosti Časť 4: Pripojenie a digitálne rozhranie medzi blokovacím zariadením a vozidlom	STN EN 50436-4 30 4010
------------	---	--

Alcohol interlocks - Test methods and performance requirements - Part 4: Connection and digital interface between the alcohol interlock and the vehicle

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 09/22

Obsahuje: EN 50436-4:2022

Oznámením tejto normy sa od 20.06.2025 ruší
STN EN 50436-4 (30 4010) z júna 2019

135657

EUROPEAN STANDARD

EN 50436-4

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2022

ICS 71.040.40; 43.040.10

Supersedes EN 50436-4:2019

English Version

Alcohol interlocks - Test methods and performance requirements - Part 4: Connection and digital interface between the alcohol interlock and the vehicle

Ethylotests antidémarrage - Méthodes d'essais et exigences de performance - Partie 4: Connexion et interface numérique entre l'éthylotest antidémarrage et le véhicule

Alkohol-Interlocks - Prüfverfahren und Anforderungen an das Betriebsverhalten - Teil 4: Verbindung und digitale Schnittstelle zwischen dem Alkohol-Interlock und dem Fahrzeug

This European Standard was approved by CENELEC on 2022-06-20. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN 50436-4:2022 (E)**Contents**

Page

European foreword	3
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms and definitions	7
4 Connection between alcohol interlock and vehicle	8
4.1 Installation documentation	8
4.2 Data bus specification	8
4.3 Properties of a connector	9
4.4 Behaviour of the vehicle.....	10
4.5 Activation of the alcohol interlock.....	10
4.6 Deactivation of the alcohol interlock following a shutdown request.....	10
4.7 Maintaining power to the alcohol interlock	11
5 Basic connection architecture for the data bus	11
6 Communication	12
6.1 General.....	12
6.2 Communication states of the vehicle	12
6.3 Communication states of the alcohol interlock.....	13
6.4 Interaction between vehicle and alcohol interlock.....	18
7 Implementation of the communication states	18
7.1 General.....	18
7.2 Coding of data bus signals.....	18
7.3 Signal Validation and error handling	19
7.4 LIN identifiers and services	20
7.5 CAN-Services.....	24
8 Communication states and corresponding messages	24
8.1 Vehicle communication states and corresponding frames.....	24
8.2 Interlock communication states and corresponding frames.....	26
9 System safety analysis	30
10 Testing	30
Annex A (informative) Examples of vehicle – alcohol interlock interactions	31
Annex B (informative) State transition tables	39
Annex C (informative) Hazard Analysis and Risk Assessment in accordance with the requirements of ISO 26262	43
Annex D (informative) Example of a LIN 2.0 description file	44
Annex E (informative) Example of a LIN 2.2 description file	47
Annex F (informative) Example of a J 1939 DBC file	50
Annex G (informative) Conformance testing	55
G.1 LIN conformance testing	55
G.2 CAN J1939 conformance testing	55
Annex H (informative) Proposed test plan	56
Bibliography	113

EN 50436-4:2022 (E)**European foreword**

This document (EN 50436-4:2022) has been prepared by CLC/BTTF 116-2 "Alcohol Interlocks".

The following dates are fixed:

- latest date by which this document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2023-06-20
- latest date by which the national standards conflicting with this document have to be withdrawn (dow) 2025-06-20

This document will supersede EN 50436-4:2019 and all of its amendments and corrigenda (if any).

EN 50436-4:2022 includes the following significant technical changes with respect to EN 50436-4:2019:

- Clause 3, terms and definitions, definitions were added for CAN and DBC;
- Clause 4.2, the CAN data bus was added as new data bus connection;
- Clause 4.3.3, the option to switch off the power supply to the alcohol interlock was included;
- Clause 4.5, the activation of the alcohol interlock was specified;
- Clause 4.6, the deactivation of the alcohol interlock was specified;
- Clause 5, the clause was simplified and updated;
- Clause 6, the alcohol interlock communication state Service was deleted;
- Clause 7.5, the specification of CAN services was added;
- Clause 8, the clause was updated and some communication state parameters were updated and clarified;
- Clause 9, the clause was updated;
- Clause 10, new clause was added to provide a link to the test plan in Annex H;
- Annex A, figures were updated to meet communication states;
- Annex B, tables were updated to meet new transition requirements;
- Annex C, the annex was reworked completely;
- Annex D, the annex was updated;
- Annex E, the annex was updated;
- Annex F, a sample DBC file was added as Annex;
- Annex G, the annex was updated;
- Annex H, the proposed test plan was added as an informative Annex.

