

TECHNICAL REPORT



**Field device tool (FDT) interface specification –
Part 515: Communication implementation for common object model – IEC 61784
CPF 15**

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CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms, definitions, symbols, abbreviated terms and conventions	7
3.1 Terms and definitions	7
3.2 Symbols and abbreviated terms.....	7
3.3 Conventions	7
3.3.1 Data type names and references to data types	7
3.3.2 Vocabulary for requirements	7
4 Bus category	7
5 Access to instance and device data	7
6 Protocol specific usage of general data types	7
7 Protocol specific common data types	8
8 Network management data types	8
8.1 General	8
8.2 Modbus device address - FDTModbusAddressSchema	8
9 Communication data types - FDTModbusCommunicationSchema	9
10 Channel parameter data types - FDTModbusChannelParameterSchema	17
11 Device identification	19
11.1 Device type identification data types - FDTModbusIdentSchema	19
11.2 Topology scan data types - DTModbusDeviceSchema	20
11.3 Scan identification data types - FDTModbusScanIdentSchema	21
11.4 Device type identification data types - FDTModbusDeviceTypeIdentSchema	23
11.5 XSLT Transformation	24
Bibliography.....	30
Figure 1 – Part 515 of the IEC 62453 series	5
Table 1 – Protocol specific usage of general data types.....	8

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

**Part 515: Communication implementation for common object model –
IEC 61784 CPF 15**

FOREWORD

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The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC/TR 62453-515, which is a technical report, has been prepared by subcommittee 65E: Devices and integration in enterprise systems, of IEC technical committee 65: Industrial-process measurement, control and automation:

This part, in conjunction with the other parts of the first edition of the IEC 62453 series cancels and replaces IEC/PAS 62453-1, IEC/PAS 62453-2, IEC/PAS 62453-3, IEC/PAS 62453-4 and IEC/PAS 62453-5 published in 2006, and constitutes a technical revision.

Each part of the IEC/TR 62453-5xy series is intended to be read in conjunction with its corresponding part in the IEC 62453-3xy series.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
65E/71/DTR	65E/120/RVC

Full information on the voting for the approval of this technical report can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The list of all parts of the IEC 62453 series, under the general title *Field Device Tool (FDT) interface specification*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

IMPORTANT – The “colour inside” logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

INTRODUCTION

This part of IEC 62453 is an interface specification for developers of FDT (Field Device Tool) components for function control and data access within a client/server architecture. The specification is a result of an analysis and design process to develop standard interfaces to facilitate the development of servers and clients by multiple vendors that need to interoperate seamlessly.

With the integration of fieldbusses into control systems, there are a few other tasks which need to be performed. In addition to fieldbus- and device-specific tools, there is a need to integrate these tools into higher-level system-wide planning- or engineering tools. In particular, for use in extensive and heterogeneous control systems, typically in the area of the process industry, the unambiguous definition of engineering interfaces that are easy to use for all those involved is of great importance.

A device-specific software component, called DTM (Device Type Manager), is supplied by the field device manufacturer with its device. The DTM is integrated into engineering tools via the FDT interfaces defined in this specification. The approach to integration is in general open for all kind of fieldbusses and thus meets the requirements for integrating different kinds of devices into heterogeneous control systems.

Figure 1 shows how IEC/TR 62453-515 is aligned in the structure of IEC 62453 series.

