

No. 10261711-INC 20-3093

Issued to:

Arcteq Relays Ltd.
Kvartsikatu 2A1
65300 Vaasa
Finland

For the server product:

AQ-300: AQ-L359
Line protection IED
System version: 2.10 revision 1.3000
S/N: 202741

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 2.0.3 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement (PICS) for the IEC 61850 Edition 2 server interface in AQ-300 series, version 1.02", "Model Implementation Conformance Statement (MICS) for the IEC 61850 Edition 2 server interface in AQ-L359 product, version 1.0" and "TISSUES Implementation Conformance Statement (TICS) for the IEC 61850 Edition 2 server interface in AQ-300 series, version 1.0" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Edition 2 server interface in AQ-300 series, version 1.03".


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 (20/26)	12a Direct Control (7/18)
2 Data Sets (4/7)	12c Enhanced Direct Control (8/20)
4 Setting Group Selection (4/4)	12d Enhanced SBO Control (14/28)
5 Unbuffered Reporting (21/23)	13 Time Synchronization (5/7)
6 Buffered Reporting (29/33)	14 File Transfer (8/8)
9a GOOSE Publish (11/13)	15 Service Tracking (7/17)
9b GOOSE Subscribe (19/20)	

This certificate includes a summary of the test results as carried out at DNV GL in The Netherlands with UniGrid SA Simulator 1.7.1 with test suite 20201005.1 and UniCA 61850 Analyzer 6.40.1 This document has been issued for information purposes only, and the archived DNV GL verification report No. 10261711-INC 20-3092 rev1 will prevail.

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

Arnhem, December 9, 2020



N.A. Heijker
Business Leader
Interoperability of Smart Power Systems

Issued by:



DNV KEMA is now DNV GL



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 2.0.3

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAss4, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrv8, sSrvN1abcd, sSrvN4	sAssN6, sSrv9, sSrv10, sSrv12
2: Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
4: Setting Group Selection	sSg1, sSg3, sSgN1	sSg11
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, sGop6, sGopN1, sGopN2
9b: GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGos8, sGos9, sGos10, sGos11, sGos12, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	sGos6b, sGos13
12a: Direct control	sCtl5, sCtl10, sDOs1, sDOs2	sCtl7, sCtl15, sCtl16
12c: Enhanced Direct Control	sCtl5, sCtl10, sDOes1, sDOes2	sCtl7, sCtl14, sCtl15, sCtl16
12d: Enhanced SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl6, sCtl7, sCtl15, sCtl16
13: Time sync	sTm1, sTm2, sTmN1	sTm3, sTmN2
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	sFt2c, sFt3, sFtN1c
15: Service tracking		sTrk1, sTrk2, sTrk4, sTrk7, sTrk8, sTrk9, sTrk11

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

- AQ-T393 Three-winding transformer protection IED
- AQ-S391 Bay control IED
- AQ-B398 Busbar protection IED