EN 50436
Alcohol Interlock Standards
Evolutions and future vision
Purposes and new legislation
Purposes

- 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.

- EN 50436 series specifies test methods and essential performance requirements for alcohol interlocks (and vehicles) and gives guidance for decision makers, purchasers and users.
Regulation (EU) 2019/... on type-approval requirements for motor vehicles

Article 6

Advanced vehicle systems for all motor vehicle categories

1. Motor vehicles shall be equipped with the following advanced vehicle systems:

(a) intelligent speed assistance;
(b) alcohol interlock installation facilitation;
(c) driver drowsiness and attention warning;
(d) advanced driver distraction warning;

‘alcohol interlock installation facilitation’ means a standardised interface that facilitates the fitting of aftermarket alcohol interlock devices in motor vehicles;
02

Who is doing the Job?
The Group that works on Alcohol Interlock Standards in Europe

The Task Force of the Technical Board 116-2 of CENELEC, the European Committee for Electrotechnical Standardisation, developed the series of European alcohol interlock standards EN 50436.

The initiative for the connectivity improvement is aligned with the needs of the European commission.

Members and Participants

Members from National Standardisation Committees & additional experts

Road Safety Authorities and Organisations
Alcohol Interlock Manufacturers
Testing Laboratories
Automotive Industry
European Automobile Manufacturers’ Associations (ACEA, JAMA)
EN 50436 - Overview
EN 50436-1
Instruments for drink-driving-offender programs

EN 50436-2
Instruments having a mouthpiece and measuring breath alcohol for general preventive use

EN 50436-3
Guidance for authorities, decision makers, purchasers and users

EN 50436-6
Data security

EN 50436-4
Connection and digital interface between the alcohol interlock and the vehicle

EN 50436-7
Installation Document
One standard

Six parts supporting the new type approval regulation

(presented in historical order)
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Specifies test methods and performance requirements for breath alcohol controlled alcohol interlocks

- measurement accuracy of the alcohol concentration,
- environmental tests with different ambient temperatures and humidity,
- tests of time to be ready,
- durability tests with vibrations and dropping,
- measures against circumvention and manipulation,
- influence of other exhaled gases than alcohol,
- long term behaviour,
- electrical tests for supply voltage and durability against short circuits,
- electromagnetic compatibility and electrical disturbances,
- content of the instructions for installation and use.

EN 50436-1:2014
Instruments for drink-driving-offender programs

The application of EN 50436-1 ensures the proper, safe and reliable operation of alcohol interlocks in the wide range of potential environments.
EN 50436-1
Instruments for drink-driving-offender programs

EN 50436-2
Instruments having a mouthpiece and measuring breath alcohol for general preventive use

EN 50436-3
Guidance for authorities, decision makers, purchasers and users

EN 50436-4
Connection and digital interface between the alcohol interlock and the vehicle

EN 50436-6
Data security

EN 50436-7
Installation Document
Reflects the needs of professional and private use

In its currently 2nd edition
describes only the differences in the requirements compared to part 1.

EN 50436-2:2014

Instruments having a mouthpiece and measuring breath alcohol for general preventive use

EN 50436-2 concerns large(st) number of drivers and vehicles.
Applies to professional and private use
EN 50436-1
Instruments for drink-driving-offender programs

EN 50436-2
Instruments having a mouthpiece and measuring breath alcohol for general preventive use

EN 50436-3
Guidance for authorities, decision makers, purchasers and users

EN 50436-4
Connection and digital interface between the alcohol interlock and the vehicle

EN 50436-6
Data security

EN 50436-7
Installation Document
Supplement to EN 50436-1 and EN 50436-2

- It specifies additional security requirements for the protection and handling of event records which are stored in the data memory of alcohol interlocks and which may be downloaded, processed and transferred to supervising persons or organizations.

- Optional accessory devices of the alcohol interlock (e.g. cameras or GPS systems) generating data related to event data of the alcohol interlock, as well as accessory devices handling or transferring data for a drink-driving-offender programme come also under this standard.

