



IEC 62453-315

Edition 1.0 2009-07

INTERNATIONAL STANDARD

Field device tool (FDT) interface specification –
Part 315: Communication profile integration – IEC 61784 CPF 15





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CONTENTS

FOREWORD	6
INTRODUCTION	8
1 Scope	9
2 Normative references	9
3 Terms, definitions, symbols, abbreviated terms and conventions	10
3.1 Terms and definitions	10
3.2 Abbreviated terms	10
3.3 Conventions	10
3.3.1 Data type names and references to data types	10
3.3.2 Vocabulary for requirements	10
4 Bus category	10
5 Access to instance and device data	11
5.1 Process Channel objects provided by DTM	11
5.2 DTM services to access instance and device data	11
6 Protocol specific behavior	11
6.1 General	11
6.2 Broadcasting	11
6.3 Unconfirmed private Modbus request	13
7 Protocol specific usage of general data types	15
8 Protocol specific common data types	15
8.1 General	15
8.2 Address information	16
9 Network management data types	16
10 Communication data types	17
10.1 General	17
10.2 Connection management data types	17
10.3 Transaction service specific data types	18
10.3.1 General	18
10.3.2 Data item addressing	18
10.3.3 Read coils transaction service	19
10.3.4 Read discrete inputs transaction service	20
10.3.5 Read holding registers transaction service	21
10.3.6 Read input registers transaction service	22
10.3.7 Write single coil transaction service	23
10.3.8 Write single register transaction service	24
10.3.9 Read exception status transaction service	25
10.3.10 Diagnostics transaction service	25
10.3.11 Get Comm event counter transaction service	26
10.3.12 Get Comm event log transaction service	27
10.3.13 Write multiple coils transaction service	29
10.3.14 Write multiple registers transaction service	29
10.3.15 Report slave ID transaction service	30
10.3.16 Read file record transaction service	31
10.3.17 Write file record transaction service	33
10.3.18 Mask write register transaction service	34

10.3.19	Read/write holding registers transaction service	35
10.3.20	Read FIFO queue transaction service.....	37
10.3.21	Encapsulated interface transport transaction service.....	37
10.3.22	Read device identification transaction service	38
10.3.23	Private Modbus transaction service	41
10.3.24	Unconfirmed private Modbus transaction service	42
10.3.25	Modbus exception response	43
11	Channel parameter data types.....	44
12	Device Identification	46
12.1	Common device type identification data types	46
12.2	Topology scan data types.....	47
12.3	Scan identification data types.....	48
12.4	Device type identification data types – provided by DTM	50
12.5	Mapping of protocol specific device identification objects to FDT data types.....	51
	Bibliography.....	53
	 Figure 1 – Part 315 of the IEC 62453 series	8
	Figure 2 – Broadcast sequence with Modbus Serial Line Communication DTM	12
	Figure 3 – Broadcast sequence with Modbus TCP Communication DTM	13
	Figure 4 – Broadcast sequence without Modbus Communication DTM	13
	Figure 5 – Unconfirmed request with Modbus Serial Line Communication DTM.....	14
	Figure 6 – Unconfirmed request with Modbus TCP Communication DTM	14
	Figure 7 – Unconfirmed request without Modbus Communication DTM	15
	Figure 8 – Data item addressing	19
	 Table 1 – Protocol identifiers	10
	Table 2 – Address information for broadcast mode	11
	Table 3 – Broadcast transaction requests	12
	Table 4 – Protocol specific usage of general FDT data types	15
	Table 5 – Simple address information data types	16
	Table 6 – Structured address information data types	16
	Table 7 – Structured network management data types	17
	Table 8 – Simple common communication data types	17
	Table 9 – Structured connection management service data types	18
	Table 10 – Simple ReadCoilsReq data types	19
	Table 11 – Structured ReadCoilsReq data types	19
	Table 12 – Simple ReadCoilsRsp data types.....	20
	Table 13 – Structured ReadCoilsRsp data types	20
	Table 14 – Simple ReadDiscreteInputsReq data types	20
	Table 15 – Structured ReadDiscreteInputsReq data types	20
	Table 16 – Simple ReadDiscreteInputsRsp data types	21
	Table 17 – Structured ReadDiscreteInputsRsp data types.....	21
	Table 18 – Simple ReadHoldingRegistersReq data types	21
	Table 19 – Structured ReadHoldingRegistersReq data types	21
	Table 20 – Simple ReadHoldingRegistersRsp data types	22

