

This is a preview of "BS ISO 17215-3:2014". [Click here to purchase the full version from the ANSI store.](#)

**BS ISO 17215-3:2014**



**BSI Standards Publication**

# **Road vehicles — Video communication interface for cameras (VCIC)**

Part 3: Camera message dictionary

**bsi.**

...making excellence a habit.™

This is a preview of "BS ISO 17215-3:2014". [Click here to purchase the full version from the ANSI store.](#)

This British Standard is the UK implementation of ISO 17215-3:2014.

The UK participation in its preparation was entrusted to Technical Committee AUE/16, Electrical and electronic equipment.

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.

© The British Standards Institution 2014. Published by BSI Standards Limited 2014

ISBN 978 0 580 80551 6

ICS 43.040.15

**Compliance with a British Standard cannot confer immunity from legal obligations.**

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2014.

**Amendments issued since publication**

Date	Text affected
------	---------------

---

This is a preview of "BS ISO 17215-3:2014". [Click here to purchase the full version from the ANSI store.](#)

First edition  
2014-04-15

---

---

# Road vehicles — Video communication interface for cameras (VCIC) —

## Part 3: Camera message dictionary

*Véhicules routiers — Interface de communication vidéo pour caméras (ICVC) —*

*Partie 3: Dictionnaire de message de caméra*



Reference number  
ISO 17215-3:2014(E)

© ISO 2014

This is a preview of "BS ISO 17215-3:2014". [Click here to purchase the full version from the ANSI store.](#)



## **COPYRIGHT PROTECTED DOCUMENT**

© ISO 2014

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested 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](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

This is a preview of "BS ISO 17215-3:2014". [Click here to purchase the full version from the ANSI store.](#)

## Contents

Page

<b>Foreword</b> .....	<b>iv</b>
<b>Introduction</b> .....	<b>v</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>2</b>
<b>3 Terms and definitions, symbols, and abbreviated terms</b> .....	<b>2</b>
3.1 Terms and definitions.....	2
3.2 Abbreviated terms.....	3
<b>4 Conventions</b> .....	<b>3</b>
<b>5 Overview of ISO 17215</b> .....	<b>3</b>
5.1 General.....	3
5.2 Document overview and structure.....	3
5.3 Open Systems Interconnection (OSI) model.....	4
5.4 Document reference according to OSI model.....	4
<b>6 Camera application interface (OSI layer 7)</b> .....	<b>5</b>
6.1 Specific properties.....	5
6.2 API principles.....	6
6.3 API data types.....	7
6.4 API Return codes.....	7
6.5 API enumerations.....	7
6.6 API structures.....	11
6.7 API reference.....	26
6.8 Programming model for SOME/IP.....	40
6.9 PDU examples for some/IP.....	45

This is a preview of "BS ISO 17215-3:2014". [Click here to purchase the full version from the ANSI store.](#)

## 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 meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 22, *Road vehicles*, Subcommittee SC 3, *Electrical and electronic equipment*.

ISO 17215 consists of the following parts, under the general title *Road vehicles — Video communication interface for cameras (VCIC)*:

- *Part 1: General information and use case definition*
- *Part 2: Service discovery and control*
- *Part 3: Camera message dictionary*
- *Part 4: Implementation of communication requirements*

This is a preview of "BS ISO 17215-3:2014". [Click here to purchase the full version from the ANSI store.](#)

## Introduction

Driver assistance systems are more and more common in road vehicles. From the beginning, cameras were part of this trend. Analogue cameras were used in the beginning because of lower complexity of the first systems. With increasing demand for more advanced functionality, digital image processing has been introduced. So-called one box design cameras (combining a digital image sensor and a processing unit) appeared in the vehicles.

Currently, the market demands such systems with multiple functions. Even different viewing directions are in use. It seems to be common sense that 6 up to 12 cameras in a single vehicle will be seen in the next future. Out of this and the limitation in size, power consumption, etc. it will lead to designs where the cameras are separated from the processing unit. Therefore, a high performance digital interface between camera and processing unit is necessary.

This International Standard has been established in order to define the use cases, the communication protocol, and the physical layer requirements of a video communication interface for cameras, which covers the needs of driver assistance applications.

The video communication interface for cameras

- incorporates the needs of the whole life cycle of an automotive grade digital camera,
- utilizes existing standards to define a long-term stable state-of-art video communication interface for cameras usable for operating and diagnosis purpose,
- can be easily adapted to new physical data link layers including wired and wireless connections by using existing adaption layers, and
- is compatible with AUTOSAR.

This part of ISO 17215 is related to the general information and use case definition. This is a general overview International Standard which is not related to the OSI model.

To achieve this, it is based on the Open Systems Interconnection (OSI) basic reference model specified in ISO/IEC 7498-1 and ISO/IEC 10731, which structures communication systems into seven layers. When mapped on this model, the protocol and physical layer requirements specified by this International Standard, in accordance with [Table 1](#) are broken into following layers:

- application (layer 7), specified in ISO 17215-3;
- presentation layer (layer 6), specified in ISO 17215-2;
- session layer (layer 5), specified in ISO 17215-2;
- transport protocol (layer 4), specified in ISO 17215-4, ISO 13400-2;
- network layer (layer 3), specified in ISO 17215-4, ISO 13400-2;
- data link layer (layer 2), specified in ISO 17215-4, ISO 13400-3;
- physical layer (layer 1), specified in ISO 17215-4, ISO 13400-3.

