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Operating Manual

Resistance Measuring Unit R1/1880

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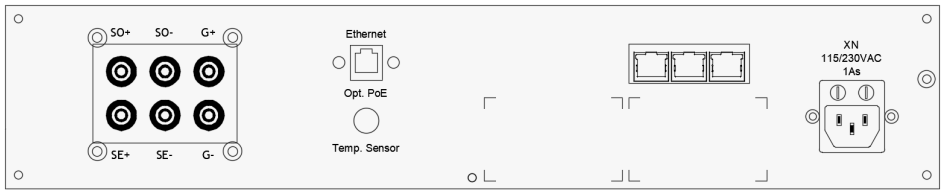

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Contents

1 Hardware Description

1.1 Device functions

The resistance measuring devices of the R1/1880 series are precision measuring devices and enable resistance measurements with high accuracy.
The devices are designed for use in automatic test systems. The devices are fully controlled using the convenient DAT3805 remote software via a connected PC. Manual operation of the devices is not intended.

Highlights:

- Regulated constant current source
- Resistance measurement 1 μΩ – 200 kΩ over 8 ranges
- 4-wire-measurement
- Guard technique available for enhanced precision
- WINDOWS surface DAT3805 for user-oriented operation

1.2 Design and functions

1.2.1 Front panel

Fig. 1: Front view R1/1880: Automatic device without controls, with power indicator light

1.2.2 Rear panel

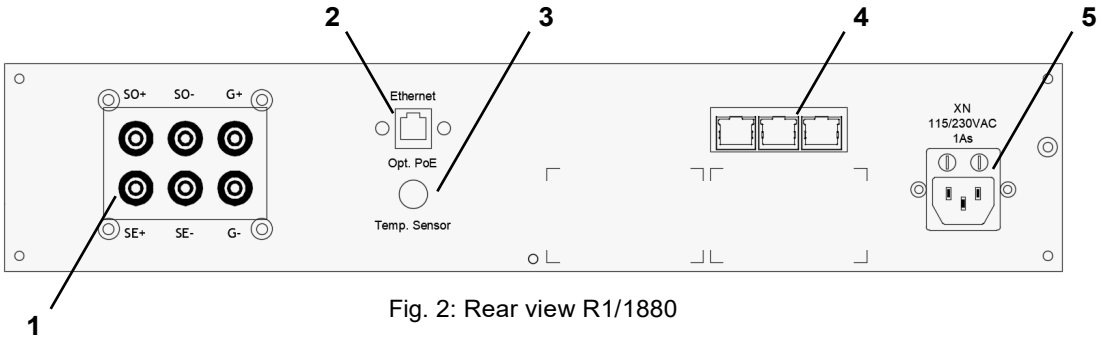


Fig. 2: Rear view R1/1880

1 Connection field for testing lines:
- SO^+/SO^- : connectors for current-carrying measuring lines (Source)
- SE^+/SE^- : connectors for voltage-return measuring lines (Sense)
- G^+ / G^- : connectors for guard lines **(optional)**

2 X1: Ethernet connector for connection of remote PC with DAT3805 Software

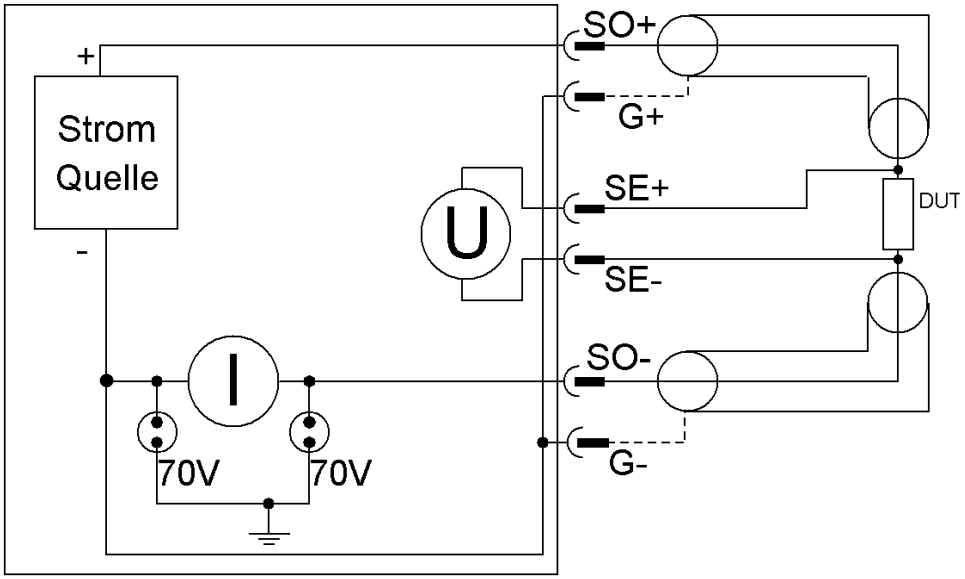
3 Connector for temperature sensor PT100

