

IEC 61850 Certificate Level A¹

Page 1/2
No. 19-002280-01-2

Issued to:
VITZRO EM Co., Ltd.
327, Byelmang-ro, Danwon-gu,
Ansan-si, Gyeonggi-do, 15603,
Republic of Korea

For the server product:
VIPAM 4500DC
Digital Multi Function Relay
Software Version : 1.0
Hardware Version : 1.0
S/N : PAM45DC-19030001

Issued by: **Korea Testing Laboratory**

**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 2.0 with product's protocol, model and technical issue implementation conformance statements: "VIPAM4500-DC_PICS_v.1", "VIPAM4500-DC_MICS_v.1", "VIPAM4500-DC_TICS_v.1" and product's extra information for testing: "VIPAM4500-DC_PIXIT_v.1".

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

1	Basic Exchange (20/28)	9a	GOOSE Publish (9/13)
2	Data Sets (4/7)	9b	GOOSE Subscribe (17/18)
2+	Data Set Definition (22/24)	12a	Direct Control (8/17)
4	Setting Group Selection (3/4)	12b	SBO Control (14/26)
5	Unbuffered Reporting (21/22)	12c	Enhanced Direct Control (10/19)
6	Buffered Reporting (29/32)	12d	Enhanced SBO Control (15/27)
		13	Time Synchronization (4/7)
		14	File Transfer (5/8)

This Certificate includes a summary of the test results as carried out at Korea Testing Laboratory in Republic of Korea with IEC 61850 Ed2 KTL Testing Tool 1.0 with test suite IEC 61850 Ed2 Server Conformance Test V.1.0 and IEC 61850 Ed2 KTL Trace Manager V.1.0. This document has been issued for information purposes only, and the original paper copy of the KTL report: No. TR-19-002280-01-2 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to KTL by VITZRO EM Co., Ltd.. The manufacturer's production process has not been assessed. This certificate does not imply that KTL has certified or approved any product other than the specimen tested.

Seoul, Mar. 13, 2019

A. Han

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1 Level A - Independent Test lab with accredited ISO/IEC 17025 Quality System

Applicable Test Procedures from the UCA International Users Group Edition 2 Server Test Procedures version 2.0

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAss4, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sAssN6, sSrv6, sSrv8, sSrvN1e, sSrvN1f
2: Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
2+: Data Set Definition	sDs2, sDs3, sDs4, sDs5, sDs6, sDs7, sDs8, sDs9, sDs13, sDs14, sDsN1cd sDsN2, sDsN3, sDsN4, sDsN5, sDsN6, sDsN7, sDsN8, sDsN9, sDsN10	sDs11, sDs12
4: Setting Group Selection	sSg1, sSg3, sSgN1	
5: Unbuffered Reporting	sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp16, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	sRp6, sRp7, sRp8, sRp10, sRp11, sRp12, sRp15, sRpN5
6: Buffered Reporting	sBr1, sBr2, sBr3, sBr4, sBr5, sBr9, sBr14, sBr16, sBr20, sBr21, sBr22, sBr25, sBr26, sBr27, sBr28, sBr29, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN8	sBr6, sBr7, sBr8, sBr10, sBr11, sBr12, sBr15
9a: GOOSE publish	sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11, sGop12	sGop1, sGopN2
9b: GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGos8, sGos9, sGos10, sGos11, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	sGos4
12a: Direct control	sCtl5, sCtl10, sDOns1, sDOns2	sCtl2, sCtl7, sCtl13, sCtl16
12b: SBO control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOns1, sSBOns2, sSBOns6	sCtl2, sCtl4, sCtl7, sCtl16, sCtl27
12c: Enhanced Direct Control	sCtl5, sCtl10, sCtl14, sDOes1, sDOes2	sCtl2, sCtl7, sCtl13, sCtl16, sCtl26
12d: Enhanced SBO control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl2, sCtl4, sCtl7, sCtl16, sCtl26
13: Time sync	sTm1, sTm2, sTmN1	sTmN2
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	