

SCHWEIZERISCHER KALIBRIERDIENST  
SERVICE SUISSE D'ETALONNAGE  
SERVIZIO DI TARATURA IN SVIZZERA  
SWISS CALIBRATION SERVICEThe Swiss Accreditation Service is one of  
the signatories to the EA Multilateral  
Agreement for the recognition of  
calibration certificates

# Kalibrierzertifikat

## Certificate of calibration

Von der Schweizerischen Akkreditierungsstelle akkreditierte Kalibrierstelle  
Calibration laboratory accredited by the Swiss Accreditation Service

|                                   |                          |                              |            |
|-----------------------------------|--------------------------|------------------------------|------------|
| Zertifikat Nr.<br>Certificate No. | CC175 185-E              |                              |            |
| Auftraggeber<br>Customer          | Hettich AG, CH-8806 Bäch |                              |            |
| Auftrags-Nr.<br>Order No.         | 800/114219               | Auftrags-Datum<br>Order date | 06.08.2024 |

|                                               |                    |                     |             |
|-----------------------------------------------|--------------------|---------------------|-------------|
| Gegenstand<br>Item                            | PAT Tester         |                     |             |
| Hersteller<br>Manufacturer                    | Gossen Metrawatt   | Größe<br>Dimension  | n/a         |
| Modell<br>Model                               | SECUTEST ST PRO    | Asset<br>Code No    | ID38        |
| Serien-Nr.<br>Serial No.                      | FG7304920001       | Ergebnis<br>Results | In Toleranz |
| Datum der Kalibrierung<br>Date of calibration | 08.08.2024         |                     |             |
| Bemerkungen<br>Remarks                        | Equipment 14605502 |                     |             |

Dieses Kalibrierzertifikat dokumentiert die Rückführbarkeit auf nationale Normale zur Darstellung der physikalischen Einheiten (SI).  
This calibration certificate documents the traceability to national standards, which realize the physical units of measurement (SI).

Messresultate, Messverfahren und Messunsicherheiten sind auf den folgenden Seiten aufgeführt und sind Teil des Zertifikates.  
The measurements, the uncertainties with confidence probably and calibration methods are given on the following pages and are part of the certificate.

Dieses Kalibrierzertifikat darf ohne die schriftliche Zustimmung des Laboratoriums nicht auszugsweise vervielfältigt werden.  
This calibration certificate shall not be reproduced except in full, without written approval of the laboratory.

Datum  
Date

08.08.2024

Bearbeiter  
Inspector

Corrado Pogliaghi

Leiter der Kalibrierstelle  
Head of the Calibration Laboratory

Angelo Capone

**Kalibrierzertifikat**  
**Certificate of calibration****No. CC175 185-E****Messverfahren****Measurement method**

Die Kalibrierung erfolgt nach Kalibrieranweisung:

*The calibration is carried out according to the calibration instructions:***PIT-302-E**

Prüfprozedur:

*Used procedure:***GMC\_Secutest PRO\_5320A\_Rev1.3****Ort der Kalibrierung**

METRON Measurement SA

**Calibration place**

CH-6572 Quartino

**Kalibrierbedingungen****Test conditions**

Temperatur:

23°C ± 5°C

Relative Luftfeuchte:

50 ± 20%

*Temperature:**Humidity:***Messunsicherheit****Measurement Uncertainty**

Die angegebene erweiterte Messunsicherheit ist die Standardunsicherheit der Messung multipliziert mit einem Erweiterungsfaktor  $k=2$ , was bei einer Normalverteilung einem Vertrauensniveau von etwa 95% entspricht.

*The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor  $k=2$ , which for a normal distribution corresponds to a coverage probability of approximately 95%.*

**Anmerkung bezüglich der Konformitätserklärung****Note about to the declaration of conformity**

Die Konformitätserklärung ist auf einer scharfen Entscheidung, ob das Messergebnis liegt innerhalb oder außerhalb der Toleranzzone, ohne Berücksichtigung der Messunsicherheit basiert.

*The statement of conformity is based on a sharp decision whether the measurement result lies within or outside the tolerance zone, without taking the uncertainty of measurement into account.*

" \* " Messpunkt nicht im akkreditierten Bereich

*Measurement marked with " \* " are out of the actual scope of accreditation*

**Bezugsnormal****Reference standard****Einrichtungen****Equipments****Serien-Nr.****Serial Nr.****Inventar Nr.****Asset Nr.****Kalibrierzertifikat Nr.****Calibration Nr.**

Multifunction Calibrator - Fluke 5320A

515841011

003-023

36706

Multifunction Calibrator - Fluke 5520A

1587005

003-002

40051

Reference Multimeter - Fluke 8508A

965254632

003-442

38424



## Kalibrierzertifikat Certificate of calibration

No. **CC175 185-E**

### Messergebnisse

Measurement results

### Preliminary tests

|                           |          |
|---------------------------|----------|
| General Visual Inspection | CHECKED  |
| LCD Display Check         | CHECKED  |
| Input Socket Check        | CHECKED  |
| Rotary Switch Check       | CHECKED  |
| Software version          | 03.03.01 |

