



IEC 61850 Certificate Level A¹

No. 74105286-OPE/INC 14-1785

Issued to:
ENTEC Electric & Electronic CO., LTD.
225-38 Choirubaekro,
Bongdam-eup, Hwaseong-city,
Gyeonggi-do, KOREA
445-894

For the client system:
Argos-61850
Version 1.0
Hardware: HP Pavillion dv 3625tx with
Windows 7 Professional



Issued by:

The client system has not shown to be non-conforming to:

IEC 61850 First Edition Parts 6, 7-1, 7-2, 7-3, 7-4 and 8-1 Communication networks and systems in substations

The conformance test has been performed according to IEC 61850-10 and UCA IUG Conformance Test Procedures for Client System with IEC 61850-8-1 interface, revision 1.1 with TPCL² version 1.2.1 with client system's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in Argos-61850 Client" from May 20, 2014, "Model Implementation Conformance Statement for the IEC 61850 interface in Argos-61850 Client" from May 20, 2014, "TISSUES Implementation Conformance Statement for the IEC 61850 interface in Argos-61850 Client" from May 20, 2014 and product's extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface in Argos-61850 Client" from May 20, 2014.

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 (22/22)	12a	Direct Control (7/7)
2	Data Sets (7/9)	12b	SBO Control (9/9)
2+	Data Set Definition (4/4)	12c	Enhanced Direct Control (7/7)
4	Setting Group Selection (3/4)	12d	Enhanced SBO Control (9/9)
4+	Setting Group Definition (2/2)	13	Time Synchronization (4/4)
5	Unbuffered Reporting (16/18)	14	File Transfer (5/8)
6	Buffered Reporting (20/22)		

This certificate includes a summary of the test results as carried out at KERI in Korea with UniCA Multi IED Simulator version 3.26.01 and UniCA 61850 Analyzer version 5.28.04. This document has been issued for information purposes only, and the original paper copy of the DNV GL report No. 74105286-OPE/INC 14-1784 will prevail.

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

Arnhem, June 5, 2014

M. Adriaansen
Head of Department Operational Excellence

R. Schimmel
Certification Manager

¹ Level A - Independent test lab with certified ISO 9001 Quality System

² TPCL - Test Procedure Change List



Applicable Test Procedures from the UCA IUG Conformance Test Procedures for Client System with IEC 61850-8-1 interface, revision 1.1 with TPCL version 1.2.1.

Conformance Block	Mandatory	Conditional
1: Basic Exchange	cAss1, cAss2, cAss3, cAss4, cAssN1, cAssN4, cAssN5, cAssN6	cAssN7 cSrv1, cSrv2, cSrv3, cSrv4, cSrv5, cSrv6, cSrv7, cSrvN1, cSrvN2, cSrvN3, cSrvN4, cSrvN5, cSrvN6
2: Data Sets		cDs1, cDs2, cDs3, cDs5, cDsN1a, cDsN1b, cDsN2
2+: Data Set Definition	cDs6, cDsN4	cDs7, cDsN5
4: Setting Group Selection	cSg2, cSgN1	cSg1
4+: Setting Group Definition	cSg3, cSg4	
5: Unbuffered Reporting	cRp3, cRp4, cRp5, cRp8, cRp9, cRp10, cRpN2, cRpN3, cRpN7, cRpN8	cRp1, cRp2, cRp6, cRp7, cRpN1, cRpN4
6: Buffered Reporting	cBr3, cBr4, cBr5, cBr8, cBr9, cBr10, cBr11, cBr12, cBrN2, cBrN3, cBrN7, cBrN8, cBrN9	cBr1, cBr2, cBr6, cBr7, cBr13, cBrN1, cBrN4
12a: Direct control	cCtl4, cCtlN1 cDOns1, cDOns2	cCtl1, cCtl2, cCtl3
12b: SBO control	cCtl4, cCtlN1 cSBOns1, cSBOns2, cSBOns3	cCtl1, cCtl2, cCtl3, cSBOns4
12c: Enhanced Direct Control	cCtl4, cCtlN1 cDOes1, cDOes2	cCtl1, cCtl2, cCtl3
12d: Enhanced SBO control	cCtl4, cCtlN1, cSBOes1, cSBOes2, cSBOes3	cCtl1, cCtl2, cCtl3 cSBOes4
13: Time sync	cTm1	cTm2, cTmN1, cTmN2
14: File transfer	cFt1, cFt2, cFt3, cFtN1, cFtN2	