Table 21 – Structured ReadHoldingRegistersRsp data types	22
Table 22 – Simple ReadInputRegistersReq data types	22
Table 23 – Structured ReadInputRegistersReq data types	22
Table 24 – Simple ReadInputRegistersRsp data types	23
Table 25 – Structured ReadInputRegistersRsp data types	23
Table 26 – Simple WriteSingleCoilReq data types.....	23
Table 27 – Structured WriteSingleCoilReq data types	23
Table 28 – Structured WriteSingleCoilRsp data types	24
Table 29 – Simple WriteSingleRegisterReq data types.....	24
Table 30 – Structured WriteSingleRegisterReq data types	24
Table 31 – Structured WriteSingleRegisterRsp data types	24
Table 32 – Structured ReadExceptionStatusReq data types.....	25
Table 33 – Simple ReadExceptionStatusRsp data types	25
Table 34 – Structured ReadExceptionStatusRsp data types	25
Table 35 – Simple diagnostics data types	26
Table 36 – Structured DiagnosticsReq data types	26
Table 37 – Structured DiagnosticsRsp data types	26
Table 38 – Structured GetCommEventCounterReq data types	27
Table 39 – Simple GetCommEventCounterRsp data types	27
Table 40 – Structured GetCommEventCounterRsp data types	27
Table 41 – Structured GetCommEventLogReq data types	28
Table 42 – Simple GetCommEventLogRsp data types.....	28
Table 43 – Structured GetCommEventLogRsp data types	28
Table 44 – Simple WriteMultipleCoilsReq data types	29
Table 45 – Structured WriteMultipleCoilsReq data types	29
Table 46 – Structured WriteMultipleCoilsRsp data types	29
Table 47 – Simple WriteMultipleRegistersReq data types.....	30
Table 48 – Structured WriteMultipleRegistersReq data types	30
Table 49 – Structured WriteMultipleRegistersRsp data types	30
Table 50 – Structured ReportSlaveIDReq data types	31
Table 51 – Simple ReportSlaveIDRsp data types	31
Table 52 – Structured ReportSlaveIDRsp data types.....	31
Table 53 – Simple ReadFileSubRequest data types	32
Table 54 – Structured ReadFileSubRequest data types	32
Table 55 – Structured ReadFileRecordReq data types	32
Table 56 – Simple ReadFileSubResponse data types	32
Table 57 – Structured ReadFileSubResponse data types	33
Table 58 – Structured ReadFileRecordRsp data types	33
Table 59 – Simple WriteFileSubRequest data types	33
Table 60 – Structured WriteFileSubRequest data types	34
Table 61 – Structured WriteFileRecordReq data types	34
Table 62 – Structured WriteFileRecordRsp data types	34
Table 63 – Simple MaskWriteRegisterReq data types	35

Table 64 – Structured MaskWriteRegisterReq data types	35
Table 65 – Structured MaskWriteRegisterRsp data types	35
Table 66 – Simple ReadWriteRegistersReq data types	36
Table 67 – Structured ReadWriteRegistersReq data types	36
Table 68 – Simple ReadWriteRegistersRsp data types	36
Table 69 – Structured ReadWriteRegistersRsp data types	36
Table 70 – Simple ReadFifoQueueReq data types	37
Table 71 – Structured ReadFifoQueueReq data types	37
Table 72 – Simple ReadFifoQueueRsp data types	37
Table 73 – Structured ReadFifoQueueRsp data types	37
Table 74 – Simple EncapsulatedInterfaceTransportReq data types	38
Table 75 – Structured EncapsulatedInterfaceTransportReq data types	38
Table 76 – Simple EncapsulatedInterfaceTransportRsp data types	38
Table 77 – Structured EncapsulatedInterfaceTransportRsp data types	38
Table 78 – Simple ReadDeviceIdentificationReq data types	39
Table 79 – Structured ReadDeviceIdentificationReq data types	39
Table 80 – Simple IdentificationObject data types	39
Table 81 – Structured IdentificationObject data types	39
Table 82 – Simple ReadDeviceIdentificationRsp data types	40
Table 83 – Structured ReadDeviceIdentificationRsp data types	41
Table 84 – Simple PrivateModbusReq data types	41
Table 85 – Structured PrivateModbusReq data types	41
Table 86 – Simple PrivateModbusRsp data types	41
Table 87 – Structured PrivateModbusRsp data types	42
Table 88 – Simple UnconfirmedPrivateModbusReq data types	42
Table 89 – Structured UnconfirmedPrivateModbusReq data types	42
Table 90 – Structured UnconfirmedPrivateModbusRsp data types	42
Table 91 – Simple ModbusExceptionRsp data types	43
Table 92 – Structured ModbusExceptionRsp data types	43
Table 93 – Simple channel parameter data types	44
Table 94 – Structured channel parameter data types	45
Table 95 – Simple common identification data types	46
Table 96 – Simple device information data types	47
Table 97 – Structured device information data types	48
Table 98 – Simple scan identification data types	49
Table 99 – Structured scan identification data types	49
Table 100 – Structured device type identification data types	50
Table 101 – Mapping of protocol specific identification objects in FDT	52
Table 102 – Additional information for optional identification objects	52

INTERNATIONAL ELECTROTECHNICAL COMMISSION

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –

Part 315: Communication profile integration – IEC 61784 CPF 15

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International Standard IEC 62453-315 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 62453-3xy series is intended to be read in conjunction with IEC 62453-2.