### Insulation Resistance Input Accuracy ( $R_{ISO}$ )

| Range           | Nennmass  | Mod.   | Anzeigewert      | Abweichung  | Toleranz     | Unc. U95     | Testergebnis  |
|-----------------|-----------|--------|------------------|-------------|--------------|--------------|---------------|
| [Range]         | [Nominal] | [Mod.] | [Actual reading] | [Deviation] | [Tolerance]  | [k=2]        | [Test result] |
| $U_N=250V$      |           |        |                  |             |              |              |               |
|                 | [kOhm]    |        | [kOhm]           | [kOhm]      | $\pm$ [kOhm] | $\pm$ [kOhm] |               |
| 1000 k $\Omega$ | 900       |        | <b>901</b>       | 1           | 25           | 1.9          | Pass          |
|                 | [MOhm]    |        | [MOhm]           | [MOhm]      | $\pm$ [MOhm] | $\pm$ [MOhm] |               |
| 10 M $\Omega$   | 9.00      |        | <b>9.02</b>      | 0.02        | 0.25         | 0.019        | Pass          |
| 100 M $\Omega$  | 20.0      |        | <b>20.0</b>      | 0.0         | 1.4          | 0.07         | Pass          |
| 100 M $\Omega$  | 90.0      |        | <b>89.5</b>      | -0.5        | 4.9          | 0.19         | Pass          |
| $U_N=500V$      |           |        |                  |             |              |              |               |
|                 | [kOhm]    |        | [kOhm]           | [kOhm]      | $\pm$ [kOhm] | $\pm$ [kOhm] |               |
| 1000 k $\Omega$ | 900       |        | <b>901</b>       | 1           | 25           | 1.9          | Pass          |
|                 | [MOhm]    |        | [MOhm]           | [MOhm]      | $\pm$ [MOhm] | $\pm$ [MOhm] |               |
| 10 M $\Omega$   | 9.00      |        | <b>9.01</b>      | 0.01        | 0.25         | 0.019        | Pass          |
| 100 M $\Omega$  | 20.0      |        | <b>20.0</b>      | 0.0         | 1.4          | 0.07         | Pass          |
| 100 M $\Omega$  | 90.0      |        | <b>89.7</b>      | -0.3        | 4.9          | 0.19         | Pass          |
| 300 M $\Omega$  | 200       |        | <b>198</b>       | -2          | 14           | 0.8          | Pass          |

### Resistance Input Accuracy $R_{PE} \pm 200mA$

| Range            | Nennmass  | Mod.   | Anzeigewert      | Abweichung  | Toleranz     | Unc. U95     | Testergebnis  |
|------------------|-----------|--------|------------------|-------------|--------------|--------------|---------------|
| [Range]          | [Nominal] | [Mod.] | [Actual reading] | [Deviation] | [Tolerance]  | [k=2]        | [Test result] |
|                  | [mOhm]    |        | [mOhm]           | [mOhm]      | $\pm$ [mOhm] | $\pm$ [mOhm] |               |
| * 999 m $\Omega$ | 100       |        | <b>103</b>       | 3           | 20           | 1.3          | Pass          |
| * 999 m $\Omega$ | 300       |        | <b>303</b>       | 3           | 40           | 3.1          | Pass          |
| * 999 m $\Omega$ | 500       |        | <b>503</b>       | 3           | 60           | 5.1          | Pass          |

**Kalibrierzertifikat**  
**Certificate of calibration****No. CC175 185-E****Resistance Input Accuracy  $R_{PE} \pm 200mA$** 

| Range         | Nennmass  | Mod.   | Anzeigewert      | Abweichung  | Toleranz    | Unc. U95 | Testergebnis  |
|---------------|-----------|--------|------------------|-------------|-------------|----------|---------------|
| [Range]       | [Nominal] | [Mod.] | [Actual reading] | [Deviation] | [Tolerance] | [k=2]    | [Test result] |
|               | [Ohm]     |        | [Ohm]            | [Ohm]       | ± [Ohm]     | ± [Ohm]  |               |
| 9.99 $\Omega$ | 1.10      |        | <b>1.10</b>      | 0.00        | 0.21        | 0.006    | Pass          |
| 9.99 $\Omega$ | 5.00      |        | <b>5.02</b>      | 0.02        | 0.60        | 0.012    | Pass          |
| 30 $\Omega$   | 10.0      |        | <b>10.0</b>      | 0.0         | 2.0         | 0.06     | Pass          |
| 30 $\Omega$   | 20.0      |        | <b>19.9</b>      | -0.1        | 3.0         | 0.07     | Pass          |

