

**Protocol Implementation Conformance Statement
for the IEC 61850 interface in
MRZS-F, MRZS-S, MRZS-T, MRZS-U**

**Version 1
April 03, 2024**

based upon UCAIug PICS Template version 3.0

1. General

The following ACSI conformance statements are used to provide an overview and details about:

MRZS-F, with firmware **14.13.2**,

MRZS-S, with firmware **16.13.1**,

MRZS-T, with firmware **17.11.1**,

MRZS-U, with firmware **25.13.0**:

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

The statements specify the communication features mapped to IEC 61850-8-1 and IEC 61850-9-2.

2. ACSI basic conformance statement

The basic conformance statement is defined in Table A.1.

Table A.1 – Basic conformance statement

		Client/ Subscriber	Server/ Publisher	Value/ Comments
Client-Server roles				
B11	Server side (of TWO-PARTY-APPLICATION-ASSOCIATION)	N/A	Yes	
B12	Client side of (TWO-PARTY-APPLICATION-ASSOCIATION)		N/A	
SCSMs supported				
B21	SCSM: IEC 61850-8-1 used		Yes	
B22	SCSM: IEC 61850-9-1 used	N/A	N/A	Deprecated Ed2
B23	SCSM: IEC 61850-9-2 used			
B24	SCSM: other			
Generic substation event model (GSE)				
B31	Publisher side	N/A	Yes	
B32	Subscriber side	Yes	N/A	
Transmission of sampled value model (SVC)				
B41	Publisher side	N/A		
B42	Subscriber side		N/A	
N/A = not applicable Yes = supported No or empty = not supported				

3. ACSI model conformance statement

The ACSI models conformance statement is defined in Table A.2.

Table A.2 – ACSI models conformance statement

		Client/Subscriber	Server/Publisher	Value/ Comments
If Server side (B11) and/or Client side (B12) supported				
M1	Logical device		Yes	c2
M2	Logical node		Yes	c3
M3	Data		Yes	c4
M4	Data set		Yes	c5
M5	Substitution		Yes	
M6	Setting group control			
	Reporting			
M7	Buffered report control		Yes	
M7-1	sequence-number		Yes	
M7-2	report-time-stamp		Yes	
M7-3	reason-for-inclusion		Yes	
M7-4	data-set-name		Yes	
M7-5	data-reference		Yes	
M7-6	buffer-overflow		Yes	
M7-7	entryID		Yes	
M7-8	BufTm		Yes	
M7-9	IntgPd		Yes	
M7-10	GI		Yes	
M7-11	conf-revision		Yes	
M8	Unbuffered report control		Yes	
M8-1	sequence-number		Yes	
M8-2	report-time-stamp		Yes	
M8-3	reason-for-inclusion		Yes	
M8-4	data-set-name		Yes	
M8-5	data-reference		Yes	
M8-6	BufTm		Yes	
M8-7	IntgPd		Yes	
M8-8	GI		Yes	
M8-9	conf-revision		Yes	
	Logging			
M9	Log control			
M9-1	IntgPd			
M10	Log			
M11	Control		Yes	

		Client/Subscriber	Server/Publisher	Value/ Comments
M17	File Transfer		Yes	
M18	Application association		Yes	
M19	GOOSE Control Block		Yes	
M20	Sampled Value Control Block		No	
If GSE (B31/32) is supported				
M12	GOOSE	Yes	Yes	
M13	GSSE			Deprecated since Ed2
If SVC (B41/42) is supported				
M14	Multicast SVC			
M15	Unicast SVC			
For all IEDs				
M16	Time		Yes	Time source with required accuracy shall be available. Only Time Master are SNTP (Mode 4 response) time server. All other Client / Server devices are SNTP (Mode 3 request) clients
<p>Yes = service is supported</p> <p>No or empty = service is not supported</p>				

The ACSI service conformance statement is defined in Table A.3 (depending on the statements in Table A.1 and in Table A.2).

