INTERNATIONAL STANDARD

ISO 26021-5

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Road vehicles — End-of-life activation of on-board pyrotechnic devices —

Part 5: Additional communication line with pulse width modulated signal

Véhicules routiers — Activation de fin de vie des dispositifs pyrotechniques embarqués —

Partie 5: Ligne de communication additionnelle avec signal modulé par largeur d'impulsion

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 26021-5 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 26021 consists of the following parts, under the general title *Road vehicles — End-of-life activation of on-board pyrotechnic devices*:

— *Part 1: General information and use case definitions*

— *Part 2: Communication requirements*

— *Part 3: Tool requirements*

— *Part 4: Additional communication line with bidirectional communication*

— *Part 5: Additional communication line with pulse width modulated signal*

Introduction

Worldwide, nearly all new vehicles are equipped with one or more safety systems. This can include advanced protection systems based on pyrotechnic actuators. All components which contain pyrotechnic substances can be handled in the same way.

Recycling these vehicles demands a new process to ensure that the deactivation of airbags is safe and cost-efficient. Due to the harmonization of the on-board diagnostic (OBD) interface, there is a possibility of using it for on-board deployment, which is based on the same tools and processes.

Representatives of the global automobile industry agreed that automobile manufacturers

— do not support reuse as an appropriate treatment method for pyrotechnic devices,

— believe treatment of pyrotechnic devices is required before shredding, and

— support in-vehicle deployment as the preferred method.

Based on this agreement, the four big associations of automobile manufacturers (ACEA, Alliance, JAMA and KAMA) started to develop a method for the "in-vehicle deployment of pyrotechnic components in cars with the pyrotechnic device deployment tool (PDT)". The objective is that in the future a dismantler will use only one tool without any accessories to deploy all pyrotechnic devices inside an end-of-life vehicle (ELV) by using an existing interface to the car.

Because of different requirements and safety concepts an additional communication line (ACL) is added to the basic controller area network (CAN) communication method. In this part of ISO 26021 ACL is used to mean an additional communication line with pulse width modulated signal. This direct hardware (HW) connection is used for systems with a specific safing concept, to bypass it and then enable the deployment of such systems.

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1 Scope

This part of ISO 26021 defines the requirements of redundancy hardware or software systems independent from the CAN line which are activated by the ACL hardware line.

It also describes the additional sequences of the deployment process, and the technical details for the direct hardware connection between pyrotechnic device deployment tool (PDT) and pyrotechnic control unit (PCU).

2 Normative references

The following referenced documents are indispensable for the application 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 14229-1, *Road vehicles — Unified diagnostic services (UDS) — Part 1: Specification and requirements*

SO 14230-1, *Road vehicles — Diagnostic systems — Keyword Protocol 2000 — Part 1: Physical layer*

ISO 15031-3, *Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 3: Diagnostic connector and related electrical circuits, specification and use*

ISO 15031-5, *Road vehicles — Communication between vehicle and external equipment for emissions-related diagnostics — Part 5: Emissions-related diagnostic services*

ISO 26021-2, *Road vehicles — End-of-life activation of on-board pyrotechnic devices — Part 2: Communication requirements*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 14229-1 and the following apply.

3.1
PWM
pulse width modulation
signal linked by the ACL to the independent hardware path in the PCU

NOTE The PWM signal is active during the deployment session.