**Resistance Input Accuracy  $R_{PE} 10A$** 

| Range           | Nennmass  | Mod.   | Anzeigewert      | Abweichung  | Toleranz    | Unc. U95 | Testergebnis  |
|-----------------|-----------|--------|------------------|-------------|-------------|----------|---------------|
| [Range]         | [Nominal] | [Mod.] | [Actual reading] | [Deviation] | [Tolerance] | [k=2]    | [Test result] |
|                 | [mOhm]    |        | [mOhm]           | [mOhm]      | ± [mOhm]    | ± [mOhm] |               |
| * 999 $m\Omega$ | 54        |        | <b>66</b>        | 12          | 15          | 1.0      | Marginal      |
| * 999 $m\Omega$ | 110       |        | <b>121</b>       | 11          | 21          | 1.5      | Pass          |
| * 999 $m\Omega$ | 365       |        | <b>375</b>       | 10          | 46          | 3.8      | Pass          |

**Current Test Leakage  $I_{PE}$  (Ref Voltage L-PE 240V)**

| Range   | Nennmass    | Mod.   | Anzeigewert      | Abweichung  | Toleranz      | Unc. U95      | Testergebnis  |
|---------|-------------|--------|------------------|-------------|---------------|---------------|---------------|
| [Range] | [Nominal]   | [Mod.] | [Actual reading] | [Deviation] | [Tolerance]   | [k=2]         | [Test result] |
|         | [ $\mu A$ ] |        | [ $\mu A$ ]      | [ $\mu A$ ] | ± [ $\mu A$ ] | ± [ $\mu A$ ] |               |
|         | 100         | 50 Hz  | <b>101</b>       | 1           | 5             | 0.6           | Pass          |
|         | 900         | 50 Hz  | <b>908</b>       | 8           | 25            | 0.8           | Pass          |
|         | [mA]        |        | [mA]             | [mA]        | ± [mA]        | ± [mA]        |               |
|         | 2.50        | 50 Hz  | <b>2.51</b>      | 0.01        | 0.08          | 0.007         | Pass          |
|         | 6.00        | 50 Hz  | <b>6.04</b>      | 0.04        | 0.17          | 0.007         | Pass          |
|         | 9.00        | 50 Hz  | <b>9.11</b>      | 0.11        | 0.25          | 0.008         | Pass          |

**Voltage Test (V-COM)**

| Range   | Nennmass  | Mod.   | Anzeigewert      | Abweichung  | Toleranz    | Unc. U95 | Testergebnis  |
|---------|-----------|--------|------------------|-------------|-------------|----------|---------------|
| [Range] | [Nominal] | [Mod.] | [Actual reading] | [Deviation] | [Tolerance] | [k=2]    | [Test result] |
|         | [V]       |        | [V]              | [V]         | ± [V]       | ± [V]    |               |
| 100 V   | 50.0      | 50 Hz  | <b>49.9</b>      | -0.1        | 1.2         | 0.06     | Pass          |
| 300 V   | 230       | 50 Hz  | <b>230</b>       | 0           | 7           | 0.6      | Pass          |
| 300 V   | 230       | 400 Hz | <b>230</b>       | 0           | 7           | 0.6      | Pass          |
|         | [V]       |        | [V]              | [V]         | ± [V]       | ± [V]    |               |
| 100 V   | 50.0      |        | <b>49.9</b>      | -0.1        | 1.2         | 0.06     | Pass          |
| 300 V   | 230       |        | <b>230</b>       | 0           | 7           | 0.6      | Pass          |

**Kalibrierzertifikat**  
**Certificate of calibration****No.****CC175 185-E****Voltage Test (Probe Voltage)**

| <b>Range</b>   | <b>Nennmass</b>  | <b>Mod.</b>   | <b>Anzeigewert</b>      | <b>Abweichung</b>  | <b>Toleranz</b>    | <b>Unc. U95</b> | <b>Testergebnis</b>  |
|----------------|------------------|---------------|-------------------------|--------------------|--------------------|-----------------|----------------------|
| <i>[Range]</i> | <i>[Nominal]</i> | <i>[Mod.]</i> | <i>[Actual reading]</i> | <i>[Deviation]</i> | <i>[Tolerance]</i> | <i>[k=2]</i>    | <i>[Test result]</i> |
|                | [V]              |               | [V]                     | [V]                | ± [V]              | ± [V]           |                      |
| 100 V          | 50.0             | 50 Hz         | <b>50.0</b>             | 0.0                | 1.2                | 0.06            | Pass                 |
| 300 V          | 230              | 50 Hz         | <b>230</b>              | 0                  | 7                  | 0.6             | Pass                 |
|                | [V]              |               | [V]                     | [V]                | ± [V]              | ± [V]           |                      |
| 100 V          | 50.0             |               | <b>50.2</b>             | 0.2                | 1.2                | 0.06            | Pass                 |
| 300 V          | 230              |               | <b>230</b>              | 0                  | 7                  | 0.6             | Pass                 |