The text of this standard is based on the following documents:

FDIS	Report on voting
65E/131/FDIS	65E/144/RVD

Full information on the voting for the approval of this standard 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.

A 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.

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 fieldbuses 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 kinds of fieldbuses and thus meets the requirements for integrating different kinds of devices into heterogeneous control systems.

Figure 1 shows how IEC 62453-315 is aligned in the structure of the IEC 62453 series.

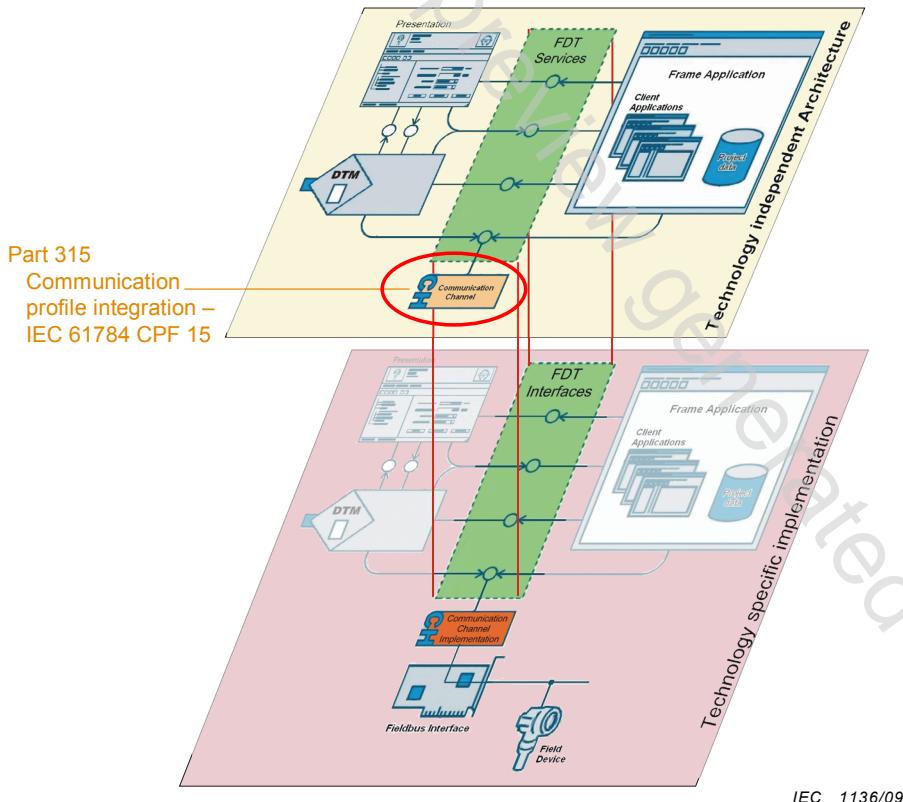


Figure 1 – Part 315 of the IEC 62453 series

FIELD DEVICE TOOL (FDT) INTERFACE SPECIFICATION –**Part 315: Communication profile integration –
IEC 61784 CPF 15****1 Scope**

Communication Profile Family 15 (commonly known as Modbus¹) defines communication profiles based on IEC 61158-5-15 and IEC 61158-6-15. The basic profile CP 15/1 (Modbus TCP) is defined in IEC 61784-1. An additional communication profile (Modbus Serial Line) is defined in [2].

This part of the IEC 62453 provides information for integrating Modbus TCP® and Modbus Serial Line® protocol support into FDT based systems.

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.

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 61158-5-15, *Industrial communication networks – Fieldbus specifications – Part 5-15: Application layer service definition – Type 15 elements*

IEC 61158-6-15, *Industrial communication networks – Fieldbus specifications – Part 6-20: Application layer protocol specification – Type 15 elements*

IEC 61784-1, *Industrial communication networks – Profiles – Part 1: Fieldbus profiles*

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*

RFC 791, *Internet Protocol (available at <<http://www.ietf.org/rfc/rfc0791.txt>>)*

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