

Easergy MiCOM P445

Fast Multifunction Distance Protection Relay

P445/EN PC/Ld2 – Ed. 1

Software Version	K3
Hardware Suffix	L
IEC61850 Edition	1
Issue Date	03/2021

Protocol Implementation Conformance Statement (PICS)

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**PROTOCOL IMPLEMENTATION
CONFORMANCE STATEMENT
(PICS)**

Date (month/year):	03/2021
Products covered by this chapter:	This chapter covers the specific versions of the MiCOM products listed below. This includes only the following combinations of Software Version and Hardware Suffix.
Hardware suffix:	L
Software version:	K3
Connection diagrams:	This includes a list of the Connection Diagrams for the Products covered by this document. 10P445xx (xx = 01 to 04)

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Notes:

1 INTRODUCTION

This specification is the Protocol Implementation Conformance Statement (PICS) and shows the Abstract Communication Service Interface (ACSI) conformance statements as defined in Annex A of Part 7-2 of the IEC 61850 standard specifications. The following ACSI conformance statements used to provide an overview and details about P445 with firmware K3.

- ACSI basic conformance statement,
- ACSI models conformance statement,
- ACSI service conformance statement

The statements specify the communication features mapped to IEC 61850-8-1.

2 ACSI BASIC CONFORMANCE STATEMENT

The basic conformance statement is defined in Table 1:

		Client /Subscriber	Server /Publisher	Value /Comments
Client-Server roles				
B11	Server side (of Two-Party- Application- Association)		Y	
B12	Client side of (Two-Party- Application- Association)			
SCSMs supported				
B21	SCSM: IEC 61850-8-1 used		Y	
B22	SCSM: IEC 61850-9-1 used			
B23	SCSM: IEC 61850-9-2 used			
B24	SCSM: other			
Generic Substation Event model (GSE)				
B31	Publisher side		Y	
B32	Subscriber side	Y		
Transmission of Sampled Value Model (SVC)				
B41	Publisher side			
B42	Subscriber side			
– Y = Yes (supported) N or empty = No (not supported)				

Table 1 - Basic Conformance Statement

3 ACSI MODELS CONFORMANCE STATEMENT

The ACSI models conformance statement is defined in Table 2.

		Client/ Subscriber	Server/ Publisher	Value/ Comments
If Server or Client side (B11/12) supported				
M1	Logical device		Y	
M2	Logical node		Y	
M3	Data		Y	
M4	Data set		Y	
M5	Substitution			
M6	Setting group control		Y	
Reporting				
M7	Buffered report control		Y	
M7-1	sequence-number		Y	
M7-2	report-time-stamp		Y	
M7-3	reason-for-inclusion		Y	
M7-4	data-set-name		Y	
M7-5	data-reference		Y	
M7-6	buffer-overflow		Y	
M7-7	entryID		Y	
M7-8	BufTim		Y	
M7-9	IntgPd		Y	
M7-10	GI		Y	
M7-11	conf-revision		Y	
M8	Unbuffered report control		Y	
M8-1	sequence-number		Y	
M8-2	report-time-stamp		Y	
M8-3	reason-for-inclusion		Y	
M8-4	data-set-name		Y	
M8-5	data-reference		Y	
M8-6	BufTim		Y	
M8-7	IntgPd		Y	
M8-8	GI		Y	
M8-9	conf-revision		Y	
Logging				
M9	Log control			
M9-1	IntgPd			
M10	Log			
Control				
M11	Control		Y	
If GSE (B31/32) is supported				
M12	GOOSE	Y	Y	
M13	GSSE			
If SVC (41/42) is supported				
M14	Multicast SVC			

		Client/ Subscriber	Server/ Publisher	Value/ Comments
M15	Unicast SVC			
If Server or Client side (B11/12) supported				
M16	Time	Y	Y	Time source with required accuracy shall be available.
M17	File Transfer		Y	
Y = service is supported N or empty = service is not supported				

Table 2 - ACSI Models Conformance Statement

4 ACSI SERVICE CONFORMANCE STATEMENT

The ACSI service conformance statement is defined in Table 3 (depending on the statements in Table 1).