4 Switch: 3 additional Ethernet ports **(optional)**

5 XN: IEC socket for power cord, with fuses (115V: 4A / 230V: 2A , slow-fuses)

1.3 DUT Connection Schemes

1.3.1 Schematic representation of the connection assignment



SO⁺ / SO⁻ : Plus potential and minus potential of the current-carrying measuring lines.
For increased measurement accuracy, shielded measuring lines should be used!

G⁺ / G⁻ : (optional) For particularly precise measurements, the Guard technology can be used to divert fault currents on the measuring lines. For this purpose, the guard connections must be connected to the shield of the respective measuring line.

SE⁺ / SE⁻ : The sense lines and the voltage lines must be connected to the same connection point at the DUT. This is used to measure the voltage drop across the DUT, which is caused by the constant current source at the DUT.

2 Description of the Software

**See operating manual "Remote Software DAT3805"
resp. present custom System Software.**

Annex

A Technical Data

Measurements and weights	
Width / depth / height	ca. 480 / 426 / 89 mm (19" / 2 HU)
weight	ca. 80 N (8.0 kg)

Ambient	
temperature	operation: 15 °C – 40 °C (allowed for general operation) storage: 5 °C – 60 °C
Air humidity	max. 70 % (non-condensing) (allowed for general operation)
ambient conditions to comply with the stated technical specifications	23 °C (± 5 °C) and max. 50% relative air humidity (not condensing)

Connection data	
Power supply	Wide range 90 - 253 VAC / 50/60 Hz
Mains fuse	2 x 2 At (slow)
Power input	max. 25 VA

Resistance Measuring Test Values			
Measuring range	**Resolution**	**Meas.current low**	**Meas.current high**
20.000 mΩ	1 µΩ	1 A	1 A
200.00 mΩ	10 µΩ	100 mA	1 A
2.0000 Ω	100 µΩ	10 mA	1 A
20.000 Ω	1 mΩ	10 mA	100 mA
200.00 Ω	10 mΩ	1 mA	10 mA
2.0000 kΩ	100 mΩ	100 µA	1 mA
20.000 kΩ	1 Ω	100 µA	100 µA
200.00 kΩ	10 Ω	10 µA	10 µA

Accuracy:

20 mΩ – 20 kΩ: ± 0.03% (of meas. range) ± 3 Digit
200 kΩ: ± 0.5% (of meas. range) ± 3 Digit

Device Options	
Switch	3 additional Ethernet connectors on back panel
PoE	Power over Ethernet function on Ethernet connector (only with option Switch)
Guard	Additional guard connectors for connection of shielded wires

EU-Konformitätserklärung
EU Declaration of Conformity

Wir / *we* :

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erklären hiermit, dass das nachfolgend genannte Gerät den einschlägigen grundlegenden Sicherheitsforderungen der EU-Richtlinien entspricht.

declare, that the following unit complies with all essential safety requirements of the EU Directives.

Geräteart: *Description of device:*	Widerstandsmessgerät *Resistance measuring device*
Typ / *Type* :	R1/1880

EU Richtlinien / *EU Directives:*

☐ EG Maschinenrichtlinie 2006/42/EG mit Änderungen
EC Directive for machinery 2006/42/EC with amendments

☒ EU Niederspannungsrichtlinie 2014/35/EU
EU Directive for low voltage 2014/35/EU

☒ EU Richtlinie Elektromagnetische Verträglichkeit 2014/30/EU mit Änderungen
EU Directive electromagnetic compatibility 2014/30/EU with amendments

Angewandte harmonisierte Normen:
Applicable harmonized standards:

- EN 61 000-3-2; EN 61 000-3-3; EN 61 326; EN 50 191

Angewandte nationale Normen und technische Spezifikationen:
Applicable national standards and technical specifications:

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19.07.2021
Datum / date:

ppa. Dipl. Ing. Stefan Ruhl

Dieser Konformitätserklärung unterliegt grundsätzlich nur das von uns gelieferte oder in Betrieb genommene Gerät.
Für Änderungen und Erweiterungen ist der Betreiber verantwortlich und damit für die Sicherstellung der Übereinstimmung der veränderten Anlage mit der betreffenden EU-Richtlinie.

Subject to this declaration of conformity is the device as supplied or placed into operation by us.
The operator is responsible for subsequent alterations and extensions, and therefore has to ensure the altered unit complies with the corresponding EU directives.