

# PUBLICLY AVAILABLE SPECIFICATION

## PRE-STANDARD

Industrial communication networks – Fieldbus specifications – ADS-net

(<https://standards.iteh.ai>)  
Document Preview

IEC PAS 62953:2015

<https://standards.iteh.ai/catalog/standards/iec/cab686/dc-2473-4e7d-a7f1-066f696140bc/iec-pas-62953-2015>

Withhold



## THIS PUBLICATION IS COPYRIGHT PROTECTED

Copyright © 2015 IEC, Geneva, Switzerland

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 IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

IEC Central Office  
3, rue de Varembe  
CH-1211 Geneva 20  
Switzerland

Tel.: +41 22 919 02 11  
Fax: +41 22 919 03 00  
[info@iec.ch](mailto:info@iec.ch)  
[www.iec.ch](http://www.iec.ch)

### About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

### About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

#### IEC Catalogue - [webstore.iec.ch/catalogue](http://webstore.iec.ch/catalogue)

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

#### IEC publications search - [www.iec.ch/searchpub](http://www.iec.ch/searchpub)

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

#### IEC Just Published - [webstore.iec.ch/justpublished](http://webstore.iec.ch/justpublished)

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

#### Electropedia - [www.electropedia.org](http://www.electropedia.org)

The world's leading online dictionary of electronic and electrical terms containing more than 30 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

#### IEC Glossary - [std.iec.ch/glossary](http://std.iec.ch/glossary)

More than 60 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

#### IEC Customer Service Centre - [webstore.iec.ch/csc](http://webstore.iec.ch/csc)

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: [csc@iec.ch](mailto:csc@iec.ch).

IEC PAS 62953:2015

<https://standards.iteh.ai/en/standards/iec/cab86/dc-2473-4e7d-a7f1-066f696140bc/iec-pas-62953-2015>

# PUBLICLY AVAILABLE SPECIFICATION

## PRE-STANDARD

---

**Industrial communication networks – Fieldbus specifications – ADS-net**

(<https://standards.iteh.ai>)  
Document Preview

IEC PAS 62953:2015

<https://standards.iteh.ai/catalog/standards/iec/cab667dc-2473-4e7d-a7f1-066f696140bc/iec-pas-62953-2015>

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

---

ICS 25.040.40; 35.100.01

ISBN 978-2-8322-2445-8

**Warning! Make sure that you obtained this publication from an authorized distributor.**

## CONTENTS

Industrial communication networks – Fieldbus specifications – Part 3-25: Data-link layer service definition – Type 25 elements.....	6
Industrial communication networks – Fieldbus specifications – Part 4-25: Data-link layer protocol specification – Type 25 elements .....	32
Industrial communication networks – Fieldbus specifications – Part 5-25: Application layer service definition – Type 25 elements.....	94
Industrial communication networks – Fieldbus specifications – Part 6-25: Application layer protocol specification – Type 25 elements .....	158
CPF20 input for IEC 61784-2: Industrial communication networks – Profiles – Part 2: Additional fieldbus profiles for real-time networks based on ISO/IEC 8802-3.....	270

iTeh Standards  
(<https://standards.itih.ai>)  
Document Preview

IEC PAS 62953:2015

<https://standards.itih.ai/standards/iec/cab667dc-2473-4e7d-a7f1-066f696140bc/iec-pas-62953-2015>

## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS  
SPECIFICATIONS AND PROFILES – ADS-NET****FOREWORD**

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

A PAS is a technical specification not fulfilling the requirements for a standard, but made available to the public.

IEC PAS 62953 has been processed by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

Draft PAS	Report on voting
65C/787/PAS	65C/799/RVD

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned may transform it into an International Standard.

This PAS shall remain valid for an initial maximum period of 3 years starting from the publication date. The validity may be extended for a single period up to a maximum of 3 years, at the end of which it shall be published as another type of normative document, or shall be withdrawn.

## INTRODUCTION

This PAS contains the ADS-net fieldbus specifications and profiles (Communication profile CP 20/1 ADS-net/ $\mu$ SNETWORK-1000, CP 20/2 ADS-net/NX) for inclusion in the IEC 61158 series as well as IEC 61784-2.

