



BSI Standards Publication

## Road Vehicles — Extended vehicle (ExVe) methodology

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Part 2: Methodology for designing the extended vehicle

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## National foreword

This British Standard is the UK implementation of ISO 20077-2:2018.

The UK participation in its preparation was entrusted to Technical Committee AUE/16, Data Communication (Road Vehicles).

A list of organizations represented on this committee can be obtained on request to its secretary.

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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## Road Vehicles — Extended vehicle (ExVe) methodology —

### Part 2: Methodology for designing the extended vehicle

*Véhicules routiers — Méthodologie du véhicule étendu (ExVe) —  
Partie 2: Méthodologie pour désigner le véhicule étendu*



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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](http://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](http://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 voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 22 *Road vehicles*, Subcommittee SC 31, *Data communication*.

A list of all parts in the ISO 20077 series can be found on the ISO website.

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## Introduction

This document is dedicated to the extended vehicle (ExVe).

In the early 2010s, advances in technology have led to new ways of communicating with the vehicle where digital information could be accessed not only in a physical way, but also wirelessly.

The removal of the constraint of a physical connection has enabled

- remote access to vehicle functionality that previously was impossible or very difficult, and
- simplified access to multiple information sources which have together created opportunities for new functionalities.

These advances have generated an increased need for interconnection with data specific to each vehicle. This phenomenon was similar to the increase of new functionalities enabled by the usage of multiplexed buses in vehicles.

This evolution has led to the introduction of the “extended vehicle” (ExVe) concept as described in ISO 20077-1.

Technical constraints and societal needs should be taken into account when designing these new functionalities. It is also necessary to mitigate the risks introduced by the new communication means between the ExVe and the external world.

In this context, this document aims at guiding the ExVe manufacturer by specifying a set of general rules and basic principles from which each ExVe manufacturer derives their own detailed and specific methods or procedures to design an extended vehicle.

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# Road Vehicles — Extended vehicle (ExVe) methodology —

## Part 2: Methodology for designing the extended vehicle

### 1 Scope

This document specifies general rules and basic principles the manufacturer of the extended vehicle (ExVe) considers when elaborating its own design method. It does not specify the manner in which these design methods are drafted and implemented.

It specifies by means of a template the necessary information that is communicated to the ExVe manufacturer for requesting the design of a new ExVe functionality. It also specifies, by means of a template, the information the ExVe manufacturer provides for responding to that request. It does not specify the process leading to the elaboration of the request information nor the process associated to communication of the response information.

It concerns the design of the extended vehicles mentioned in the scope of ISO 20077-1, regardless of the type of communication interface which is used between the ExVe and external systems or parties. It does not concern the internal communication of the ExVe. It does not standardize the implementation of software or hardware nor preclude any technical solution the ExVe manufacturer might select when designing a new ExVe functionality.

It relates to the design and production phases of a vehicle, where these phases include the subsequent design upgrades by the ExVe manufacturer of vehicle models, variants, or types still in production.

**NOTE** Should new interfaces for remote communication with the vehicle become mandatory, then this document is also applicable for designing the requested ExVe functionalities.

### 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 20077-1, *Road vehicles — Extended vehicle (ExVe) — Methodology — Part 1: General information*

### 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 20077-1 and the following 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

##### **basic principle**

design principle that is considered when designing an extended vehicle