This is a preview of "BS ISO 17215-3:2014". [Click here to purchase the full version from the ANSI store.](#)

**Table 1 — Specifications applicable to the OSI layers**

Applicability	OSI 7 layers	Video communication interface for cameras		Camera diagnostics
Seven layers according to ISO 7498-1 and ISO/IEC 10731	Application (layer 7)	ISO 17215-3		
	Presentation (layer 6)	ISO 17215-2		
	Session (layer 5)	ISO 17215-2		
	Transport (layer 4)	ISO 17215-4	Other future interface standards	ISO 13400-2
	Network (layer 3)			
	Data link (layer 2)	ISO 17215-4		
	Physical (layer 1)			ISO 13400-3

ISO 17215-1 has been established in order to define the use cases for vehicle communication systems implemented on a video communication interface for cameras; it is an overall International Standard not related to the OSI model.

ISO 17215-3 covers the application layer implementation of the video communication interface for cameras; it includes the API.

ISO 17215-2 covers the presentation layer implementation of the video communication interface for cameras.

ISO 17215-4 is the common standard for the OSI layers 1 to 4 for video communication interface for cameras. It complements ISO 13400-2 and ISO 13400-3 and adds the requirement for video transmission over Ethernet.

ISO 17215-2 and ISO 17215-3 (OSI layer 5 to 7) services have been defined to be independent of the ISO 17215-4 (OSI layer 1 to 4) implementation. Therefore, ISO 17215-4 could be replaced by other future communication International Standard.



This is a preview of "BS ISO 17215-3:2014". Click here to purchase the full version from the ANSI store.

# Road vehicles — Video communication interface for cameras (VCIC) —

## Part 3: Camera message dictionary

### 1 Scope

This part of ISO 17215 specifies the standardized camera messages and data types used by a VCIC camera (OSI Layer 7).

The scope of the camera application interface (API) and its context are shown in [Figure 1](#).

Applications hosted on ECUs want to communicate with one or more cameras (e.g. "Ask camera for parameters."). If the applications can use standardized services supported by the cameras (API layer 7), the development of a vision application should be independent of the camera used. The services can be implemented by general libraries.

The definition of streaming data are not an issue of this API.

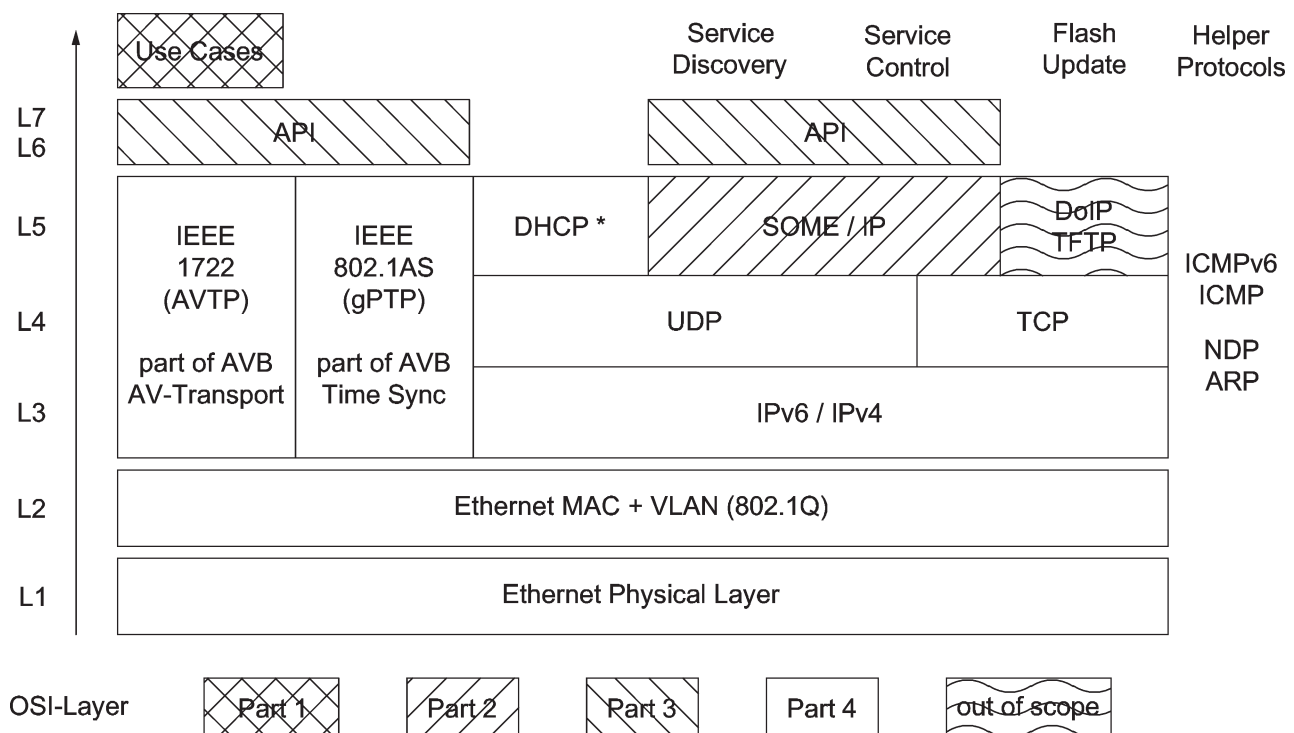


Figure 1 — Overview of ISO 17215

The general terminology defined in ISO 17215-1 is also used in this part of ISO 17215.