The intention is to make this technical content available immediately, while a corresponding new work item proposal (NP) has been launched. If the NP is accepted, this contents will be included in the next editions of the IEC 61158 series and of IEC 61784-2.

This PAS contains the relevant ADS-net (Type 25) elements for the DL and AL services and protocols and information with references to:

- IEC 61158-1:2014
- IEC 61158-2:2014
- IEC 61784-2:2014

The present IEC PAS is structured in the same way as the IEC 61158 series and IEC 61784-2:

- IEC PAS 62953-3-25 is intended to become a future IEC 61158-3-25;
- IEC PAS 62953-4-25 is intended to become a future IEC 61158-4-25;
- IEC PAS 62953-5-25 is intended to become a future IEC 61158-5-25;
- IEC PAS 62953-6-25 is intended to become a future IEC 61158-6-25;
- IEC PAS 62953-2 is intended to be merged into a revised version of IEC 61784-2:2014.

IEC PAS 62953:2015

<https://standards.iteh.ai/en/standards/iec/cab6867dc-2473-4e7d-a7f1-066f696140bc/iec-pas-62953-2015>

## INCLUDED SUBPARTS

Industrial communication networks – Fieldbus specifications – Part 3-25: Data-link layer service definition – Type 25 elements

Industrial communication networks – Fieldbus specifications – Part 4-25: Data-link layer protocol specification – Type 25 elements

Industrial communication networks – Fieldbus specifications – Part 5-25: Application layer service definition – Type 25 elements

Industrial communication networks – Fieldbus specifications – Part 6-25: Application layer protocol specification – Type 25 elements

CPF20 input for IEC 61784-2: Industrial communication networks – Profiles – Part 2: Additional fieldbus profiles for real-time networks based on ISO/IEC 8802-3

iTech Standards  
(<https://standards.iteh.ai>)  
Document Preview

IEC PAS 62953:2015

<https://standards.iteh.ai/catalog/standards/iec/cab667dc-2473-4e7d-a7f1-066f696140bc/iec-pas-62953-2015>

## CONTENTS

1	Scope .....	9
1.1	General.....	9
1.2	Specifications .....	9
1.3	Conformance .....	9
2	Normative references .....	10
3	Terms, definitions, symbols and abbreviations .....	10
3.1	Reference model terms and definitions .....	11
3.1.1	DL-address [ISO/IEC 7498-3] .....	11
3.1.2	DL-address-mapping [ISO/IEC 7498-1] .....	11
3.1.3	called-DL-address [ISO/IEC 7498-3] .....	11
3.1.4	calling-DL-address [ISO/IEC 7498-3] .....	11
3.1.5	centralized multi-end-point-connection [ISO/IEC 7498-1] .....	11
3.1.6	DL-connection [ISO/IEC 7498-1] .....	11
3.1.7	DL-connection-end-point [ISO/IEC 7498-1] .....	11
3.1.8	DL-connection-end-point-identifier [ISO/IEC 7498-1] .....	11
3.1.9	DL-connection-mode transmission [ISO/IEC 7498-1] .....	11
3.1.10	DL-connectionless-mode transmission [ISO/IEC 7498-1] .....	11
3.1.11	correspondent (N)-entities [ISO/IEC 7498-1] .....	11
3.1.12	DL-duplex-transmission [ISO/IEC 7498-1] .....	11
3.1.13	(N)-entity [ISO/IEC 7498-1] .....	11
3.1.14	DL-facility [ISO/IEC 7498-1] .....	11
3.1.15	flow control [ISO/IEC 7498-1] .....	11
3.1.16	(N)-layer [ISO/IEC 7498-1] .....	11
3.1.17	layer-management [ISO/IEC 7498-1] .....	12
3.1.18	DL-local-view [ISO/IEC 7498-3] .....	12
3.1.19	DL-name [ISO/IEC 7498-3] .....	12
3.1.20	naming-(addressing)-domain [ISO/IEC 7498-3] .....	12
3.1.21	peer-entities [ISO/IEC 7498-1] .....	12
3.1.22	primitive name [ISO/IEC 7498-3] .....	12
3.1.23	DL-protocol [ISO/IEC 7498-1] .....	12
3.1.24	DL-protocol-connection-identifier [ISO/IEC 7498-1] .....	12
3.1.25	DL-protocol-data-unit [ISO/IEC 7498-1] .....	12
3.1.26	DL-relay [ISO/IEC 7498-1] .....	12
3.1.27	reset [ISO/IEC 7498-1] .....	12
3.1.28	responding-DL-address [ISO/IEC 7498-3] .....	12
3.1.29	routing [ISO/IEC 7498-1] .....	12
3.1.30	segmenting [ISO/IEC 7498-1] .....	12
3.1.31	(N)-service [ISO/IEC 7498-1] .....	12
3.1.32	(N)-service-access-point [ISO/IEC 7498-1] .....	12
3.1.33	DL-service-access-point-address [ISO/IEC 7498-3] .....	12
3.1.34	DL-service-connection-identifier [ISO/IEC 7498-1] .....	12
3.1.35	DL-service-data-unit [ISO/IEC 7498-1] .....	12
3.1.36	DL-simplex-transmission [ISO/IEC 7498-1] .....	12
3.1.37	DL-subsystem [ISO/IEC 7498-1] .....	12
3.1.38	systems-management [ISO/IEC 7498-1] .....	12
3.1.39	DLS-user-data [ISO/IEC 7498-1] .....	12