EN 50436-4:2022 (E)

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

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

EN 50436-4:2022 (E)

Introduction

The purpose of alcohol interlocks is to enhance traffic safety by preventing persons with alcohol concentrations exceeding a set limit value from driving a motor vehicle. The EN 50436 series specifies test methods and essential performance requirements for alcohol interlocks and gives guidance for decision makers, purchasers and users.

There are several areas in which alcohol interlocks may be used:

- installed in a vehicle as a general preventive measure for the promotion of traffic safety, on a voluntary base or required legally in certain vehicles (e.g. vehicles for children transport), or
- in vehicles as ordered by a court or an administrative authority as part of a drink-driving offender programme, or
- for persons subject to a medical or rehabilitation programme.

Alcohol interlocks are often intended for after-market installation. For this purpose they have to be connected to the electrical circuits of the vehicle.

This installation of an alcohol interlock is expected not to interfere with the proper performance of the vehicle, nor to impair the safety and security of the vehicle; and to be as easy and as fast as possible. Additionally, the installation costs should be low in relation to the total cost of the alcohol interlock.

Therefore, it is desirable to have a standardised interface between alcohol interlocks and vehicles.

The alcohol interlock suppliers are expected to detail all the information that they will use/send. All used data/information is expected to respect the cyber security protocol and rules of the vehicle.

NOTE A new standard ISO/SAE 21434 to define requirements for cybersecurity engineering is under preparation.

All data required by the alcohol interlock from the vehicle is expected to be defined clearly and not be transferred outside the vehicle if this digital communication is used.

EN 50436-4:2022 (E)

1 Scope

This document specifies the interface between an alcohol interlock for production and aftermarket installation and a vehicle. It details the modes of electrical connections, the assignment of electrical connection lines as well as the information to be exchanged between the vehicle and the alcohol interlock.

This document is applicable to alcohol interlocks for drink-driving-offender programmes (as in EN 50436-1) as well as to alcohol interlocks for general preventive use (as in EN 50436-2).

This document is mainly directed at manufacturers of alcohol interlocks and at vehicle manufacturers.

This document is referenced in EN 50436-7 and provides details of the preferred data bus connection suggested therein.

NOTE This document describes the information exchange using a LIN or a CAN (J1939) connection.

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 50436-1:2014, *Alcohol interlocks — Test methods and performance requirements — Part 1: Instruments for drink-driving-offender programs*

EN 50436-2, *Alcohol interlocks — Test methods and performance requirements — Part 2: Instruments having a mouthpiece and measuring breath alcohol for general preventive use*

EN 50436-7:2016, *Alcohol interlocks — Test methods and performance requirements — Part 7: Installation document*

ISO 17987-1:2016, *Road vehicles — Local Interconnect Network (LIN) — Part 1: General information and use case definition*

ISO 17987-2:2016, *Road vehicles — Local Interconnect Network (LIN) — Part 2: Transport protocol and network layer services*

ISO 17987-3:2016, *Road vehicles — Local Interconnect Network (LIN) — Part 3: Protocol specification*

ISO 17987-4:2016, *Road vehicles — Local Interconnect Network (LIN) — Part 4: Electrical physical layer (EPL) specification 12 V/24 V*

ISO/TR 17987-5:2016, *Road vehicles — Local Interconnect Network (LIN) — Part 5: Application programmers interface (API)*

ISO 17987-6:2016, *Road vehicles — Local Interconnect Network (LIN) — Part 6: Protocol conformance test specification*

ISO 17987-7:2016, *Road vehicles — Local Interconnect Network (LIN) — Part 7: Electrical Physical Layer (EPL) conformance test specification*

ISO 17987-8:2019, *Road vehicles — Local Interconnect Network (LIN) — Part 8: Electrical physical layer (EPL) specification: LIN over DC powerline (DC-LIN)*

SAE J1939 (series), *Serial Control and Communications Heavy Duty Vehicle Network*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN