

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

### Issued to:

Schweitzer Engineering Laboratories, Inc  
2350 NE Hopkins Court  
Pullman, WA 99163-5603  
USA

### For the server product:

SEL-487E-5 Transformer Protection Relay with Sampled Values  
Firmware version: SEL-487E-5-R411  
IEC 61850 library ID: 837C7AA9  
Hardware version: MB6E  
SV Publish: F400S1I4U4, F4800S1I4U4, F4800S2I18U6,  
F4800S2I21U3

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, 9-2 and IEC 61869 First Edition Part 9

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 for the IEC 61850 interface in SEL-487E-5, SEL-451-6, SEL-421-7 and SEL-401, July 8, 2026", "Model Implementation Conformance Statement for the IEC 61850 Edition 2 Amendment 1 server interface in SEL-487E-5, SEL-451-6, SEL-421-7 and SEL-401, July 8, 2026", "TISSUES Implementation Conformance Statement (TICS) For the IEC 61850 Edition 2 Amendment 1 Server interface in SEL-487E-5, SEL-451-6, SEL-421-7 and SEL-401, July 8, 2026", and the extra information for testing: "Protocol Implementation eXtra Information for Testing (PIXIT) for the IEC 61850 Edition 2 with Amendment 1 server interface in SEL-487E-5, SEL-451-6, SEL-421-7 and SEL-401, July 8, 2026".

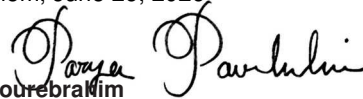
The following IEC 61850 conformance blocks have been tested with a positive result (number of relevant and executed test cases / total number of test cases):

|                                 |                                          |
|---------------------------------|------------------------------------------|
| 1a Basic Exchange (24/31)       | 11a SV publish (20/22)                   |
| 2 Data Sets (4/7)               | 12a Direct Control (9/19)                |
| 4 Setting Group Selection (5/5) | 12c Enhanced Direct Control (10/21)      |
| 5 Unbuffered Reporting (24/26)  | 12d Enhanced SBO Control (18/29)         |
| 6 Buffered Reporting (34/36)    | 13a Time Synchronization with SNTP (8/8) |
| 9a GOOSE publish (11/14)        | 13b Time Synchronization with PTP (4/4)  |
| 9b GOOSE subscribe (29/29)      | 14 File Transfer (6/8)                   |
|                                 | 15 Service Tracking (6/19)               |

This certificate includes a summary of the test results as carried out at DNV in The Netherlands with UniGrid SA Simulator 4.2 with test suite 20260529 and UniCA 61850 Analyzer 6.45. This document has been issued for information purposes only, and the archived DNV verification report No. 10622295-DSO 26-3091 rev 2 will prevail.

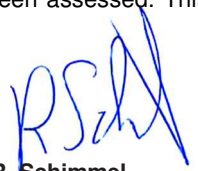
The test has been carried out on one single specimen of the product as referred above and submitted to DNV by Schweitzer Engineering Laboratories, Inc. The manufacturer's production process has not been assessed. This certificate does not imply that DNV has approved any product other than the specimen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

Arnhem, June 26, 2026

  
**P. Pourabrahim**  
Test Engineer

Issued by:



  
**R. Schimmel**  
Verification Manager

<sup>1</sup> Level A - Independent test lab with certified ISO 9001 Quality System

## IEC 61850 Certificate Level A

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, sSrv12, sSrv13, sSrv15, sSrv16                         |
| 2: Data Sets                 | sDs1, sDs10a, sDsN1ae                                                                                                                                                                                   | sDs15                                                                         |
| 4: Setting Group Selection   | sSg1, sSg3, sSgN1                                                                                                                                                                                       | sSg11, sSg13                                                                  |
| 5: Unbuffered Reporting      | sRp1, sRp2, sRp3, sRp4, sRp5, sRp9, sRp14, sRp16, sRp23, sRpN1, sRpN2, sRpN3, sRpN4, sRpN5, sRpN7, sRpN8, sRpN9                                                                                         | sRp8, sRp10, sRp11, sRp12, sRp13, sRp15, sRp17                                |
| 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                  | sBr8, sBr10, sBr11, sBr12, sBr13, sBr15, sBr17                                |
| 9a: GOOSE Publish            | sGop2a, sGop3, sGop4, sGop9, sGop10, sGop11, sGop12, sGop13                                                                                                                                             | sGop1, sGop5, 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 | sGos4, sGos6b, sGos13                                                         |
| 11a: Sampled Values Publish  | sSvp1, sSvp2, sSvp3, sSvp4, sSvp5, sSvp6, sSvp7, sSvp8, sSvp14, sSvp18                                                                                                                                  | sSvp9, sSvp11, sSvp12, sSvp13, sSvp15, sSvp16, sSvp17, sSvp20, sSvp22, sSvp23 |
| 12a: Direct Control          | sCtl5, sCtl10, sDOs1, sDOs2                                                                                                                                                                             | sCtl7, sCtl15, sCtl16, sCtl17, sCtl29                                         |
| 12c: Enhanced Direct Control | sCtl5, sCtl10, sDOs1, sDOs2                                                                                                                                                                             | sCtl7, sCtl14, sCtl15, sCtl16, sCtl17, sCtl29                                 |
| 12d: Enhanced SBO Control    | sCtl4, sCtl5, sCtl8, sCtl9, sCtl10, sCtl11, sCtl25, sSBOs1, sSBOs2, sSBOs6, sSBOs8                                                                                                                      | sCtl6, sCtl7, sCtl15, sCtl16, sCtl17, sCtl26, sCtl29                          |
| 13a: Time Sync SNTP          | sTm1, sTm2, sTm7, sTmN1                                                                                                                                                                                 | sTm3, sTm4, sTm5, sTmN2                                                       |
| 13b: Time Sync PTP           | sTmP1, sTmP2, sTmPN1                                                                                                                                                                                    | sTmP5                                                                         |
| 14: File Transfer            | sFt1, sFt2ab, sFt4, sFt5, sFtN1ab                                                                                                                                                                       | sFt3                                                                          |
| 15: Service Tracking         |                                                                                                                                                                                                         | sTrk1, sTrk2, sTrk7, sTrk8, sTrk9, sTrk11                                     |

| Test case | Comments                                     |
|-----------|----------------------------------------------|
| sSvp17    | Current clipping limit could not be reached  |
| sSvp3     | Tested according to redmine #7770 resolution |
| sCtl16    | Tested according to redmine #6988 resolution |
| sSBOs8    | Tested according to redmine #7527 resolution |

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

- SEL-451-6 Protection, Automation, and Bay Control System with Sampled Values  
Firmware version: SEL-451-6-R411
- SEL-421-7 Protection, Automation, and Control System with Sampled Values  
Firmware version: SEL-421-7-R414
- SEL-401 Protection, Automation, and Control Merging Unit  
Firmware version: SEL-401-R414