# Certificate of Conformity

Number NMi-CoC-22.36R01
Project number 2423053


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|---|---|---|
| Issued by | : | NMi Certin B.V.<br>Thijsseweg 11<br>2629 JA Delft<br>The Netherlands |
| Applicant | : | ABB S.p.A - ABB SACE Business<br>Via Pescaria 5<br>24123 Bergamo<br>Italy |
| Submitted | : | **Equipment embedding PMF (Power metering and monitoring function)**<br>Manufacturer : ABB S.p.A. – ABB SACE Business<br>Type : Emax E4.2 |
| Characteristics | : | PMF-II / EPMF-DD / K70 / 1<br>See also page 2 and further |
| In accordance with | : | **IEC 61557-12:2018 + AMD1:2021 (Ed. 2.1)**<br>"Electrical safety in low voltage distribution systems up to 1 000 V AC and 1 500 V DC. – Equipment for testing, measuring, or monitoring of protective measures –<br>Part 12: Power metering and monitoring devices (PMD)" |

The undersigned declares that the described product is tested according to the above mentioned standards and meet their requirements, based on a non-recurrent examination. The appertaining test data is presented in the type evaluation report NMi-2423053-03 and NMi-2423053-04, granted by NMi.

NMi Certin B.V.
29 July 2022

Certification Board

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## General characteristics

| | |
|---|---|
| Equipment | A circuit breaker embedding PMF (Power metering and monitoring function) |
| Classification | PMF-II (Basic power monitoring) |
| Structure of EPMF | EPMF-DD (Direct insertion) |
| Voltage range | $U_n$ = 400 $VAC_{L-L}$<br>$U_{min}$ = 100 $VAC_{L-L}$<br>$U_{max}$ = 690 $VAC_{L-L}$ |
| Current | $I_b$ = 400 A - 4000 A<br>$I_{max}$ = 480 A - 4800 A |
| Rated frequency | $f_n$ = 50 Hz and 60 Hz |
| *P* and $E_a$ performance class | 1 |
| Start-up time | < 15 s |
| Supply voltage | 24 – 48 VDC or 110 – 240 VAC |

## Function performance classes

| Function symbol | Function | Function Performance Class IEC 61557-12 | Measuring range | Other complementary characteristics |
|---|---|---|---|---|
| *P* | total active power | 1 | 5 % $I_b \leq I \leq I_{max}$ | |
| $Q_A$ | total reactive power | 2 | 5 % $I_b \leq I \leq I_{max}$ | |
| $S_A$ | total apparent power | 1 | 5 % $I_b \leq I \leq I_{max}$ | |
| $E_a$ | total active energy | 1 | 5 % $I_b \leq I \leq I_{max}$ | |
| $E_{rA}$ | total reactive energy | 2 | 5 % $I_b \leq I \leq I_{max}$ | |
| $E_{apA}$ | total apparent energy | 1 | 5 % $I_b \leq I \leq I_{max}$ | |
| *F* | frequency | 0.1 | 45 Hz - 65 Hz | |
| *I* | phase current | 0.5 | 20% $I_b$ to $I_{max}$ | |
| $I_N$ | measured neutral current | 0.5 | 20% $I_b$ to $I_{max}$ | |
| *U* | voltage | 0.5 | 100 V to 690 V | |
| $PF_A$ | power factor | 2 | From 0,5 ind to 0,8 cap | |
| $U_{nba}$ | voltage Unbalance amplitude | --- | --- | |
| $THD_u$ | total harmonic distortion voltage related to fundamental | --- | --- | |
| $THD\text{-}R_u$ | total harmonic distortion voltage related to r.m.s. value | --- | --- | |
| $THD_i$ | total harmonic current related to fundamental | --- | --- | |
| $THD\text{-}R_i$ | total harmonic current related to r.m.s. value | --- | --- | |

--- : Not implemented

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## Environmental conditions, mechanical and EMC

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|---|---|---|---|
| Temperature | Rated operation range (with specified uncertainty | -25°C to +70°C | IEC 61557-12 Temperature class K70 |
| | Limit range of operation (No hardware failures) | -25°C to +70°C | |
| | Limit range for storage and shipping | -40°C to +85°C | |
| Humidity | Rated operation range (with specified uncertainty | 0 to 75 % RH | IEC 61557-12 Standard conditions |
| | Limit range of operation 30 days/Y | 0 to 90 % RH | |
| | Limit range for storage and shipping | 0 to 90 % RH | |
| Altitude | 0 to 2000 m | | IEC 61557-12 Standard conditions |
| 00EMC | Emission | IEC 61326-1 | CISPR 11 |
| | Immunity | IEC 61326-1 | Table 2 |
| Based on similarity with the Emax E2.2, compliance with CISPR-11 is presumed based on test report No. No.19-4789123803-2-1-0-EMC, issued by UL International in Carugate, Italy. | | | |

## Safety

| | |
|---|---|
| Product safety | IEC 60947-2 |
| Protective class | I |
| Rated impulse voltage | Up to 12 kV |
| IP rating | IEC 60529 IP20 (front face) |
| Compliance with IEC 60947-2 is demonstrated in test report No. 2024869STO-001 and 2024869STO-002, issued by Intertek Semko AB in Kista, Sweden. | |

## Certificate history:

This revision replaces the previous version.

| Revision | Date | Description of the modification |
|---|---|---|
| 00 | 29 June 2022 | First issue. |
| 01 | 14 July 2022 | Issued due to editorial changes. |