GE VERNOVA

MiCOM P40 Agile

Px4x

PICS
Protocol Implementation Conformance Statement - IEC 61850 Edition 2

Software Version: 20, 61, 70, 80, 82, 91, 92, AA, AB
Publication Reference: Px4x-PC2-EN-K

CONTENTS

1 PROTOCOL IMPLEMENTATION CONFORMANCE STATEMENT (PICS)

1.1 INTRODUCTION

This specification is the Protocol Implementation Conformance Statement (PICS) and presents the ACSI conformance statements as defined in Annex A of Part 7-2 of the IEC 61850 standard specifications.

1.2 APPLICABILITY TO SOFTWARE

This PICS is applicable to the following software versions and should be read in conjunction with the MICS documents listed below:

Product	Software Version	MICS Document Reference
P14D	70	P14DL-MC2-EN-11
P14N	70	P14NB-MC2-EN-12
P141	61 91	P141-MC2-EN-2.2 P141-MC2-EN-3.2
P142	61 91	P142-MC2-EN-2.2 P142-MC2-EN-3.2
P143	61 91	P143-MC2-EN-2.2 P143-MC2-EN-3.2
P144	61	P143-MC2-EN-2.2
P145	61 91	P145-MC2-EN-2.2 P145-MC2-EN-3.2
P243	70	P243/EN MC2/J82
P345	91	P345-MC2-EN-1.1
P44	AA	P443-MC2-EN-AA-1 P446-MC2-EN-AA-1
P44	AB	P443-MC2-EN-AB-1 P446-MC2-EN-AB-1
P443	91 92	P443-MC2-EN-2.1 P443-MC2-EN-3
P446	80	P446-MC2-EN-1
P44T	91	P44T-EN-MC2-E
P54	AA	P543-MC2-EN-AA-1 P546-MC2-EN-AA-1
P54	AB	P543-MC2-EN-AB-1 P546-MC2-EN-AB-1
P543	91 92	P54x1Z-MC2-EN-2.1 P543-MC2-EN-3
P545	91 92	P54x1Z-MC2-EN-2.1 P545-MC2-EN-3
P546	80 82	P546-MC2-EN-1 P546-MC-EN-1
P54xMED	91	P54A-MC2-EN-2 P54B-MC2-EN-2 P54C&E-MC2-EN-2
P64	AB	P642-MC2-EN-AB-1 P643-MC2-EN-AB-1 P645-MC2-EN-AB-1
P642	91	P642-MC2-EN-4
P643	21 91	P643-MC2-EN-3 P643-MC2-EN-4

Product	Software Version	MICS Document Reference
P645	20 91	P645-MC2-EN-1 P645-MC2-EN-4.2
P741	70 91	P741-EN-MC2-Pc7 P741-EN-MC2-Pd8
P743	70 91	P743-EN-MC2-Pc7 P743-EN-MC2-Pd8
P746	91	P746-EN-MC2-J43.1
P84	AA	P841A-MC2-EN-AA-1 P841B-MC2-EN-AA-1
P84	AB	P841A-MC2-EN-AB-1 P841B-MC2-EN-AB-1
P841	80	P841-MC2-EN-1
P94V	70	P94VR-MC2-EN-12

1.3 ACSI BASIC CONFORMANCE STATEMENT

The basic conformance statement is defined in the table below.

Client-Server Roles		Client/ Subscriber	Server/ Publisher	Value/Comments
B11	Server side (of TWO-PARTY-APPLICATION-ASSOCIATION)		Y	
B12	Client side of (TWO-PARTY-APPLICATION-ASSOCIATION)			
SCSMs supported				
B21	SCSM: IEC 6185-8-1 used		Y	
B22	SCSM: IEC 6185-9-1 used			Deprecated Ed2
B23	SCSM: IEC 6185-9-2 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		Depends on IED order code
– Y = supported N or empty = not supported				

Table 1: Basic conformance statement

1.4 ACSI MODELS CONFORMANCE STATEMENT

The ACSI models conformance statement is defined in the table below.

		Client/ Subscriber	Server/ Publisher	Value/Comments
If Server or Client side (B1) is supported				
M1	Logical Device		Y	
M2	Logical Node		Y	
M3	Data		Y	
M4	Data set		Y	
M5	Substitution		Y	Version AB and later
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			
M11	Control		Y	
M17	File Transfer		Y	
M18	Application association		Y	
M19	GOOSE Control Block		Y	
M20	Sampled Value Control Block			
If GSE (B31/32) is supported				
M12	GOOSE	Y	Y	
M13	GSSE			Deprecated Ed2
If SVC (B41/42) is supported				
M14	Multicast SVC	Y		Depends on IED order code
M15	Unicast SVC			

		Client/ Subscriber	Server/ Publisher	Value/Comments
For all IEDs				
M16	Time	Y	Y	Time source with required accuracy shall be available. Only Time Master are SNTP (Mode 4 response) time server. All other Client/Server devices require SNTP (Mode 3 request) clients
Y = service is supported N or empty = service is not supported				

