

No. 10246988-INC 21-2640

Issued to:

Arcteq Relays Ltd.
Kvartsikatu 2A1
65300 Vaasa
Finland

For the server product:

AQ-250: AQ-F255 Feeder protection IED
Software version: v2.5.7.1
S/N: 2102015468

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_rev4 with product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in AQ 250, version v2.5.7 date January 25, 2021", "Model Implementation Conformance Statement for the IEC 61850 interface in the AQ 250, 25.02.2021, v1.1.0" and "TISSUES Implementation Conformance Statement (TICS) For the IEC 61850 Edition 2 Server interface in AQ 250, version v2.5.7, date June 18, 2020" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Edition 2 server interface in AQ 250, version 0.7 date February 22 2021".

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 (19/28)	12a	Direct Control (5/17)
2	Data Sets (4/7)	12b	SBO Control (11/26)
5	Unbuffered Reporting (19/22)	12c	Enhanced Direct Control (6/19)
6	Buffered Reporting (27/32)	12d	Enhanced SBO Control (12/27)
9a	GOOSE Publish (9/13)	13	Time Synchronization (4/7)
9b	GOOSE Subscribe (16/18)	14	File Transfer (7/8)

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 20210125.1 and UniCA 61850 Analyzer 6.40.01. This document has been issued for information purposes only, and the archived DNV GL verification report No. 10246988-INC 21-2639 Rev2 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, March 3, 2021



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

Applicable Test Procedures from the UCA International Users Group Edition 2 Server Test Procedures version 2.0_rev4

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAss4, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sAssN6, sSrv8, sSrv9, sSrvN1f
2: Data Sets	sDs1, sDs10a, sDsN1ae	sDs15
5: Unbuffered Reporting	sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp16, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	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	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	
12a: Direct control	sCtl5, sCtl10, sDOns1, sDOns2	sCtl16
12b: SBO control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOns1, sSBOns2, sSBOns6	sCtl16, sCtl27
12c: Enhanced Direct Control	sCtl5, sCtl10, sDOes1, sDOes2	sCtl14, sCtl16
12d: Enhanced SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl16, sCtl26
13: Time sync	sTm1, sTm2, sTmN1	sTm3
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	sFt2c, sFtN1c

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

- AQ-C255 Capacitor bank protection IED
- AQ-G257A Generator protection IED
- AQ-M257A Motor protection IED
- AQ-S254 Alarm and indication IED
- AQ-S255 Bay control IED
- AQ-T256 Transformer protection IED
- AQ-T257A Transformer protection IED