3.2	Service convention terms and definitions .....	12
3.2.1	acceptor .....	12
3.2.2	asymmetrical service .....	12
3.2.3	confirm (primitive); .....	12
3.2.4	deliver (primitive) .....	13
3.2.5	DL-confirmed-facility .....	13
3.2.6	DL-facility .....	13
3.2.7	DL-local-view .....	13
3.2.8	DL-mandatory-facility .....	13
3.2.9	DL-non-confirmed-facility .....	13
3.2.10	DL-provider-initiated-facility .....	13
3.2.11	DL-provider-optional-facility .....	13
3.2.12	DL-service-primitive; .....	13
3.2.13	DL-service-provider .....	13
3.2.14	DL-service-user .....	13
3.2.15	DLS-user-optional-facility .....	13
3.2.16	indication (primitive); .....	13
3.2.17	multi-peer .....	13
3.2.18	request (primitive); .....	13
3.2.19	requestor .....	13
3.2.20	response (primitive); .....	13
3.2.21	submit (primitive) .....	13
3.2.22	symmetrical service .....	13
3.3	Terms and definitions .....	13
3.4	Symbols and abbreviations .....	16
3.5	Common conventions .....	17
3.6	Additional Type 25 conventions .....	18
4	DL services and concepts .....	18
4.1	Overview .....	18
4.2	Types of DLS .....	18
4.2.1	General .....	18
4.2.2	Primitive of the RCL communication and RT communication .....	18
4.3	Detailed description of the RCL communication service .....	19
4.3.1	Sequence of primitives .....	19
4.3.2	Transmit / Receive DLSDU .....	19
4.4	Detailed description of the RT communication service .....	21
4.4.1	Sequence of primitives .....	21
4.4.2	Transmit / Receive DLSDU .....	21
5	DL management services .....	22
5.1	General .....	22
5.2	Facilities of the DLMS .....	22
5.3	Service of the DL-management .....	22
5.3.1	Overview .....	22
5.3.2	Reset .....	23
5.3.3	Set value .....	23
5.3.4	Get value .....	23
5.3.5	RCL stop .....	23
5.3.6	RCL start .....	23
5.3.7	Node status .....	23

