

Annex to declaration of accreditation (scope of accreditation)  
Normative document: EN ISO/IEC 17025:2017  
Registration number: **L 218**

of **KEMA B.V.**  
**Metering, Protection & Substation Automation Laboratory**

This annex is valid from: **23-06-2022** to **01-04-2026**

Replaces annex dated: **18-05-2022**

**Location(s) where activities are performed under accreditation**

**Head Office**

Klingelbeekseweg 195 - Building no. R10  
6812 DE  
Arnhem  
The Netherlands

| <b>Location</b>   | <b>Abbreviation/ location code</b> |
|---|------------------------------------|
| Klingelbeekseweg 195, Building no. R32<br>6812 DE Arnhem<br>The Netherlands | ARN                                |

| <b>No.</b> | <b>Material or product</b>                          | <b>Type of activity<sup>1</sup></b> | <b>Internal reference number</b>   | <b>Location</b> |
|------------|---|-------------------------------------|--|-----------------|
| 1          | Protection relays & substation automation equipment | Functional requirements             | EN-IEC 60255-1<br>IEC 60255-12<br>IEC 60255-13<br>EN-IEC 60255-121<br>EN-IEC 60255-127<br>EN-IEC 60255-149<br>EN-IEC 60255-151<br>IEEE C37.112 | ARN             |
|            |   | Energizing quantities (Burden test) | EN-IEC 60255-1   |                 |
|            |   | Dimensions of structure             | EN-IEC 60255-1<br>EN-IEC 60297-3-101   |                 |

<sup>1</sup> If there is a referral to a code starting with NAW, NAP, EA or IAF, this concerns a scheme mentioned on the [RvA-BR010-lijst](#).  
If no date or version number is mentioned for a normative document, the accreditation concerns the most current version of the document or scheme.

This annex has been approved by the Board of the  
Dutch Accreditation Council, on its behalf,

J.A.W.M. de Haas

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|-----|--------------------------|--|---|----------|
| 2   | Electrical energy meters | <b>Tests of Accuracy requirements</b> <ul style="list-style-type: none"> <li>Limits of error due to variation of the current</li> <li>Test of meter constant</li> <li>Test of Starting condition</li> <li>Test of No-load condition</li> <li>Tests of Influence quantities</li> </ul>  | EN 50470-1/2/3<br>EN-IEC 62052-11<br>EN-IEC 62053-11/21/22/23/24                                  | ARN      |
| 3   | Electrical energy meters | <b>Tests of electrical requirements</b> <ul style="list-style-type: none"> <li>Test of power consumption</li> <li>Test of influence of supply voltage</li> <li>Test of short-time overcurrents</li> <li>Test of self-heating</li> </ul>  | EN 50470-1/2/3 <sup>1)</sup><br>EN-IEC 62052-11<br>EN-IEC 62053-11/21/22/23/24<br>EN-IEC 62052-31 | ARN      |
| 4   | Electrical energy meters | Durability - Testing of the stability of metrological characteristics by applying elevated temperature   | EN-IEC 62059-32-1   | ARN      |
| 5   | Electrical energy meters | <b>Tests of functional performance</b> <ul style="list-style-type: none"> <li>Core functional test within voltage and temperature range limits</li> <li>Functional tests within the limit range of operation.</li> <li>Interruption to token acceptance</li> <li>Rejection of duplicate tokens</li> <li>Rejection of valid tokens when available credit is saturated</li> <li>Energy register roll-over</li> </ul>                   | EN-IEC 62055-31   | ARN      |
| 6   | Electrical energy meters | <b>Tests of timekeeping accuracy</b> <ul style="list-style-type: none"> <li>Test of synchronous clock on a.c. supply</li> <li>Test of synchronous clock on operation reserve</li> <li>Test of crystal-controlled clocks on a.c. supplies</li> <li>Test of crystal-controlled clocks on operation reserve</li> <li>Test of accuracy of crystal-controlled clocks with temperature.</li> <li>Test of influence of harmonics</li> </ul> | EN-IEC 62055-31<br>EN-IEC 62054-21  | ARN      |

