



# IEC 61850 Certificate Level A<sup>1</sup>

Ref. No: 2014TS02003

Issued to:

**PNC Technologies Co., Ltd**  
62, Jeonpa-ro 104beon-gil, Dongan-gu, Anyang,  
Gyeonggi-Do, 431-836,  
Republic of Korea

For the server product:

**FTU-R200i**  
**Feeder Terminal Unit for Automatic  
Circuit Recloser**  
Software version 1.01

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 TPCL<sup>2</sup> version 1.0 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in FTU-R200i v1.02", "Model Implementation Conformance Statement for the IEC 61850 interface in FTU-R200i v1.02", "TISSUES Implementation Conformance Statement for the IEC 61850 interface in FTU-R200i v1.02" and product's extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface in FTU-R200i v1.02".

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 (24/26)	9a	GOOSE Publish (10/13)
2	Data Sets (4/6)	9b	GOOSE Subscribe (12/14)
2+	Data Set Definition (24/24)	12a	Direct Control (11/20)
3	Substitution (3/3)	12b	SBO Control (17/28)
4	Setting Group Selection (4/4)	12c	Enhanced Direct Control (11/20)
4+	Setting Group Definition (12/13)	12d	Enhanced SBO Control (17/28)
5	Unbuffered Reports (19/20)	13	Time Synchronization (4/7)
6	Buffered Reports (26/29)	14	File Transfer (7/8)

This Certificate includes a summary of the test results as carried out at KERI in Republic of Korea with UniCA 61850 Client simulator version 4.28.04 with test suite Ed2 3.27.08 and UniCA 61850 analyzer version 5.28.03. This document has been issued for information purposes only, and the original paper copy of the KERI report: 2014TS02003 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to KERI by PNC Technologies 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, January 09, 2015

Y. J. Lee  
Executive Director  
Power Apparatus Testing and Evaluation Division

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<sup>1</sup> Level A – Independent Tester with certified ISO 17025 Quality System

<sup>2</sup> 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 1.0

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sSrv6, sSrv8, sSrv9, sSrv11, sSrv12, sSrv13, sSrvN1e, sSrvN1f, sSrvN2, sSrvN3
2: Data Sets	sDs1, sDs10a, sDs15, sDsN1ae	
2+: Data Sets Definition	sDs2, sDs3, sDs4, sDs5, sDs6, sDs7, sDs8, sDs9, sDs11, sDs12, sDs13, sDs14, sDsN1cd, sDsN2, sDsN3, sDsN4, sDsN5, sDsN6, sDsN7, sDsN8, sDsN9, sDsN10	sDsN11, sDsN12
3: Substitution	sSub1, sSub2, sSub3	
4: Setting Group Selection	sSg1, sSg3, sSg11, sSgN1	
4+: Setting Group Definition	sSg2, sSg4, sSg7, sSg8, sSg9, sSg10, sSg12, sSgN2, sSgN3, sSgN4, sSgN5	sSg6
5: Unbuffered Reporting	sRp1, sRp2, sRp3, sRp4, sRp9, sRp14, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	sRp5, sRp6, sRp7, sRp8, sRp10, sRp11, sRp12, sRpN5
6: Buffered Reporting	sBr1, sBr2, sBr3, sBr4, sBr9, sBr14, sBr20, sBr21, sBr22, sBr25, sBr26, sBr27, sBr28, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN8	sBr5, sBr6, sBr7, sBr8, sBr10, sBr11, sBr12
9a: GOOSE publish	sGop2a, sGop3, sGop4, sGop7, sGop9, sGop10, sGop11	sGop1, sGop6, sGopN1
9b: GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	
12a: Direct control	sCtl5, sCtl10, sCtl14, sDOns1, sDOns2	sCtl2, sCtl7, sCtl13, sCtl15, sCtl16, sCtl19
12b: SBO control	sCtl5, sCtl6, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOns1, sSBOns2, sSBOns6	sCtl2, sCtl4, sCtl7, sCtl15, sCtl16, sCtl19, sCtl27
12c: Enhanced Direct control	sCtl5, sCtl10, sCtl14, sDOes1, sDOes2	sCtl2, sCtl7, sCtl13, sCtl15, sCtl16, sCtl19
12d: Enhanced SBO control	sCtl5, sCtl6, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl2, sCtl4, sCtl7, sCtl15, sCtl16, sCtl19
13: Time sync	sTm1, sTm2, sTmN1	sTmN2
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	sFt2c, sFtN1c