5.3.8	Event.....	23
5.4	Overview of interactions.....	23
5.5	Detail specification of service and interactions.....	24
5.5.1	Reset.....	24
5.5.2	Set value .....	25
5.5.3	Get value.....	26
5.5.4	RCL stop .....	26
5.5.5	RCL start.....	27
5.5.6	Event.....	28
	Bibliography.....	30
	Figure 1 – Relationships of DLSAPs, DLSAP-addresses and group DL addresses.....	14
	Figure 2 – Sequence diagram of RCL communication and RT communication services.....	19
	Figure 3 – Reset, Set value, and Get value services .....	24
	Figure 4 – Event service .....	24
	Table 1 – Primitives and parameters used on the RCL communication service.....	19
	Table 2 – Transmit DLSDU primitives and parameters .....	20
	Table 3 – Primitives and parameters used on the RT communication service.....	21
	Table 4 – Transmit DLSDU primitives and parameters .....	21
	Table 5 – Transmit DLSDU primitives and parameters .....	23
	Table 6 – DLM_Reset primitives and parameters .....	24
	Table 7 – DLM_Set primitives and parameters .....	25
	Table 8 – DLM_Get primitives and parameters.....	26
	Table 9 – DLM_RCL_STOP primitives and parameters .....	27
	Table 10 – DLM_RCL_START primitives and parameters .....	27
	Table 11 – DLM_RCL_START primitives and parameters .....	28
	Table 12 – DLM_Event primitives and parameters .....	29

## INDUSTRIAL COMMUNICATION NETWORKS – FIELDBUS SPECIFICATIONS –

### Part 3-25: Data-link layer service definition – Type 25 elements

## 1 Scope

### 1.1 General

This part of IEC PAS 62953 provides common elements for basic time-critical messaging communications between devices in an automation environment. The term “time-critical” is used to represent the presence of a time-window, within which one or more specified actions are required to be completed with some defined level of certainty. Failure to complete specified actions within the time window risks failure of the applications requesting the actions, with attendant risk to equipment, plant and possibly human life.

This standard defines in an abstract way the externally visible service provided by the Type 25 fieldbus data-link layer in terms of

- a) the primitive actions and events of the service;
- b) the parameters associated with each primitive action and event, and the form which they take; and
- c) the interrelationship between these actions and events, and their valid sequences.

The purpose of this standard is to define the services provided to

- the Type 25 fieldbus application layer at the boundary between the application and data-link layers of the fieldbus reference model;
- systems management at the boundary between the data-link layer and systems management of the fieldbus reference model.

### 1.2 Specifications

The principal objective of this standard is to specify the characteristics of conceptual data-link layer services suitable for time-critical communications, and thus supplement the OSI Basic Reference Model in guiding the development of data-link protocols for time-critical communications. A secondary objective is to provide migration paths from previously-existing industrial communications protocols.

This specification may be used as the basis for formal DL-Programming-Interfaces. Nevertheless, it is not a formal programming interface, and any such interface will need to address implementation issues not covered by this specification, including

- a) the sizes and octet ordering of various multi-octet service parameters, and
- b) the correlation of paired request and confirm, or indication and response, primitives.

### 1.3 Conformance

This standard does not specify individual implementations or products, nor does it constrain the implementations of data-link entities within industrial automation systems.

There is no conformance of equipment to this data-link layer service definition standard. Instead, conformance is achieved through implementation of the corresponding data-link protocol that fulfills the Type 25 data-link layer services defined in this standard.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC PAS 62953-4-25, *Industrial communication networks – Fieldbus specifications – Part 4-25: Data-link layer protocol specification – Type 25 elements*

IEC PAS 62953-5-25, *Industrial communication networks – Fieldbus specifications – Part 5-25: Application layer service definition – Type 25 elements*

IEC PAS 62953-6-25, *Industrial communication networks – Fieldbus specifications – Part 6-25: Application layer protocol specification – Type 25 elements*

ISO/IEC 10731, *Information technology – Open Systems Interconnection – Basic Reference Model – Conventions for the definition of OSI services*

ISO/IEC 7498-1, *Information technology – Open Systems Interconnection – Basic Reference Model: The Basic Model*

ISO/IEC 7498-3, *Information technology – Open Systems Interconnection – Basic Reference Model: Naming and addressing*

ISO/IEC 8802-3:2000, *Information technology – Telecommunications and information exchange between systems – Local and metropolitan area networks – Specific requirements – Part 3: Carrier sense multiple access with collision detection (CSMA/CD) access method and Physical Layer specifications*

