



IEC 61850 Certificate Level A¹

Ref. No: 2016TS01982

Issued to:

ENTEC Electric & Electronic Co., LTD
225-38 Choirubaekro, Bongdam-eup, Hwasung-city
Gyeonggido, 445-894
Republic of Korea

For the server product:

ETCPU200
DC Protection & Control Device
CPU version 6.10
DSP version 6.02
HMI version 6.04

Issued by:

Korea Electrotechnology Research Institute

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 TPCL² version 1.2 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in ETCPU200, v1.0", "Model Implementation Conformance Statement for the IEC 61850 interface in ETCPU200, v1.0", "TISSUES Implementation Conformance Statement for the IEC 61850 interface in ETCPU200, v1.0" and product's extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface in ETCPU200, v1.0".

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

| | | | |
|----|-----------------------------|-----|------------------------------|
| 1 | Basic Exchange (19/26) | 9a | GOOSE Publish (9/13) |
| 2 | Data Sets (4/7) | 9b | GOOSE Subscribe (12/14) |
| 2+ | Data Set Definition (24/24) | 12a | Direct Control (5/18) |
| 5 | Unbuffered Reports (20/21) | 12d | Enhanced SBO Control (14/28) |
| 6 | Buffered Reports (27/30) | 13 | Time Synchronization (4/7) |

This Certificate includes a summary of the test results as carried out at KERI in Republic of Korea with UniCA 61850 Client simulator version 4.29.03 with test suite Ed2 3.27.09(TPCL 1.2) and UniCA 61850 analyzer version 5.31.00. This document has been issued for information purposes only, and the original paper copy of the KERI report: 2016TS01982 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to KERI by ENTEC Electric & Electronic Co., LTD. The manufacturer's production process has not been assessed. This Certificate does not imply that KERI has approved any product other than the specimen tested.

Republic of Korea, July 22, 2016

Y. J. Lee

Executive Director

Power Apparatus Testing and Evaluation Division

J. I. Jeong

Technical Manager

¹ Level A – Independent Tester with certified ISO 17025 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 version 1.2

| Conformance Block | Mandatory | Conditional |
|---------------------------|---|---|
| 1: Basic Exchange | sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4 | sSrv6, sSrv8, sSrvN1e, sSrvN1f, sSrvN3 |
| 2: Data Sets | sDs1, sDs10a, sDsN1ae | sDs15 |
| 2+: Data Sets Definition | sDs2, sDs3, sDs4, sDs5, sDs6, sDs7, sDs8, sDs9, sDs11, sDs13, sDs14, sDsN1cd, sDsN2, sDsN3, sDsN4, sDsN5, sDsN6, sDsN7, sDsN8, sDsN9, sDsN10 | sDs12, sDsN11, sDsN12 |
| 5: Unbuffered Reporting | sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp15, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8 | sRp6, sRp7, 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 | sBr6, sBr7, sBr8, sBr10, sBr11, sBr12 |
| 9a: GOOSE publish | sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11 | sGop1, sGop7, sGopN1 |
| 9b: GOOSE subscribe | sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6 | |
| 12a: Direct control | sCtl5, sCtl10, sDOns1, sDOns2 | sCtl16 |
| 12d: Enhanced SBO control | sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8 | sCtl4, sCtl6, sCtl16, sCtl26 |
| 13: Time sync | sTm1, sTm2, sTmN1 | sTmN2 |