

IEC 61850 Certificate Level A¹

Issued to:

Thytronic S.p.A.
Piazza Mistral 7
20139 Milan
Italy

For the server product:

XMR-P Multifunction protection relay
Application firmware version: 1.90
IEC 61850 version: 1.40
S/N: 310282

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 XMR-P device and its variants XMR-A, XMR-V, XMR-D, XMR-T, date 13/04/2022", "Model Implementation Conformance Statement for the IEC 61850 interface in XMR-P device and its variants XMR-A, XMR-V, XMR-D, XMR-T, date 13/04/2022" and "Tissue Implementation Conformance Statement for the IEC 61850 interface in XMR-P device and its variants XMR-A, XMR-V, XMR-D, XMR-T, date 13/04/2022" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Edition 2 server interface in XMR-P device and its variant XMR-A, XMR-V, XMR-D, XMR-T, date 13/04/2022".

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 (24/26)	9a GOOSE Publish (8/13)
2 Data Sets (4/7)	9b GOOSE Subscribe (18/20)
2+ Data Set Definition (24/24)	12a Direct Control (5/18)
5 Unbuffered Reporting (22/23)	12d Enhanced SBO Control (13/28)
6 Buffered Reporting (30/33)	13 Time Synchronization (4/7)
	14 File Transfer (5/8)

This certificate includes a summary of the test results as carried out at Thytronic in Italy with UniGrid SA Simulator 2.1.1 with test suite 20220408 and UniCA 61850 Analyzer 6.42.01. This document has been issued for information purposes only, and the archived DNV verification report No. 10341516-DSO 22-2805 rev 2 will prevail.

The test has been carried out on one single specimen of the product as referred above and submitted to DNV by Thytronic S.p.A. 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, April 26, 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
UCA International Users Group P.O. Box 315, Shell Knob, MO 65747 USA

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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, sSrv6, sSrv9, sSrv10, sSrv12, sSrvN1e, sSrvN2, sSrvN3
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, sRp17, 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, sBr17
9a: GOOSE publish	sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11, sGop12	sGop1
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, sDOns1, sDOns2	sCtl15
12d: Enhanced SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl6, sCtl15, sCtl16
13: Time sync	sTm1, sTm2, sTmN1	sTm3
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	

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

- XMR-A Feeder and motor protection
- XMR-D Generator protection
- XMR-T Transformer protection
- XMR-V Secondary MV protection