EN 50436-6:2015
Data security

The application of EN 50436-6 is to be decided by the respective legislation or the vehicle fleet operator.
EN 50436-1
Instruments for drink-driving-offender programs

EN 50436-2
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EN 50436-6
Data security

EN 50436-4
Connection and digital interface between the alcohol interlock and the vehicle

EN 50436-7
Installation Document
Supports stakeholders through guidance

- Introduces alcohol interlocks for commercial and professional use in drink driving offender programmes
- Gives insight into technology and application
- Provides answers to frequently asked question

It is assumed that the recommendations are used for alcohol interlocks fulfilling the technical requirements given in the other parts of EN 50436
New Task

A new methodology was required to transform the classical installation pattern and make alcohol interlocks easily available for modern vehicles.
Two Step Strategy

supports
- the installation in moderately and highly complex vehicles
- decouples installation advice and technical processes

Standardised Digital Interface (LIN)
Installation Document

EN 50436-1
Instruments for drink-driving-offender programs

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EN 50436-4
Connection and digital interface between the alcohol interlock and the vehicle

EN 50436-7
Installation Document

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Specifies test methods and performance requirements for breath alcohol controlled alcohol interlocks

- EN 50436-7 defines the content and layout of a document, that is needed to properly install an alcohol interlock into a vehicle.
- Technical requirements reflect requirements given in other parts of EN 50436 series of standards or standards referenced there.
- The numbers mandated in Annex C reflect the minimum requirements for alcohol interlocks after EN 50436-1.
- In order to fulfil EN 50436-7 the documentation as such need to comply and the necessary functionality needs to be available.

EN 50436-7:2016
Installation document

In support of the new type approval EN 50436-7 aims at vehicle manufacturers.
Standardised information

- idea follows safety card
- important first step
- directs at future technologies
EN 50436-1
Instruments for drink-driving-offender programs

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EN 50436-3
Guidance for authorities, decision makers, purchasers and users

EN 50436-4
Connection and digital interface between the alcohol interlock and the vehicle

EN 50436-6
Data security

EN 50436-7
Installation Document
Offers a shared interface between alcohol interlock and vehicle

- no longer cutting of wires
- uses proven automotive IT concepts
- reflects today’s vehicle architectures

EN 50436-4:2019
Connection and digital interface between the alcohol interlock and the vehicle

EN 50436-4 allows for an easy and safe installation of alcohol interlocks into highly integrated vehicles of all types
How do EN 50436-7 and EN50436-4 interact in support of the new type approval regulation?
EN 50436-7 opens three options (interfaces) to support alcohol interlock installations

Classical Installation
Table C.1 3a - Start enabler
0 V to 36 V on the cable to be interrupted.
Shall prohibit vehicle from starting / moving if circuit is open.

Pseudo–digital installation
Table C.1 3b - Input / Output
Shall prohibit vehicle from starting / moving after signal from alcohol interlock, is GROUND or HIGH or shall allow vehicle to start / move after signal from alcohol interlock, is HIGH or GROUND.

Digital installation
Table C.1 3c - Data bus connection
Connection to an internal data bus of the vehicle for information exchange between the vehicle and the alcohol interlock.
Details of the data bus connection shall be given in the assembly instructions.
Which digital connection to use?

- EN 50436-4 is not mandated by EN 50436-7, this makes proprietary solutions possible,
- proprietary solutions would then be needed to be fully disclosed in order to fulfil EN50436-7,
- **EN 50436-4 provides a standardised digital interface that facilitates the fitting of aftermarket alcohol interlock devices in motor vehicles**
06__________________________

What is to come next?
Next Steps

already decided and worked on in BTTF 116-2

- include additional physical layer, mainly for commercial vehicles
- include technical progress (electric vehicles .....)

3rd edition of parts 1 and 2

Process to distribute the installation document

Standardised Digital Interface (CAN J1939)

Installation Document

Standardised Digital Interface (LIN)

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Thank you very much

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