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|---|--|---|--|----------|
| <b>Supply control and load control switch testing</b> |  |   |  |          |
| 7   | Electrical energy meters   | Normal operation test   | EN-IEC 62055-31  | ARN      |
| 8   |  | Pre-conditioning test   | EN-IEC 62052-31  | ARN      |
| 9   |  | Electrical endurance test   | EN-IEC 62055-31<br>EN-IEC 62052-31                                   | ARN      |
| 10  |  | Fault current making capacity test  | EN-IEC 62055-31  | ARN      |
| 11  |  | Verification of the ability to make the rated short-circuit current                                   | EN-IEC 62052-31  | ARN      |
| 12  |  | Short-circuit current carrying capacity test  | EN-IEC 62055-31  | ARN      |
| 13  |  | Verification of the ability to carry the rated operational and stay safe short-time withstand current | EN-IEC 62052-31  | ARN      |
| 14  |  | Minimum switched current test   | EN-IEC 62055-31<br>EN-IEC 62052-31                                   | ARN      |
| <b>Climatic environmental tests</b>                   |  |   |  |          |
| 15  | Electrical energy meters and Protection relays & substation automation equipment | Cold operational test<br>Cold storage test<br>-40°C to +5°C   | EN-IEC 60255-1<br>EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 60068-2-1  | ARN      |
| 16  |  | Dry heat operational test<br>Dry heat storage test<br>+5°C to +85°C                                   | EN-IEC 60255-1<br>EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 60068-2-2  | ARN      |
| 17  |  | Change of temperature test<br>-40°C to +85°C  | IEC 60255-1<br>EN-IEC 60068-2-14                                     | ARN      |
| 18  |  | Damp heat cyclic test (12 h + 12 h)<br>+40°C and +55°C<br>up to 100% relative humidity                | EN-IEC 60255-1<br>EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 60068-2-30 | ARN      |
| 19  |  | Damp heat steady state test<br>+30°C, +40°C and +55°C<br>85% or 93% relative humidity                 | EN-IEC 60255-1<br>EN-IEC 60068-2-78                                  | ARN      |

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|---|---|--|---|----------|
| 20  |   | Solar radiation  | EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 60068-2-5                                   | ARN      |
| <b>Electrical safety tests and measurements</b> |   |  |   |          |
| 21  | Electrical energymeters<br>and                      | Creepage and clearance measurements  | EN-IEC 60255-27<br>EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 62052-31                 | ARN      |
| 22  | Protection relays & substation automation equipment | Mechanical <ul style="list-style-type: none"> <li>• Mechanical strength of housing test (springhammer test)</li> <li>• Sharp edges</li> <li>• Provisions for lifting and carrying</li> </ul> | EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 62052-31<br>EN-IEC 60068-2-75               | ARN      |
| 23  |   | Spread of fire <ul style="list-style-type: none"> <li>• Abnormal operation and single faultconditions</li> <li>• Limited-energy circuit</li> <li>• Batteries</li> </ul>                      | EN-IEC 60255-27<br>EN-IEC 62052-31  | ARN      |
| 24  |   | Dielectric voltage test and insulation resistance measurement test   | EN-IEC 60255-27   | ARN      |
| 25  |   | Degree of protection provided by enclosures (Dust and Water tests)   | EN-IEC 60255-27<br>EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 62052-31<br>EN-IEC 60529 | ARN      |
| 26  |   | Temperature and heat tests <ul style="list-style-type: none"> <li>• Test of influence of heating</li> <li>• Temperature tests</li> </ul>   | EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 62052-31<br>EN-IEC 60085                    | ARN      |
| 27  |   | Test of immunity to earth fault / long term overvoltage withstand  | EN-IEC 62052-11<br>EN 50470-2/3<br>EN-IEC 62052-31                                  | ARN      |

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| 28  | Electrical energymeters<br><br>and<br><br>Protection relays & substation automation equipment | Test of Insulation properties (Dielectric tests): <ul style="list-style-type: none"> <li>• impulse voltage</li> <li>• a.c. / d.c voltage</li> </ul>        | EN-IEC 62052-11<br>EN-IEC 62053-11/21/22/23/24<br>EN 50470-1/2/3<br>EN-IEC 62052-31<br>EN-IEC 60060-1<br>HD 588.1 S1 | ARN      |
| 29  |   | Protection against electrical shock <ul style="list-style-type: none"> <li>• Accessible parts test</li> <li>• Limit values for accessible parts</li> </ul> | EN-IEC 60255-27<br>EN-IEC 62052-31   | ARN      |
| 30  |   | Impulse voltage  | EN-IEC 60255-27  | ARN      |
| 31  |   | Protective bonding resistance  | EN-IEC 60255-27<br>EN-IEC 62052-31   | ARN      |
| 32  |   | Durability of markings   | EN-IEC 62052-31  | ARN      |
| 33  |   | Tests on terminals <ul style="list-style-type: none"> <li>• manual test</li> <li>• flexion and pull test</li> </ul>  | EN-IEC 62052-31  | ARN      |
| 34  |   | Surge test <ul style="list-style-type: none"> <li>• Surge test with supply voltage</li> <li>• Surge voltage withstand across open contacts</li> </ul>      | EN-IEC 62052-31  | ARN      |

