

**Protocol Implementation Conformance Statement  
for the IEC 61850 interface in SEL-851**

**Version 1  
January 23, 2024**

based upon UCAIug PICS Template version 2.3

UCA International Users Group  
Testing Sub Committee

Date: October 08, 2019

## 1. General

The following ACSI conformance statements are used to provide an overview and details about SEL-851 with firmware version R100-V1

- 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
<b>Client-Server roles</b>				
B11	<b>Server</b> side (of TWO-PARTY-APPLICATION-ASSOCIATION)	N/A	Yes	
B12	<b>Client</b> side of (TWO-PARTY-APPLICATION-ASSOCIATION)	-	N/A	
<b>SCSMs supported</b>				
B21	<b>SCSM:</b> IEC 61850-8-1 used	-	Yes	
B22	<b>SCSM:</b> IEC 61850-9-1 used	N/A	N/A	Deprecated Ed2
B23	<b>SCSM:</b> IEC 61850-9-2 used	-	No	
B24	<b>SCSM:</b> other	-	-	
<b>Generic substation event model (GSE)</b>				
B31	<b>Publisher</b> side	N/A	Yes	
B32	<b>Subscriber</b> side	Yes	N/A	
<b>Transmission of sampled value model (SVC)</b>				
B41	<b>Publisher</b> side	N/A	No	
B42	<b>Subscriber</b> side	No	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 <b>Server</b> side (B11) and/or <b>Client</b> side (B12) supported				
M1	<b>Logical device</b>		Yes	
M2	<b>Logical node</b>		Yes	
M3	<b>Data</b>		Yes	
M4	<b>Data set</b>		Yes	
M5	<b>Substitution</b>		-	
M6	<b>Setting group control</b>		Yes	
	<b>Reporting</b>		Yes	
M7	<b>Buffered report control</b>		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	<b>Unbuffered report control</b>		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	
	<b>Logging</b>		No	
M9	<b>Log control</b>		No	
M9-1	IntgPd		No	
M10	<b>Log</b>		No	
M11	<b>Control</b>		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	
M13	GSSE			Deprecated since Ed2
If SVC (B41/42) is supported				
M14	Multicast SVC	No	-	
M15	Unicast SVC	-	No	
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
<b>Server</b>						
S1	1,2	GetServerDirectory (LOGICAL-DEVICE)	TP		Yes	
<b>Application association</b>						
S2	1,2	Associate	TP		Yes	
S3	1,2	Abort	TP		Yes	
S4	1,2	Release	TP		Yes	
<b>Logical device</b>						
S5	1,2	GetLogicalDeviceDirectory	TP		Yes	
<b>Logical node</b>						
S6	1,2	GetLogicalNodeDirectory	TP		Yes	
S7	1,2	GetAllDataValues	TP		Yes	
<b>Data</b>						
S8	1,2	GetDataValues	TP		Yes	
S9	1,2	SetDataValues	TP		No	
S10	1,2	GetDataDirectory	TP		Yes	
S11	1,2	GetDataDefinition	TP		Yes	
<b>Data set</b>						
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	
<b>Substitution</b>						
S17	1	SetDataValues	TP		No	

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
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Setting group control						
S18	1,2	SelectActiveSG	TP		No	
S19	1,2	SelectEditSG	TP		No	
S20	1,2	SetEditSGValues	TP		No	
S21	1,2	ConfirmEditSGValues	TP		No	
S22	1,2	GetEditSGValues	TP		No	
S23	1,2	GetSGCBValues	TP		No	

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)			No	
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)			No	
S28	1,2	GetURCBValues	TP		Yes	
S29	1,2	SetURCBValues	TP		Yes	

Logging						
Log control block						
S30		GetLCBValues	TP		No	
S31		SetLCBValues	TP		No	
Log						
S32		QueryLogByTime	TP		No	
S33		QueryLogAfter	TP		No	
S34		GetLogStatusValues	TP		No	

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

	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
<b>GSSE</b>						
S40	1	SendGSSEMessage	MC	N/A	N/A	Deprecated in Edition 2
<b>GSSE-CONTROL-BLOCK</b>						
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

<b>Transmission of sampled value model (SVC)</b>						
<b>Multicast SV</b>						
S45	1,2	SendMSVMessage	MC	-	-	
<b>Multicast Sampled Value Control Block</b>						
S46	1,2	GetMSVCBValues	TP		-	
S47	1,2	SetMSVCBValues	TP		-	
<b>Unicast SV</b>						
S48	1,2	SendUSVMessage	TP		No	
<b>Unicast Sampled Value Control Block</b>						
S49	1,2	GetUSVCBValues	TP		No	
S50	1,2	SetUSVCBValues	TP		No	
<b>Control</b>						
S51	1,2	Select			No	
S52	1,2	SelectWithValue	TP		Yes	
S53	1,2	Cancel	TP		Yes	
S54	1,2	Operate	TP		Yes	
S55	1,2	CommandTermination	TP		Yes	
S56	1,2	TimeActivatedOperate	TP		No	
<b>File Transfer</b>						
S57	1,2	GetFile	TP		Yes	
S58	1,2	SetFile	TP		Yes	Unique file names are not supported
S59	1,2	DeleteFile	TP		Yes	MMS DeleteFile services is allowed at the protocol level. However, for security purposes, only GetFile and SetFile services are allowed.
S60	1,2	GetFileAttributeValues	TP		Yes	
S61	1,2	GetServerDirectory (FILE-SYSTEM)	TP		Yes	



	Ed.	Services	AA: TP/MC	Client (C)	Server (S)	Comments
<b>Time</b>						
T1	1,2	Time resolution of internal clock			20	Nearest negative power of 2-n in seconds (number 0 .. 24)
T2	1,2	Time accuracy of internal clock			T4	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  Reported time accuracies: <u>IRIG-B</u> T4  <u>SNTP</u> T0
T3	1,2	Supported TimeStamp resolution	-		18	Nearest value n of 2 <sup>-n</sup> in seconds (number 0 .. 24)  Supported TimeStamp resolutions: <u>IRIG-B</u> 18  <u>SNTP</u> 7
N/A = not applicable Yes = supported No or empty = not supported						