



4085

# IEC 61850 Certificate Level B<sup>1</sup>

No. 50745.6645.802

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Issued to:  
GE Renewable Energy  
St. Leonards Building, Harry Kerr Drive  
Stafford, UK, ST16 1WT



For the server product:  
MiCOM P40 Agile P645  
Transformer Differential Protection Relay  
Software Version 22  
Hardware Version P

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 1.0 with TPCL<sup>2</sup> version 1.2 with product's protocol, model and technical issue implementation conformance statements: "MiCOM P40 Agile PX4X PICS Protocol Implementation Conformance – IEC 61850 Edition 2, PX4X-EN-PC2-D", "MiCOM P40 Agile P645SV MICS, P645SV-MC2-EN-2.1", "MiCOM P40 Agile P645SV TICS, P645SV-TC2-EN-2.1" and extra information for testing "MiCOM P40 Agile P645SV PIXIT, P645SV-PX2-EN-2.1".

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)	12a	Direct Control (6/18)
2	Data Sets (4/7)	12b	SBO Control (12/27)
4	Setting Group Selection (4/4)	12c	Enhanced Direct Control (6/20)
5	Unbuffered Reporting (18/21)	12d	Enhanced SBO Control (12/28)
6	Buffered Reporting (25/30)	13	Time Synchronization (4/7)
9a	GOOSE Publish (12/13)	14	File Transfer (7/8)
9b	GOOSE Subscribe (14/14)		

This certificate includes a summary of the test results as carried out at Grid Automation Laboratories in UK Grid Solutions Limited in Stafford, United Kingdom with UniGrid Substation Automation Test Tool version 1.4 and the UniCA 61850 Analyzer version 5.34. This document has been issued for information purposes only, and the original paper copy of the Grid Automation Laboratories report: No. 50745.6645.302 will prevail.

The tests have been carried out on one single specimen of the product as referred and submitted to Grid Automation Laboratories by GE Renewable Energy. The manufacturer's production process has not been assessed. This certificate does not imply Grid Automation Laboratories at UK Grid Solutions Limited has certified or approved any other product other than the specimen tested.

Stafford, 19-03-2019

Allen Millard  
Grid Automation Laboratories Manager

  
Hua Qin  
Grid Automation Laboratories  
IED Communication Test Engineer

<sup>1</sup> Level B - Test lab following ISO 9001 Quality System  
<sup>2</sup> Test Procedure Change List



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Applicable Test Procedures from the UCA International Users Group Edition 2 Server Test Procedures version 1.0 with TPCL version 1.2.

Conformance Block	Mandatory	Conditional
1: Basic Exchange	sAss1, sAss2, sAss3, sAssN2, sAssN3, sAssN4, sAssN5, sSrv1, sSrv2, sSrv3, sSrv4, sSrv5, sSrvN1abcd, sSrvN4	sAssN6, sSrv6, sSrv8, sSrv9, sSrv10, sSrv12, sSrv13, sSrvN1e, sSrvN1f, sSrvN3
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, sRp15, sRpN1, sRpN2, sRpN3, sRpN4, sRpN8	sRp8, sRp10, sRp11, sRp12, sRpN5
6: Buffered Reporting	sBr1, sBr2, sBr3, sBr4, sBr5, sBr9, sBr14, sBr15, sBr20, sBr21, sBr22, sBr25, sBr26, sBr27, sBr28, sBrN1, sBrN2, sBrN3, sBrN4, sBrN5, sBrN8	sBr8, sBr10, sBr11, sBr12
9a: GOOSE publish	sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11	sGop1, sGop5, sGop6, sGop7, sGopN1, sGopN2
9b: GOOSE subscribe	sGos1, sGos2, sGos3, sGos5, sGos6a, sGos7, sGosN1, sGosN2, sGosN3, sGosN4, sGosN5, sGosN6	sGos4, sGos6b
12a: Direct control	sCtl5, sCtl10, sDOns1, sDOns2	sCtl13, sCtl15
12b: SBO control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOns1, sSBOns2, sSBOns6	sCtl6, sCtl15, sCtl27
12c: Enhanced Direct Control	sCtl5, sCtl10, sDOes1, sDOes2	sCtl13, sCtl15
12d: Enhanced SBO Control	sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOes1, sSBOes2, sSBOes6, sSBOes8	sCtl6, sCtl15
13: Time sync	sTm1, sTm2, sTmN1	sTm3
14: File transfer	sFt1, sFt2ab, sFt4, sFt5, sFtN1ab	sFt2c, sFtN1C