Table A.3 – ACSI service conformance statement

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
Server						
S1	1,2	GetServerDirectory (LOGICAL-DEVICE)	TP		Yes	
Application association						
S2-1	1,2	Associate_Request	TP		Yes	
S2-2		Associate_Response			Yes	
S3-1	1,2	Abort_Request	TP		Yes	
S3-2		Abort_Processing			Yes	
S4-1		Release_Request			Yes	
S4-2	1,2	Release_Response	TP		Yes	
Logical device						
S5	1,2	GetLogicalDeviceDirectory	TP		Yes	
Logical node						
S6	1,2	GetLogicalNodeDirectory	TP		Yes	
S7	1,2	GetAllDataValues	TP		Yes	
Data						
S8	1,2	GetDataValues	TP		Yes	
S9	1,2	SetDataValues	TP		No	
S10	1,2	GetDataDirectory	TP		Yes	
S11	1,2	GetDataDefinition	TP		Yes	
Data set						
S12	1,2	GetDataSetValues	TP		Yes	
S13	1,2	SetDataSetValues	TP		No	
S14	1,2	CreateDataSet	TP		No	
S15	1,2	DeleteDataSet	TP		No	
S16	1,2	GetDataSetDirectory	TP		Yes	
Substitution						
S17	1	SetDataValues	TP		Yes	

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
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Setting group control						
S18	1,2	SelectActiveSG	TP			
S19	1,2	SelectEditSG	TP			
S20	1,2	SetEditSGValues	TP			
S21	1,2	ConfirmEditSGValues	TP			
S22	1,2	GetEditSGValues	TP			
S23	1,2	GetSGCBValues	TP			

Reporting						
Buffered report control block (BRCB)						
S24	1,2	Report	TP		Yes	
S24-1	1,2	data-change (dchg)			Yes	
S24-2	1,2	quality-change (qchg)			Yes	
S24-3	1,2	data-update (dupd)			-	
S25	1,2	GetBRCBValues	TP		Yes	
S26	1,2	SetBRCBValues	TP		Yes	
Unbuffered report control block (URCB)						
S27	1,2	Report	TP		Yes	
S27-1	1,2	data-change (dchg)			Yes	
S27-2	1,2	quality-change (qchg)			Yes	
S27-3	1,2	data-update (dupd)			-	
S28	1,2	GetURCBValues	TP		Yes	
S29	1,2	SetURCBValues	TP		Yes	

Logging						
Log control block						
S30		GetLCBValues	TP			
S31		SetLCBValues	TP			
Log						
S32		QueryLogByTime	TP			
S33		QueryLogAfter	TP			
S34		GetLogStatusValues	TP			

Generic substation event model (GSE)						
GOOSE						
S35	1,2	SendGOOSEMessage	MC		Yes	
GOOSE-CONTROL-BLOCK						
S36	1,2	GetGoReference	TP		Yes	
S37	1,2	GetGOOSEElementNumber	TP		Yes	
S38	1,2	GetGoCBValues	TP		Yes	
S39	1,2	SetGoCBValues	TP		No	

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
GSSE						
S40	1	SendGSSEMessage	MC	N/A	N/A	Deprecated in Edition 2
GSSE-CONTROL-BLOCK						
S41	1	GetReference	TP	N/A	N/A	Deprecated in Edition 2
S42	1	GetGSSEElementNumber	TP	N/A	N/A	Deprecated in Edition 2
S43	1	GetGsCBValues	TP	N/A	N/A	Deprecated in Edition 2
S44	1	SetGsCBValues	TP	N/A	N/A	Deprecated in Edition 2

Transmission of sampled value model (SVC)						
Multicast SV						
S45	1,2	SendMSVMessage	MC			
Multicast Sampled Value Control Block						
S46	1,2	GetMSVCBValues	TP			
S47	1,2	SetMSVCBValues	TP			
Unicast SV						
S48	1,2	SendUSVMessage	TP			
Unicast Sampled Value Control Block						
S49	1,2	GetUSVCBValues	TP			
S50	1,2	SetUSVCBValues	TP			
Control						
S51	1,2	Select				
S52	1,2	SelectWithValue	TP			
S53	1,2	Cancel	TP			
S54	1,2	Operate	TP		Yes	direct-operate
S55	1,2	CommandTermination	TP			
S56	1,2	TimeActivatedOperate	TP			
File Transfer						
S57	1,2	GetFile	TP		Yes	
S58	1,2	SetFile	TP		No	
S59	1,2	DeleteFile	TP		Yes	
S60	1,2	GetFileAttributeValues	TP		Yes	
S61	1,2	GetServerDirectory (FILE-SYSTEM)	TP		Yes	