Table 2: Models conformance statement

1.5 ACSI SERVICE CONFORMANCE STATEMENT

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

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
Server						
S1	2	GetServerDirectory	TP		Y	
Application association						
S2	2	Associate			Y	
S3	2	Abort			Y	
S4	2	Release			Y	
Logical Device						
S5	2	GetLogicalDeviceDirectory	TP		Y	
Logical Node						
S6	2	GetLogicalNodeDirectory	TP		Y	
S7	2	GetAllDataValues	TP		Y	
Data						
S8	2	GetDataValues	TP		Y	
S9	2	SetDataValues	TP		Y	
S10	2	GetDataDirectory	TP		Y	
S11	2	GetDataDefinition	TP		Y	
Data set						
S12	2	GetDataSetValues	TP		Y	
S13	2	SetDataSetValues	TP			
S14	2	CreateDataSet	TP			
S15	2	DeleteDataSet	TP			
S16	2	GetDataSetDirectory	TP		Y	
Substitution						
S17	2	SetDataValues	TP		Y	Version AB and later

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
Setting group control						
S18	2	SelectActiveSG	TP		Y	
S19	2	SelectEditSG	TP		Y	Version AA and later
S20	2	SetSGValues	TP		Y	Version AA and later
S21	2	ConfirmEditSGValues	TP		Y	Version AA and later
S22	2	GetSGValues	TP		Y	Version AA and later
S23	2	GetSGCBValues	TP		Y	
Reporting						
Buffered report control block (BRCB)						
S24	2	Report	TP		Y	
S24-1	2	data-change (dchg)			Y	
S24-2	2	qchg-change (qchg)			Y	
S24-3	2	data-update (dupd)				
S25	2	GetBRCBValues	TP		Y	
S26	2	SetBRCBValues	TP		Y	
Unbuffered report control block (URCB)						
S27	2	Report	TP		Y	
S27-1	2	data-change (dchg)			Y	
S27-2	2	qchg-change (qchg)			Y	
S27-3	2	data-update (dupd)				
S28	2	GetURCBValues	TP		Y	
S29	2	SetURCBValues	TP		Y	
Logging						
Log control block						
S30	2	GetLCBValues	TP			
S31	2	SetLCBValues	TP			
Log						
S32	2	QueryLogByTime	TP			
S33	2	QueryLogByEntry	TP			
S34	2	GetLogStatusValues	TP			
Generic substation event model (GSE)						
GOOSE-CONTROL-BLOCK						
S35	2	SendGOOSEMessage	MC	Y	Y	IED supports GOOSE publish & subscription.
S36	2	GetReference	TP			
S37	2	GetGOOSEElementNumber	TP			
S38	2	GetGoCBValues	TP		Y	
S39	2	SetGoCBValues	TP		Y	
GSSE-CONTROL-BLOCK						
S40		SendGSSEMessage	MC			Deprecated in Edition 2
S41		GetReference	TP			Deprecated in Edition 2

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
S42		GetGSSEElementNumber	TP			Deprecated in Edition 2
S43		GetGsCBValues	TP			Deprecated in Edition 2
S44		SetGsCBValues	TP			Deprecated in Edition 2
Transmission of sampled value model (SVC)						
Multicast SVC						
S45	2	SendMSVMessage	MC	Y		Depends on IED order code
S46	2	GetMSVCBValues	TP			
S47	2	SetMSVCBValues	TP			
Unicast SVC						
S48	2	SendUSVMessage	TP			
S49	2	GetUSVCBValues	TP			
S50	2	SetUSVCBValues	TP			
Control						
S51	2	Select			Y	
S52	2	SelectWithValue	TP		Y	
S53	2	Cancel	TP		Y	
S54	2	Operate	TP		Y	
S55	2	Command-Termination	TP		Y	
S56	2	TimeActivated-Operate	TP			
File transfer						
S57	2	GetFile	TP		Y	
S58	2	SetFile	TP			
S59	2	DeleteFile	TP		Y	Only from /dr_unextracted/ Operation may only be performed on .cfg files.
S60	2	GetFileAttributeValues	TP		Y	
S61	2	GetServerDirectory (FILE-SYSTEM)	TP		Y	
Time						
T1	2	Time resolution of internal clock			10	Nearest negative power of 2 in seconds.

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
T2	2	Time accuracy of internal clock			T1	TL (ms) (low accuracy), T3 < 7 T0 (ms) (<= 10 ms), 7 <= T3 < 10 T1 (µs) (<= 1 ms), 10 <= T3 < 13 T2 (µs) (<= 100 µS), 13 <= T3 < 15 T3 (µs) (<= 25 µS), 15 <= T3 < 18 T4 (µs) (<= 4 µS), 18 <= T3 < 19 T5 (µs) (<= 1 µS), T3 >= 20
T3	2	Supported TimeStamp resolution	-		10	Nearest negative power of 2 in seconds.

Table 3: Service conformance statement

AA: Application association type

TP: Two part (for MMS)

MC: Multicast (for GOOSE and SMV)

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