

IEC 61850 Certificate Level A¹

Issued to:

Elektrometal Energetyka SA
67 Dzialkowa Street, 02-234 Warsaw
Poland

For the server product:

e²TANGO-800
Feeder Protection / Bay Controller
IEC 61850 version: 1.7
S/N: 13080-00008632-22-0

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 2.0.5 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in e²TANGO bay controller Version 2.0 Date: May 15, 2022", "Model Implementation Conformance Statement for the IEC 61850 interface in e²TANGO bay controller Version 2.0 May 15, 2022" and "Technical Issues Conformance Statement (TICS) for the IEC 61850 interface in e²TANGO bay controller Version 1.0 Date: May 15, 2022" and product's extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Edition 2 server interface in e²TANGO bay controller Version 2.0 Date: May 15, 2022".

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)	12a	Direct Control (5/18)
2	Data Sets (4/7)	12b	SBO Control (11/27)
2+	Data Set Definition (24/24)	12c	Enhanced Direct Control (6/20)
5	Unbuffered Reporting (21/23)	12d	Enhanced SBO Control (13/28)
6	Buffered Reporting (29/33)	13	Time Synchronization (4/7)
9a	GOOSE Publish (11/13)	14	File Transfer (5/8)
9b	GOOSE Subscribe (18/20)	15	Service Tracking (1/17)

This certificate includes a summary of the test results as carried out at DNV in The Netherlands with UniGrid SA Simulator 2.1.1 with test suite Ed2_Server_TP2.0.5_Amd1.1_v2.1.0 and UniCA 61850 Analyzer 6.41.00. This attestation has been issued for information purposes only, and the archived DNV verification report No. 10331037-DSO 22-2962 rev 2 will prevail.

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

Arnhem, August 1, 2022



G. Akse
Business Development Manager
Interoperability of Smart Power Systems

Issued by:




R. Schimmel
Verification Manager

¹ Level A - Independent test lab with certified ISO 9001 Quality System
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Applicable Test Procedures from the UCA International Users Group Edition 2 Server Test Procedures version 2.0.5

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAss4, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrv8, sSrvN1abcd, sSrvN4	sAssN6
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, sDsN11, sDsN12
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, sGop5, sGop6, sGopN1
9b: GOOSE Subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGos8, sGos9, sGos10, sGos11, sGos12, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	sGos13
12a: Direct Control	sCtl5, sCtl10, sDOs1, sDOs2	sCtl16
12b: SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOs1, sSBOs2, sSBOs6	sCtl6, sCtl16
12c: Enhanced Direct control	sCtl5, sCtl10, sDOes1, sDOes2	sCtl14, sCtl16
12d: Enhanced SBO control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl6, sCtl16, sCtl26
13: Time Synchronization	sTm1, sTm2, sTmN1	sTm3
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	
15: Service tracking		sTrk1

All configuration file and data model tests have been successfully performed for the product variants using the same communication hardware and software version:

- e²TANGO-600 Feeder Protection / Bay Controller
- e²TANGO-1000 Feeder Protection / Bay Controller
- e²TANGO-2000 Feeder Protection / Bay Controller