IEC 61850 Certificate Level A[1]

No. 10033472-INC 17-2796

Issued to:

Schweitzer Engineering Laboratories
2350 NE Hopkins Court
Pullman WA 99163
USA

For the server product:

SEL-3530-4 Real-Time Automation Controller
Software version:
SEL-3530-4-R139-V1-Z001001-D20170628
S/N: 1111670342

The server product has not been shown to be non-conforming to:

IEC 61850 Edition 2 Parts 6, 7-1, 7-2, 7-3, 7-4 and 8-1

Communication networks and systems for power utility automation

The conformance test has been performed according to IEC 61850-10 Edition 2, the UCA International Users Group Edition 2 Server Test Procedures version 1.0 with TPCL[2] 1.2 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement (PICS) for IEC 61850 for the SEL Real-Time Automation Controllers, Revision 2.0", "Model Implementation Conformance Statement (MICS) for IEC 61850 for the SEL Real-Time Automation Controllers, Revision 2.0" and "TISSUES Implementation Conformance Statement for the IEC 61850 interface in SEL-RTAC, Revision 2.0" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface in SEL-RTAC, Revision 2.0".

The following IEC 61850 conformance blocks have been tested with a positive result (number of relevant and executed test cases / total number of test cases):

1	Basic Exchange (17/26)	9a	GOOSE Publish (9/13)
2	Data Sets (4/7)	9b	GOOSE Subscribe (12/14)
5	Unbuffered Reporting (18/21)	12a	Direct Control (6/18)
6	Buffered Reporting (25/30)	12c	Enhanced Direct Control (7/20)
		12d	Enhanced SBO Control (14/28)
		13	Time Synchronization (3/7)
		14	File Transfer (5/8)

This certificate includes a summary of the test results as carried out at DNV GL in The Netherlands with Unigrid SA version 1.2 with test suite Ed2 version 1.2 and UniCA 61850 Analyzer 5.31.02. This document has been issued for information purposes only, and the original paper copy of the DNV GL verification report No. 10033472-INC 17-2794 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV GL by Schweitzer Engineering Laboratories. The manufacturer's production process has not been assessed. This certificate does not imply that DNV GL has approved any product other than the specimen tested.

Arnhem, October 6, 2017

G. Webber
Business Leader
Intelligent Networks and Communication

Issued by:

DNV·GL

DNV KEMA is now DNV GL

R. Schimmel
Verification Manager

[1] Level A - Independent test lab with certified ISO 9001 Quality System
[2] TPCL - Test procedures change list

Applicable Test Procedures from the UCA International Users Group Edition 2 Server Test Procedures version 1.0 with TPCL 1.2

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sSrv8, sSrv12, sSrvN1f
2: Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
5: Unbuffered Reporting	sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp15, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	sRp8, sRp10, sRp11, sRp12, sRpN5
6: Buffered Reporting	sBr1, sBr2, sBr3, sBr4, sBr5, sBr9, sBr14, sBr15, sBr20, sBr21, sBr22, sBr25, sBr26, sBr27, sBr28, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN8	sBr8, sBr10, sBr11, sBr12
9a: GOOSE publish	sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11	sGop1, sGop7, sGopN2
9b: GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	
12a: Direct control	sCtl5, sCtl10, sDOns1, sDOns2	sCtl15, sCtl16
12c: Enhanced Direct Control	sCtl5, sCtl10, sDOes1, sDOes2	sCtl14, sCtl15, sCtl16
12d: Enhanced SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl6, sCtl15, sCtl16, sCtl26
13: Time sync	sTm1, sTm2, sTmN1	
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	