	Services	AA:TP/MC	Client (C)	Server (S)	Comments
Server					
S1	GetServerDirectory	TP		Y	
Application association					
S2	Associate			Y	
S3	Abort			Y	
S4	Release			Y	
Logical device					
S5	GetLogicalDeviceDirectory	TP		Y	
Logical node					
S6	GetLogicalNodeDirectory	TP		Y	
S7	GetAllDataValues	TP		Y	
Data					
S8	GetDataValues	TP		Y	
S9	SetDataValues	TP		Y	
S10	GetDataDirectory	TP		Y	
S11	GetDataDefinition	TP		Y	
Data set					
S12	GetDataSetValues	TP		Y	
S13	SetDataSetValues	TP			
S14	CreateDataSet	TP			
S15	DeleteDataSet	TP			
S16	GetDataSetDirectory	TP		Y	
Substitution					
S17	SetDataValues	TP			
Setting group control					
S18	SelectActiveSG	TP		Y	
S19	SelectEditSG	TP			
S20	SetSGValues	TP			
S21	ConfirmEditSGValues	TP			
S22	GetSGValues	TP			
S23	GetSGCBValues	TP		Y	
Reporting					
Buffered report control block (BRCB)					
S24	Report	TP		Y	
S24-1	data-change (dchg)			Y	
S24-2	quality-change (qchg)				
S24-3	data-update (dupd)				
S25	GetBRCBValues	TP		Y	
S26	SetBRCBValues	TP		Y	
Unbuffered report control block (URCB)					
S27	Report	TP		Y	

	Services	AA:TP/MC	Client (C)	Server (S)	Comments
S27-1	data-change (dchg)			Y	
S27-2	quality-change (qchg)				
S27-3	data-update (dupd)				
S28	GetURCBValues	TP		Y	
S29	SetURCBValues	TP		Y	
Logging					
Log control block					
S30	GetLCBValues	TP			
S31	SetLCBValues	TP			
Log					
S32	QueryLogByTime	TP			
S33	QueryLogByEntry	TP			
S34	GetLogStatusValues	TP			
Generic substation event model (GSE)					
GOOSE-CONTROL-BLOCK					
S35	SendGOOSEMessage	MC		Y	IED supports GOOSE Publisher and Subscriber.
S36	GetReference	TP			
S37	GetGOOSEElementNumber	TP			
S38	GetGoCBValues	TP		Y	
S39	SetGoCBValues	TP		Y	
GSSE-CONTROL-BLOCK					
S40	SendGSSEMessage	MC			
S41	GetReference	TP			
S42	GetGSSEElementNumber	TP			
S43	GetGsCBValues	TP			
S44	SetGsCBValues	TP			
Transmission of sampled value model (SVC)					
Multicast SVC					
S45	SendMSVMessage	MC			
S46	GetMSVCBValues	TP			
S47	SetMSVCBValues	TP			
Unicast SVC					
S48	SendUSVMessage	TP			
S49	GetUSVCBValues	TP			
S50	SetUSVCBValues	TP			
Control					
S51	Select			Y	
S52	SelectWithValue	TP		Y	
S53	Cancel	TP		Y	
S54	Operate	TP		Y	
S55	Command-Termination	TP		Y	
S56	TimeActivated-Operate	TP			
File transfer					

	Services	AA:TP/MC	Client (C)	Server (S)	Comments
S57	GetFile	TP		Y	
S58	SetFile	TP			
S59	DeleteFile	TP		Y	Only be performed on .cfg and .data files in /dr_unextracted /
S60	GetFileAttributeValues	TP		Y	
Time					
T1	Time resolution of internal clock		10	10	nearest negative power of 2 in seconds
T2	Time accuracy of internal clock				T0
			1ms	1ms	T1
					T2
					T3
					T4
					T5
T3	Supported TimeStamp resolution	-	10	10	nearest value of 2 ^{** -n} in seconds

Table 3 - ACSI Service Conformance Statement

AA: Application Association type
 MC: Multicast (for GOOSE and SMV)
 MMS: Manufacturing Message Specification
 TP: Two part (for MMS)



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