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|---------------------------|--|--|---|----------|
| <b>Mechanical testing</b> |  |  |   |          |
| 35                        | Electrical energy meters<br>and<br>Protection relays & substation automation equipment | Shock test<br>Maximale acceleratie: 11500 m/s <sup>2</sup><br>Nominale tijdsduur: 1 - 65 ms<br>Maximale (piek-piek) snelheid: 13 m/s                         | EN-IEC 60068-2-27<br>EN-IEC 62052-11<br>EN 50470<br>EN-IEC 60255-21-2                       | ARN      |
| 36                        |  | Vibration test<br>Maximale acceleratie: 1120 m/s <sup>2</sup><br>Maximale snelheid: 1,8 m/s<br>Maximale verplaatsing: 60 mm<br>Frequentiebereik: 1 – 2000 Hz | EN-IEC 60068-2-6<br>EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 60255-21-1<br>EN-IEC 60255-21-3 | ARN      |
| 37                        |  | Glow wire test   | EN-IEC 60695-2-11<br>EN 60695-2-10<br>EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 62052-31      | ARN      |
| 38                        |  | Determination of temperature of deflection under load<br>temperature of 135 °C<br>pressure of 1,8 MPa  | ISO 75-2 (method A)<br>EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 62052-31                     | ARN      |
| 39                        | Electrical energy meters   | Token carrier acceptor test  | EN-IEC 62055-31   | ARN      |
| 40                        |  | Keypad interface test  | EN-IEC 62055-31   | ARN      |
| 41                        |  | Token carrier acceptor interface test  | EN-IEC 62055-31   | ARN      |

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|----------|-----------------------------------|--|---|----------|
| EMC.I    |                                   | EMC Immunity tests   |   |          |
| EMC.I.21 | Electric and electronic equipment | Electrostatic discharge immunity (ESD)<br>Contact discharge up to 30 kV<br>Air discharge up to 30 kV                                   | EN-IEC 60255-26<br>EN-IEC 62052-11<br>EN 50470-1<br>IEEE C37.90.3<br>EN-IEC 61000-4-2 | ARN      |
| EMC.I.22 |                                   | Electrical fast transient / burst immunity (EFT)<br>1 and 3 phases<br>0,25 – 4 kV  | EN-IEC 60255-26<br>IEC 62052-11<br>EN 50470-1<br>IEEE C37.90.1<br>EN-IEC 61000-4-4    | ARN      |
| EMC.I.23 |                                   | Surge immunity<br>1 and 3 phases<br>0,25 – 8 kV  | EN-IEC 60255-26<br>EN-IEC 62052-11<br>EN 50470-1<br>EN-IEC 61000-4-5                  | ARN      |
| EMC.I.07 |                                   | Immunity to conducted disturbances, induced by radio-frequency fields<br>3 V - 10 V<br>150 kHz – 80 MHz                                | EN-IEC 60255-26<br>EN-IEC 62052-11<br>EN-IEC 61000-4-6<br>EN 50470-1                  | ARN      |
| EMC.I.24 |                                   | Power frequency magnetic field immunity,<br>50/60 Hz<br>3 A/m – 1000 A/m   | EN-IEC 60255-26<br>EN 50470-1<br>EN-IEC 61000-4-8                                     | ARN      |
| EMC.I.26 |                                   | Voltage dips, short interruptions and voltage variations Immunity<br>1, 2 or 3 phase<br>0° - 360°                                      | EN-IEC 60255-26<br>EN 50470-1<br>EN-IEC 61000-4-11<br>EN-IEC 62052-11                 | ARN      |
| EMC.I.08 |                                   | Immunity to conducted disturbances<br>Common mode<br>1 - 30 V (continuous)<br>10 - 300 V (short duration)<br>15 Hz – 150 kHz; 3 – 30 V | EN-IEC 60255-26<br>EN-IEC 61000-4-16  | ARN      |

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|----------|--|---|--|----------|
| EMC.I.30 |  | DC voltage ripple Immunity<br>0 – 20%<br><br>100/120 Hz<br>0 –300 Vdc   | EN-IEC 60255-26<br>EN-IEC 61000-4-17   | ARN      |
| EMC.I.38 |  | Damped oscillatory wave<br>100 kHz, 1 MHz; 0,25 –2,5 kV<br><br>3 MHz, 10 MHz, 30 MHz<br>0,5 kV – 4,0 kV   | EN-IEC 60255-26<br>IEEE C37.90.1<br>EN-IEC 61000-4-18<br>EN-IEC 62052-11<br>EN 50470-1 | ARN      |
| EMC.I.37 |  | DC Voltage dips, short interruptions, and<br>voltage variations immunity<br>20 – 300 Vdc<br>Up to 10 A  | EN-IEC 60255-26<br>EN-IEC 61000-4-29   | ARN      |
| EMC.I.25 |  | Pulsed magnetic field immunity<br>100 – 1000 A/m  | EN-IEC 61000-4-9   | ARN      |
| EMC.I.33 |  | Damped oscillatory magnetic field immunity<br>10 – 100 A/m  | EN-IEC 61000-4-10  | ARN      |
| EMC.I.36 | Electric and<br>electronic<br>equipement | Ringwave immunity test<br>1 and 3 phases<br>0,25 to 2 kV Line-to-Line<br>0,5 to 4 kV line-to-ground   | EN-IEC 61000-4-12  | ARN      |
| EMC.I.45 | Electric and<br>electronic<br>equipement | Immunity to conducted, differential mode<br>disturbances and signaling<br>2 kHz to 150 kHz at a.c. power ports<br>0,1 to 20 Vrms Diff. voltage testing<br>0,5 to 4 Arms Diff. current testing | EN-IEC 61000-4-19<br>NPR-CLC/TR 50579  | ARN      |



