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

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD



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|---|---|
| See Eesti standard EVS-EN 50436-4:2022 sisaldab Euroopa standardi EN 50436-4:2022 ingliskeelset teksti. | This Estonian standard EVS-EN 50436-4:2022 consists of the English text of the European standard EN 50436-4:2022. |
| Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. | This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. |
| Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 22.07.2022. | Date of Availability of the European standard is 22.07.2022. |
| Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest. | The standard is available from the Estonian Centre for Standardisation and Accreditation. |

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 43.040.10, 71.040.40

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

# EN 50436-4

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ICS 71.040.40; 43.040.10

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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



CENELEC

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Comité Européen de Normalisation Electrotechnique
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# European foreword

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

The following dates are fixed:

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|---|---|---|
| • 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.

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.

# 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.

# 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*