
**Road vehicles — Ergonomics aspects
of transport information and control
systems — Human machine interface
specifications for keyless ignition
systems**

*Véhicules routiers — Aspects ergonomiques des systèmes de
commande et d'information du transport — Spécifications d'interface
homme-machine pour des systèmes de démarrage sans clé*



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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).

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For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 39, *Ergonomics*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The conventional method of operating motor ignition systems requires use of a mechanical key. Keyless ignition systems, that do not require the mechanical interface with the vehicle, improve driver's convenience and are becoming more widespread. This has created a need for immediate standardization of the Human Machine Interface (HMI), since some drivers may have difficulty understanding how to use these systems. This document complements SAE J2948, which covers the operation of keyless ignition systems with the goal of helping to minimize user-initiated errors. That includes:

- the inability to start and stop the vehicle propulsion system,
- exiting the vehicle with the automatic transmission in a non-parking gear,
- exiting the vehicle while the vehicle propulsion system is enabled, and
- exiting the vehicle while the vehicle propulsion system is disabled, but the accessory or electrical systems are active.

This document's scope differs from SAE J2948 as follows:

- actuation of keyless ignition control that is equipped with automatic start/stop systems,
- actuation to start or stop the vehicle propulsion system under emergency situations,
- actuation to start the propulsion system with low battery in the key,
- actuation of keyless ignition control without key code carrying device, and
- recommendations for detailed alerts and status indications identified with specific use-case examples.

Many of these HMI issues vary among manufacturers and even among models from the same manufacturer. To help clarify the use of keyless ignition systems, this document sets guidelines for these new HMI solutions.

As additional explanation and support for developing specific requirements, keyless ignition control use cases are provided as an [Annex A](#).

Road vehicles — Ergonomics aspects of transport information and control systems — Human machine interface specifications for keyless ignition systems

1 Scope

This document provides human machine interface (HMI) design specifications for keyless ignition systems that use key code carrying device for passenger cars (including sport utility vehicles and light trucks) and commercial vehicles (including heavy trucks and buses), independent of vehicle propulsion system. HMI specifications for the electrical key functions include actuation in normal conditions, emergencies, low battery, and avoidance of inadvertent actuations, alerts and specific non-standard situations.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

key code

electronic code, which when transmitted to and stored in the *starting system* (3.4) software, allows the driver to select a vehicle ignition mode using a *keyless ignition control* (3.3)

3.2

key code carrying device

physical device capable of transmitting an electronic *key code* (3.1) to the vehicle *starting system* (3.4)

3.3

keyless ignition control

permanently mounted physical device such as a pushbutton, rocker switch, multi-position control, or rotary control used to perform ignition control such as start or stop a *vehicle propulsion system* (3.6) without need for insertion or removal of a conventional key into/from an ignition slot

3.4

starting system

electronic system that controls the transition between *ignition modes* (3.5) related to the starting or stopping of a vehicle based on driver's request and vehicle conditions

3.5

ignition mode

propulsion and/or vehicle electrical states as determined by vehicle operating conditions and driver actuation of the *keyless ignition control* (3.3)