

IEC 61850 Conformance Certificate Level B¹

Issued to:
Maschinenfabrik Reinhausen GmbH
Falkensteinstr. 8
93059 Regensburg

For the server product:
TAPCON®
Voltage Regulator Unit
IEC61850 Software Version 2.02
S/N 1494540

Issued by: ABB Switzerland Ltd, Power Systems, SVC Baden

The server product has not been shown to be non-conforming to:
IEC 61850 First Edition Parts 6, 7-1, 7-2, 7-3, 7-4 and 8-1
Communication networks and systems in substations

The conformance test has been performed according to IEC 61850-10, the UCA International Users Group Device Test Procedures version 2.3 with TPCL² version 1.7.7, the product's protocol, model and technical issue implementation conformance statements: "Protocol Implementation Conformance Statement for the IEC 61850 interface in TAPCON®", "Protocol Specification IEC 61850 Edition 1, 1494540 EN", "TISSUES Implementation Conformance Statement for the IEC 61850 interface in TAPCON®" and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 interface in TAPCON®"

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 (20/24)	6	Buffered Reporting (18/19)
2	Data Sets (3/6)	6+	Enhanced buffered reporting (10/12)
2+	Data Set Definition (24/24)	12a	Direct Control (4/11)
5	Unbuffered Reporting (16/18)	13	Time Synchronization (5/5)

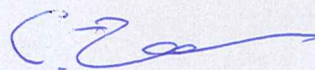
This Certificate includes a summary of the test results as carried out at the SVC Baden in Switzerland with UniCASim 61850 version 4.29.03 with test suite 3.29.00 and UniCA Analyzer 5.28.03. This document has been issued for information purposes only, and the original paper copy of the SVC Baden report: No. 1KHL050083 will prevail.

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

Baden, 2016-02-03



S. Gerspach
Certification Manager



C. Zehnder
Test engineer

1 Level B - Tester with ISO 9001 Quality System
2 TPCL - Test procedures change list

Publication of this document is allowed. Publication in total or in part and/or reproduction in whatever way of the contents of the mentioned report(s) is not allowed unless permission has been explicitly given either in the report(s) or by previous letter.

Page 1/2

Applicable Test Procedures from the UCA International Users Group Device Test Procedures version 2.3 with TPCL version 1.7.7

Conformance Block	Mandatory	Conditional
1 Basic Exchange	Ass1, Ass2, Ass3, AssN2, AssN4, AssN5 Srv1, Srv2, Srv3, Srv4, Srv5, SrvN1abcd, SrvN4	AssN3 Srv6, Srv7, Srv8, SrvN1e, SrvN1f, SrvN3
2 Data Sets	Dset1, Dset10a, DsetN1ae	
2+ Data Set Definition	Dset2, Dset3, Dset4, Dset5, Dset6, Dset7, Dset8, Dset9 DsetN1cd, DsetN2, DsetN3, DsetN4, DsetN5, DsetN6, DsetN7, DsetN8, DsetN9, DsetN10, DsetN11, DsetN12, DsetN13, DsetN14	DsetN15a, DsetN15b
5 Unbuffered Reporting	Rp1, Rp2, Rp3, Rp4, RpN1, RpN2, RpN3, RpN4	Rp5, Rp6, Rp7, Rp8, Rp9, Rp10, Rp12, RpN5
6 Buffered Reporting	Br1, Br2, Br3, Br4, Br8, Br9, BrN1, BrN2, BrN3, BrN4, BrN5	Br5, Br6, Br7, Br10, Br11, Br12, Br14
6+ Enhanced buffered reporting	BrE1, BrE2, BrE3, BrE6, BrE7, BrE8, BrE9, BrE10, BrE11	BrE12
12a: Direct Control	CtlN3, DOns1	CtlN11, DOns3
13 Time Synchronization	Tm1, Tm2	Tm3, TmN1, TmN2