

IEC 61850 Certificate Level A¹

Issued to:

Maschinenfabrik Reinhausen GmbH
Falkensteinstr. 8
93059 Regensburg
Germany

For the server product:

ETOS® Multi-functional transformer monitoring, AVR
and control device
IEC 61850 version: 4.18.0
Hardware version: ISM® Gen. 2

The server product has not been shown to be non-conforming to:

IEC 61850 Edition 2 with Amendment 1 Parts 6, 7-1, 7-2, 7-3, 7-4, 8-1

Communication networks and systems for power utility automation

The conformance test has been performed according to IEC 61850-10, name space definition 7-4:2007B5 and the UCA International Users Group Edition 2 with Amendment 1 Server Test Procedures version 1.3 ("UCATestProcedureServer61850-8-1Ed2Amd1_Rev1p3.pdf") with product's protocol, model and tissues implementation conformance statements: "Protocol Implementation Conformance Statement (PICS) for the IEC 61850 interface in TAPCON®/ETOS®, Version 2.0 Date October 2025", "Model Implementation Conformance Statement (MICS) for the IEC 61850 Client Interface, Date: 10/2025", "TISSUES Implementation Conformance Statement (TICS) For the IEC 61850 Edition 2 Amendment 1 Server interface in TAPCON®/ETOS®, Version 4.18.0 Date October 2025", and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Edition 1, 2, 2.1 server interface in TAPCON®/ETOS®, Version 4.18.0 Date October 2025".

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):

1a Basic Exchange (24/31)	9a GOOSE publish (10/14)
2 Data Sets (4/7)	9b GOOSE subscribe (27/29)
2+ Data Set Definition (24/24)	12a Direct Control (5/19)
5 Unbuffered Reporting (24/26)	13a Time Synchronization with SNTP (7/8)
6 Buffered Reporting (34/36)	

This certificate includes a summary of the test results as carried out at Maschinenfabrik Reinhausen GmbH in Germany with UniGrid SA Simulator 4.1.0 with test suite 20251016 and UniCA 61850 Analyzer 6.45. This document has been issued for information purposes only, and the archived DNV verification report No. 10563811-DSO 25-3016 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 Maschinenfabrik Reinhausen GmbH. 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, November 12, 2025



K. Lazaridis
Test Engineer

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 Server Test Procedures from the UCA International Users Group Edition 2 with Amendment 1 Server Test Procedures version 1.3

Conformance Block	Mandatory	Conditional
1a: Basic Exchange	sAss1, sAss2, sAss3, sAss4, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrv6, sSrv8, sSrvN1abcd, sSrvN4	sAssN6, sSrv9, sSrv10, sSrv15, sSrv17, sSrvN1e, 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, sRp23, sRpN1, sRpN2, sRpN3, sRpN4, sRpN5, sRpN7, sRpN8, sRpN9	sRp6, sRp7, sRp8, sRp10, sRp11, sRp12, sRp15
6: Buffered Reporting	sBr1, sBr2, sBr3, sBr4, sBr5, sBr9, sBr14, sBr16, sBr20, sBr21, sBr22, sBr23, sBr24, sBr25, sBr26, sBr27, sBr28, sBr29, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN7, sBrN8, sBrN9, sBrN10	sBr6, sBr7, sBr8, sBr10, sBr11, sBr12, sBr15
9a: GOOSE Publish	sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11, sGop12, sGop13	sGop1, sGopN2
9b: GOOSE Subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGos8, sGos9, sGos10, sGos11, sGos12, sGos14, sGos15, sGos16, sGos17, sGos20, sGos21, sGos22, sGos23, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6, sGosN7	sGos13
12a: Direct Control	sCtl5, sCtl10, sDOns1, sDOns2	sCtl16
13a: Time Sync SNTP	sTm1, sTm2, sTm7, sTmN1	sTm4, sTm5, sTmN2