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
Time						
T1	1,2	Time resolution of internal clock		10	10	Nearest negative power of 2-n in seconds (number 0 .. 24)
T2	1,2	Time accuracy of internal clock		T1	T1	TL (ms) (low accuracy), T3 < 7) (only Ed2) 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) (<= 25 µs), 18 <= T3 < 19 T5 (µs) (<= 1 µs), T3 >= 20
T3	1,2	Supported TimeStamp resolution	-	10	10	Nearest value n of 2 ⁻ⁿ in seconds (number 0 .. 24)
N/A = not applicable Yes = supported No or empty = not supported						

5. 61869-9 Communication Profile conformance statement

The A-Profile conformance statement shall be as defined in Table 912.

Table 912 – PICS for A-Profile support: 61869-9

	Ed.	Services	Client (C)	Server (S)	Comments
A0	2	Conformance class supported			
A1	2	Client/Server A-Profile		Yes	
A2	2	GOOSE mgmt A-Profile	Yes	Yes	
A3	2	GOOSE A-Profile			
A4	2	TimeSync A-Profile	Yes		SNTP (RFC 2030, RFC 4330)
A5	2	Security for client/server A-Profile			
A6	2	Security for GOOSE/GSE mgmt A-Profile			
A7	2	SV A-Profile per IEC 61850-9-2:2011			

The T-Profile conformance statement shall be as defined in Table 913.

Table 913 – PICS for T-Profile support: 61869-9

	Ed.	Services	Client (C)	Server (S)	Comments
T1	2	TCP/IP T-Profile per IEC 61850-8-1		Yes	
T2	2	SV T-Profile per IEC 61850-9-2			
T3	2	GOOSE T-Profile per IEC 61850-8-1	Yes	Yes	
T4	2	GSSE T-Profile			
T5	2	TimeSync T-Profile per IEC 61850-8-1	Yes		

6. 61850-9-3 Clock Profile conformance statement

The capabilities and options supported by the PTP clock is shown in Table 22

Table 22 – PICS for A-Profile support: 61850-9-3

PICS proforma reference	Ed.	Capability	Client (C)	Server (S)	Comments
CLOCK_TYPE_OC	2	clock is OC according to this base			
CLOCK_TYPE_TC	2	clock is TC according to this base			
CLOCK_TYPE_BC	2	clock is BC according to this base			
NR_PORTS	2	number of clock ports (total)			
PORTS_STEP	2	1: all ports support 1-step on egress 2: all ports support 2-step on egress 3: all ports support both 1-step and 2.			
SLAVE_ONLY	2	all ports of the clock are slave-only			
TIME_TRACEABLE	2	connectable to a time reference outside of PTP (e.g. GPS)			
FREQ_TRACEABLE	2	connectable to a frequency reference outside of PTP (e.g. GPS)			
DAC	2	doubly attached OC			
PORTS_PAISED	2	paired clock ports for redundancy (e.g. {3-4})			
REDBOX_DATC	2	Redbox as Tranparent Clock			
REDBOX_SLTC	2	Redbox as Stateless Tranparent Clock			
REDBOX_TWBC	2	Redbox as three-way Boundary Clock			
REDBOX_DABC	2	Redbox as DAC BC			
MIB_SNMP	2	supports MIB of IEC 62439-3 Annex E			
MIB_61850	2	supports IEC 61859-90-4 Clock Objects			
MIB_OTHER	2	clock supports fixed values or a mechanism defined by the manufacturer (If True, this list is appended to this PICS)			
ATOI	2	A master clock attaches the ALTERNATE_TIME_OFFSET_INDICATOR TLV as defined in IEC 61588 as set by its application. A slave clock makes this TLV information available to the application if it receives it. A BC forwards the ATOI TLV from the slave port to the master ports			