ISO/IEC 10731, *Information technology – Open Systems Interconnection – Basic Reference Model – Conventions for the definition of OSI services*

## 3 Terms, definitions, symbols and abbreviations

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

### 3.1 Reference model terms and definitions

This standard is based in part on the concepts developed in ISO/IEC 7498-1 and ISO/IEC 7498-3, and makes use of the following terms defined therein:

<b>3.1.1</b>	<b>DL-address</b>	<b>[ISO/IEC 7498-3]</b>
<b>3.1.2</b>	<b>DL-address-mapping</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.3</b>	<b>called-DL-address</b>	<b>[ISO/IEC 7498-3]</b>
<b>3.1.4</b>	<b>calling-DL-address</b>	<b>[ISO/IEC 7498-3]</b>
<b>3.1.5</b>	<b>centralized multi-end-point-connection</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.6</b>	<b>DL-connection</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.7</b>	<b>DL-connection-end-point</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.8</b>	<b>DL-connection-end-point-identifier</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.9</b>	<b>DL-connection-mode transmission</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.10</b>	<b>DL-connectionless-mode transmission</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.11</b>	<b>correspondent (N)-entities</b> correspondent DL-entities (N=2) correspondent Ph-entities (N=1)	<b>[ISO/IEC 7498-1]</b>
<b>3.1.12</b>	<b>DL-duplex-transmission</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.13</b>	<b>(N)-entity</b> DL-entity (N=2) Ph-entity (N=1)	<b>[ISO/IEC 7498-1]</b>
<b>3.1.14</b>	<b>DL-facility</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.15</b>	<b>flow control</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.16</b>	<b>(N)-layer</b> DL-layer (N=2) Ph-layer (N=1)	<b>[ISO/IEC 7498-1]</b>

<b>3.1.17</b>	<b>layer-management</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.18</b>	<b>DL-local-view</b>	<b>[ISO/IEC 7498-3]</b>
<b>3.1.19</b>	<b>DL-name</b>	<b>[ISO/IEC 7498-3]</b>
<b>3.1.20</b>	<b>naming-(addressing)-domain</b>	<b>[ISO/IEC 7498-3]</b>
<b>3.1.21</b>	<b>peer-entities</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.22</b>	<b>primitive name</b>	<b>[ISO/IEC 7498-3]</b>
<b>3.1.23</b>	<b>DL-protocol</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.24</b>	<b>DL-protocol-connection-identifier</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.25</b>	<b>DL-protocol-data-unit</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.26</b>	<b>DL-relay</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.27</b>	<b>reset</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.28</b>	<b>responding-DL-address</b>	<b>[ISO/IEC 7498-3]</b>
<b>3.1.29</b>	<b>routing</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.30</b>	<b>segmenting</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.31</b>	<b>(N)-service</b> DL-service (N=2) Ph-service (N=1)	<b>[ISO/IEC 7498-1]</b>
<b>3.1.32</b>	<b>(N)-service-access-point</b> DL-service-access-point (N=2) Ph-service-access-point (N=1)	<b>[ISO/IEC 7498-1]</b>
<b>3.1.33</b>	<b>DL-service-access-point-address</b>	<b>[ISO/IEC 7498-3]</b>
<b>3.1.34</b>	<b>DL-service-connection-identifier</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.35</b>	<b>DL-service-data-unit</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.36</b>	<b>DL-simplex-transmission</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.37</b>	<b>DL-subsystem</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.38</b>	<b>systems-management</b>	<b>[ISO/IEC 7498-1]</b>
<b>3.1.39</b>	<b>DLS-user-data</b>	<b>[ISO/IEC 7498-1]</b>

## **3.2 Service convention terms and definitions**

This standard also makes use of the following terms defined in ISO/IEC 10731 as they apply to the data-link layer:

- 3.2.1** **acceptor**
- 3.2.2** **asymmetrical service**
- 3.2.3** **confirm (primitive);**  
requestor.deliver (primitive)