

Protocol Implementation Conformance Statement (PICS)

for
“Ekip Com IEC 61850”

Based on IEC 61850-8-1

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Document Versions

Version	Ekip COM IEC 61850 SW version	Modifications	Release Date	Author
1.0	2.01	First emission	11 Sep, 2014	M. Stucchi
1.1	2.02	Updated SW version	13 Oct, 2014	M. Stucchi
1.2	2.09	Updated SW version	2 Jul, 2015	M. Stucchi
1.3	2.10 3.00 3.01	Alignment improvement, “voice” changed into “term”.	14 Jul, 2015	M. Stucchi
1.4	3.02 3.04 3.05 3.06	Removed references to Emax2, transformed into references to the “Ekip Com IEC 61850” module itself	21 Nov, 2017	M. Stucchi

Introduction

This document specifies the Protocol Implementation Conformance Statement (PICS) of the Ekip Com IEC 61850 Communication module. This document applies to the SW version specified in the table above and all subsequent versions, until a modification happens in this document.

Together with the PIXIT (Protocol Implementation eXtra Information for Testing) and the MICS (Model Implementation Conformance Statement), the PICS forms the basis for a conformance test according to IEC 61850-10.

Library

Ekip Com IEC 61850 communication module is an IEC 61850 server and was implemented by integrating a third part library, specific for IEC 61850 communication. This document builds on the PICS supplied by the manufacturer, and specializes such a document for whatever application-specific feature. The provider of the IEC 61850 library is TMW (Triangle MicroWorks, INC – www.trianglemicroworks.com).

We integrated the **Base** and the **GOOSE** libraries. We didn't integrate the **Client** library. These three libraries will be cited in the document in the comment field in order to indicate which library provides the supported (or unsupported) functionality.

Another term that is present in the document is User. This means that the functionality implementation is left to the User.

Document template

As IEC 61850-10 specifies, a standard PICS, also known as PICS proforma is supplied directly from the standard (IEC 61850-7-2, Annex A). The template for this document is instead taken from the Conformance chapter of IEC 61850-8-1.

SCSM conformance statement

A-Profile and T-Profile

Table 1 - PICS for A-Profile support

A-Profile shortcut	Profile Description	Client		Server		Value/comments
A1	Client/server A-profile	c1	-	c1	Y	Basic
A2	GOOSE/GSE management A-Profile	c2	-	c2	Y	GOOSE SendGOOSEMessage only
A3	GSSE A-Profile	c3	-	c3	N	Deprecated
A4	TimeSync A-Profile	c4	-	c4	Y	SNTP according to RFC 4430
A5	Security for Client/server A-Profile	O	-	O	N	Refer to IEC 62351-6
A6	Security for GOOSE/GSE management A-Profile	O	-	O	N	Refer to IEC 62351-6
c1 – Shall be 'M' if support for logical-device model has been declared. c2 – Shall be 'O' if support for support for logical-device model has been declared c3 – Shall be 'M' if support for GSE model has been declared. c4 – Support for at least one other A-Profile shall be declared (e.g. in A1-A3) in order to claim conformance to IEC 61850-8-1.						

Table 2 - PICS for T-Profile support

T-Profile	Profile Description	Client		Server		Value/comments
T1	TCP/IP T-Profile	c1	-	c1	Y	10Base-T/100Base-T
T2	OSI T-Profile	c2	-	c2	N	
T3	GOOSE/GSE T-Profile	c3	-	c3	Y	10Base-T/100Base-T
T4	GSSE T-Profile	c4	-	c4	N	
T5	TimeSync T-Profile	O	-	O	Y	10Base-T/100Base-T
c1 – Shall be 'M' if support for A1 is declared. Otherwise, shall be 'I'. c2 – Shall be 'O' if support for A1 is declared. Otherwise, shall be 'I'. c3 – Shall be 'M' if support for A2 is declared. Otherwise, shall be 'I'. c4 – Shall be 'M' if support for A3 is declared. Otherwise, shall be 'I'.						

SCL addressing

Table 3 - Allowed P-Type definitions for client/server addressing

P-Type Designation	Description	M/O	Value/ comments
IP	Dotted decimals	c1	Y ¹
IP-SUBNET	Subnet mask for TCP/IP profiles. Shall be dotted decimal.	c2	Y ¹
IP-GATEWAY	First hop IP gateway address for TCP/IP profiles. Shall be dotted decimal.	c2	Y ¹
OSI-NSAP	OSI network address	c1	Y
OSI-TSEL	OSI transport selector	M	Y
OSI-SSEL	OSI session selector	M	Y
OSI-PSEL	OSI presentation selector	M	Y
OSI-AP-Title	OSI ACSE AP title value	O	Y
OSI-AP-Invoke	OSI ACSE AP invoke ID	O	Y
OSI-AE-Qualifier	OSI ACSE AE qualifier	O	Y
OSI-AE-Invoke	OSI ACSE AE invoke ID	O	Y
Notes: 1 - Device network settings can be set either from SCL configuration .iid file, or from device parameters. If the static IP addressing parameter is enabled, IP static network parameters override the content of the .iid configuration file. In this way it is always possible to force an address and to upload a new configuration file, independently from the present device configuration and from the network settings.			

GOOSE addressing

Table 4 – Definition for GSE SCL

P-Type Designation	Description	M/O	Value/ comments
MAC-Address	Media Access address value	M	Y
APPID	Application Identifier	O	Y
VLAN-PRIORITY	VLAN user priority	c1	Y
VLAN-ID	VLAN ID	O	Y
c1 – Shall only be present if VLAN is also present			