
Road vehicles — Tachograph systems —
Part 3:
Motion sensor interface

Véhicules routiers — Systèmes tachygraphes —
Partie 3: Interface de capteur de mouvement



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS

© ISO 2004

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
Introduction	v
1 Scope.....	1
2 Normative references	1
3 Terms and definitions.....	1
4 Symbols and abbreviated terms.....	3
5 Connector	4
5.1 Dimensions and pin allocation	4
5.2 Electrical specification	5
6 Cable.....	8
7 Interface protocol	9
7.1 Transmission	9
7.2 Motion sensor state at the end of production.....	12
7.3 Instructions.....	13
7.4 Initialization of communication between motion sensor and vehicle unit	13
7.5 Communication of motion sensor and vehicle unit in normal use.....	18
7.6 Read information.....	21
8 Options.....	31
8.1 Direction information.....	31
8.2 Additional direction information in the MF byte	32
Bibliography	34

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 16844-3 was prepared by Technical Committee ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 16844 consists of the following parts, under the general title *Road vehicles — Tachograph systems*:

- *Part 1: Electrical connectors*
- *Part 2: Recording unit, electrical interface*
- *Part 3: Motion sensor interface*
- *Part 4: CAN interface*
- *Part 5: Secured CAN interface*
- *Part 6: Diagnostics*
- *Part 7: Parameters*

Introduction

ISO 16844 supports and facilitates the communication between electronic units and a tachograph; the tachograph being based upon Council Regulations (EEC) No. 3820/85 ^[1] and (EEC) No. 3821/85 ^[2] and their amendments Council Regulation (EEC) No. 2135/98 ^[3] and Commission Regulation (EC) No. 1360/2002 ^[4].

Its purpose is to ensure the compatibility of tachographs from various tachograph manufacturers.

The basis of the digital tachograph concept is a recording unit (RU) that stores data related to the activities of the drivers of a vehicle on which it is installed. When the RU is in normal operational status, the data stored in its memory are made accessible to various entities such as drivers, authorities, workshops and transport companies in a variety of ways: they may be displayed on a screen, printed by a printing device or downloaded to an external device. Access to stored data is controlled by a smart card inserted in the tachograph.

In order to prevent manipulation of the tachograph system, the speed signal sender (motion sensor) is provided with an encrypted data link.

A typical tachograph system is shown in Figure 1.

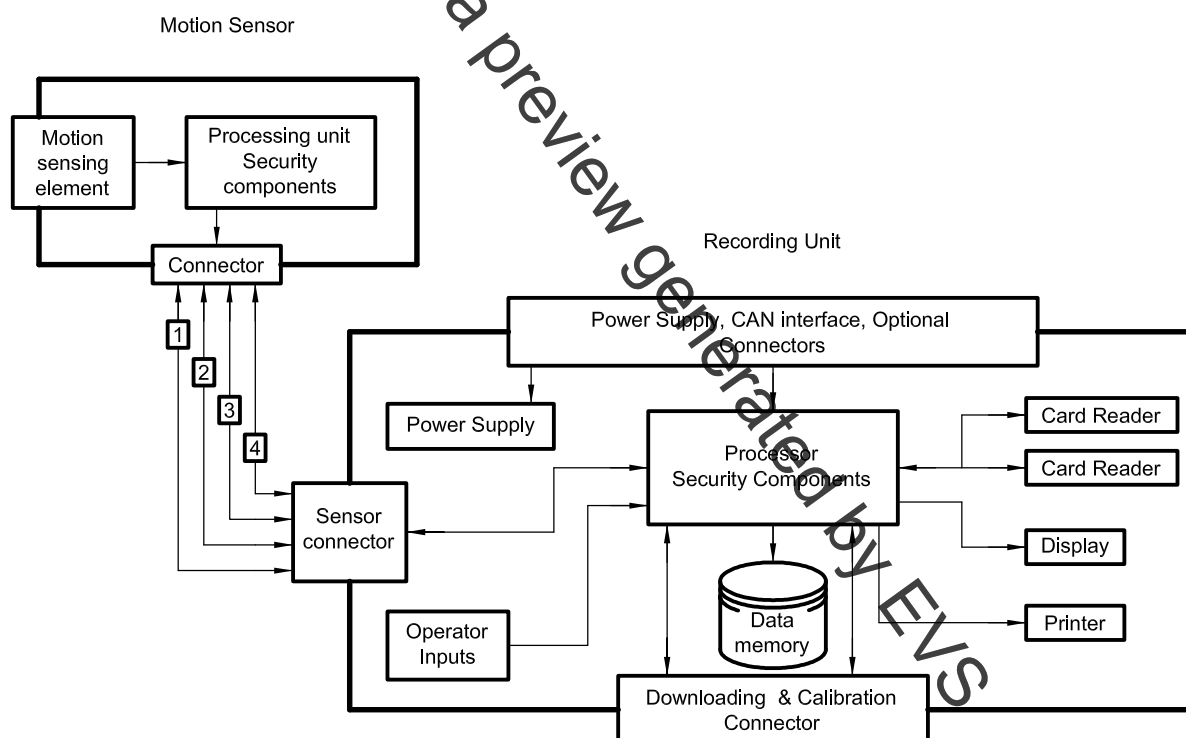


Figure 1 — Typical tachograph system

This document is a preview generated by EVS

Road vehicles — Tachograph systems —

Part 3: Motion sensor interface

1 Scope

This part of ISO 16844 specifies the physical and data link layers of the electrical interface connecting a motion sensor to a vehicle unit, used in tachograph systems in road vehicles to perform speed signal transmission and data interchange.

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 15170-1, *Road vehicles — Four-pole electrical connectors with pins and twist lock — Part 1: Dimensions and classes of application*

ISO/IEC 10116, *Information technology — Security techniques — Modes of operation for an n-bit block cipher*

3 Terms and definitions

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

3.1

check sum

sum (two byte value) of the bytes pointed out at the corresponding location

3.2

direction of movement

bit 6 of byte MF showing whether the vehicle moving direction is forward or reverse

3.3

direction of movement ON

bit 7 of Byte MF showing whether the additional direction information is available or not

3.4

identification key

key necessary for Initialization of a motion sensor, not stored in the sensor memory

NOTE The identification key is derived by adding a constant control vector of the value 48 21 5F 00 03 41 32 8A₁ || 00 68 4D 00 CB 21 70 1D hexadecimal on the master key ($K_{ID}=K \text{ XOR } CV$).

3.5

inter byte timing

possible pause between two bytes of a message