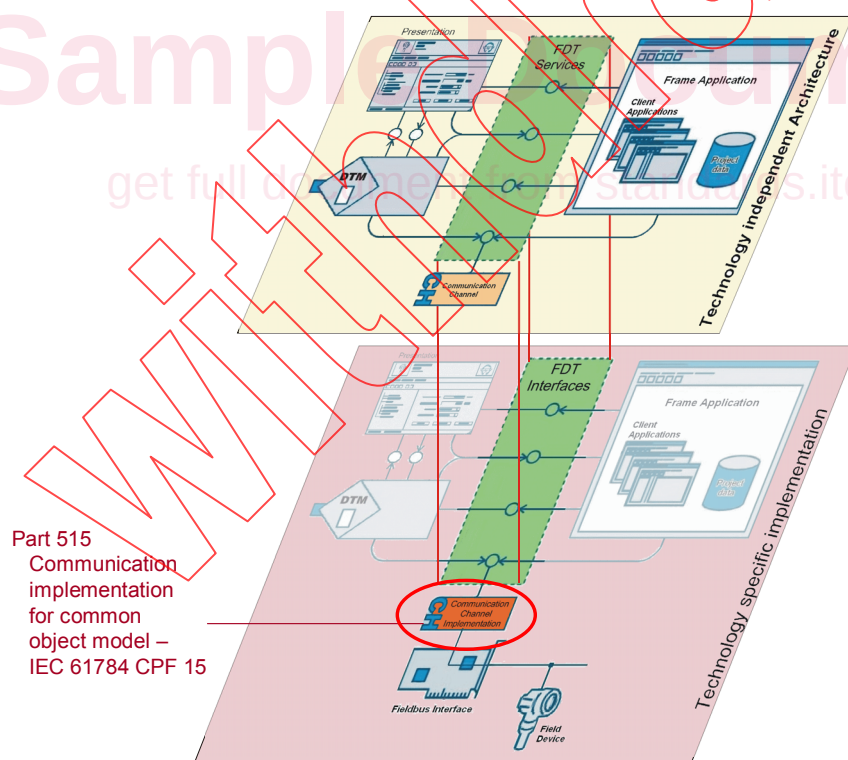


Figure 1 – Part 515 of the IEC 62453 series

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

Part 515: Communication implementation for common object model – IEC 61784 CPF 15

1 Scope

IEC/TR 62453-515, which is a technical report, provides information for integrating IEC 61784-2 CPF 15 (Modbus TCP®) and Modbus Serial Line®¹⁾ protocol support into FDT systems based on COM implementation. This part is to be used in conjunction with IEC/TR 62453-41.

NOTE This part of IEC 62453 only specifies the mapping of Modbus parameters to FDT data types. For restrictions of protocol specific parameters concerning allowed values and concerning limitations of arrays used in the definition of FDT data types, refer to IEC 61158-5-15 and the MODBUS Application Protocol Specification.

This part of IEC 62453 specifies communication and other services.

This specification neither contains the FDT specification nor modifies it.

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.

IEC 61131-3, *Programmable controllers – Part 3: Programming languages*

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

IEC 62453-1:2009, *Field Device Tool (FDT) interface specification – Part 1: Overview and guidance*

IEC 62453-2:2009, *Field Device Tool (FDT) interface specification – Part 2: Concepts and detailed description*

IEC/TR 62453-41:2009, *Field Device Tool (FDT) interface specification – Part 41: Object model integration profile – Common object model*

IEC 62453-315:2009, *Field Device Tool (FDT) interface specification – Part 315: Communication profile integration – IEC 61784 CPF 15*

1) Modbus is the trademark of Schneider Automation Inc. It is registered in the United States of America. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trademark Modbus. Use of the trademark Modbus requires permission from Schneider Automation Inc.

3 Terms, definitions, symbols, abbreviated terms and conventions

3.1 Terms and definitions

For the purpose of this document, the terms and definitions given in IEC 62453-1, IEC 62453-2 and the following apply.

3.2 Symbols and abbreviated terms

For the purpose of this document, the symbols and abbreviations given in IEC 62453-1, IEC 62453-2 and the following apply.

CP	Communication Profile	[IEC 61784-1]
CPF	Communication Profile Family	[IEC 61784-1]

3.3 Conventions

3.3.1 Data type names and references to data types

The conventions for naming and referencing of data types are explained in IEC 62453-2 Clause A.1

3.3.2 Vocabulary for requirements

The following expressions are used when specifying requirements.

Usage of “shall” or “Mandatory”	No exceptions allowed.
Usage of “should” or “Recommended”	Strong recommendation. It may make sense in special exceptional cases to differ from the described behavior.
Usage of “can” or “Optional”	Function or behavior may be provided, depending on defined conditions.

4 Bus category

IEC 61784 CPF 15 protocol is identified by the attribute definition busCategory as specified in IEC 62453-315 (protocol identifiers).

5 Access to instance and device data

Used at methods:

- IDtmParameter::GetParameters()
- IDtmParameter::SetParameters()

These methods shall provide access to at least to all parameters defined in the IEC 62453-315.

6 Protocol specific usage of general data types

Table 1 shows how general data types are used with IEC 61784 CPF 15 devices.