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|--|-----------------------------------|--|--|----------|
| EMC.E Electromagnetic Compatibility Emission (EMC) |                                   |  |  |          |
| EMC.E.34   | Electric and electronic equipment | Conducted emission<br>Voltage method (AAN)<br>150 kHz – 30 MHz | EN-IEC 60255-26<br>CISPR 32, CISPR 22<br>EN 55032, EN 55022<br>EN-IEC 62052-11<br>EN 50470-1 | ARN      |
| EMC.E.02   |                                   | Conducted emission<br>Voltage method (AMN)<br>150 kHz – 30 MHz | EN-IEC 60255-26<br>CISPR 32, CISPR 22<br>EN 55032, EN 55022<br>EN-IEC 62052-11<br>EN 50470-1 | ARN      |

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**Product standards containing one or more of the above mentioned test activities are listed below.  
 Accreditation is only applicable to the tests mentioned above.**

**Product standards for EMC**

| <b>No.</b>      | <b>Material of product</b>                                      | <b>Activity reference number</b>  | <b>Product Standard, directive and/or approval requirements</b>  |
|-----------------|---|---|--|
| <b>EMC.S.03</b> | EMC Testing Electrical Energy Meters                            | EMC Immunity<br>No. EMC.I.07, EMC.I.08, EMC.I.21, EMC.I.22, EMC.I.23, EMC.I.24, EMC.I.25, EMC.I.26, EMC.I.30, EMC.I.33, EMC.I.36, EMC.I.37, EMC.I.38, EMC.I.45  | EN 50470-1/2/3<br>EN-IEC 62052-11<br>EN-IEC 62053-11/21/22/23/24<br><br>Directive 2014/32/EU annex I, annex V MI-003 |
| <b>EMC.S.08</b> | EMC Testing Protection relays & substation automation equipment | EMC Immunity<br>No. EMC.I.07, EMC.I.08, EMC.I.21, EMC.I.22, EMC.I.23, EMC.I.24, EMC.I.25, EMC.I.26, EMC.I.30, EMC.I.33, EMC.I.36, EMC.I.37, EMC.I.38, EMC.I.45<br><br>EMC Emission No. EMC.E.34<br>t/m EMC.E.02 | EN-IEC 60255-1<br>EN-IEC 60255-26<br>IEEE C37.90.1/3   |

**Product standards containing other activities than EMC**

| <b>No.</b> | <b>Material of product</b>                          | <b>Activity reference number</b>   | <b>Product Standard, directive and/or approval requirements</b> |
|------------|---|--|---|
| <b>1</b>   | Protection relays & substation automation equipment | Above listed methods Nrs. 15, 16, 17, 18, 19, 20, 21, 23, 24, 25, 30, 31, 32, 33<br><br>EMC Immunity No. EMC.I.24, EMC.I.21, EMC.I.08, EMC.I.23, EMC.I.38, EMC.I.22, EMC.I.07, EMC.I.26, EMC.I.37, EMC.I.30<br><br>EMC Emission No. EMC.E.34<br>t/m EMC.E.02 | EN-IEC 61850-3  |
| <b>2</b>   |   | Above listed methods Nrs. 24, 30<br><br>EMC Immunity No. EMC.I.24, EMC.I.21, EMC.I.23, EMC.I.38, EMC.I.22, EMC.I.07, EMC.I.08, EMC.I.33  |   |

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| 3 | Electrical energy meters | Above listed methods Nrs. 2, 3, 5, 6, 7, 9, 10, 12, 14, 15, 16, 18, 21, 22, 25, 26, 27, 28, 32, 33, 34, 35, 36, 37, 38<br><br>EMC.I.21, EMC.I.22, EMC.I.23, EMC.I.07, EMC.I.26, EMC.E34 | EN-IEC 62055-31 |
|---|--------------------------|---|-----------------|