The locating current injector RR 5886 in connection with the insulation fault locator RR 5887 monitors and localises insulation faults in complex AC/DC networks (IT systems). The external current transformers work independently of each other. They are simply connected to the measuring channels of the insulation fault locator RR 5887 and are calibrated by it. The number of measuring channels is increased by combining several insulation fault locators via a RS-485 bus connection. The search for insulation faults in extensive networks can be refined in this manner. Two different alarm levels facilitate the timely detection of a dangerous insulation state. The devices are operated easily and intuitively thanks to automatic balancing and a clear layout of the setting elements. The early detection and localisation of insulation faults permits their quick and targeted correction. As user you will benefit from the operating reliability and high availability of your system.

Your Advantages
- Quick correction of insulation faults in complex power networks
- Universal auxiliary voltage range
- Easy operation

Features
- Insulation troubleshooting in AC, DC and AC/DC networks (IT systems) in connection with the locating current injector RR 5886 according to DIN EN 61557-9 (VDE 0413-9):2009 and DIN EN 61557-1 (VDE 0413-1)
- Insulation coordination according to IEC 60664-1
- Connection of max. 4 or 8 current transformers depending on the design
- RS-485 bus connection to synchronise the test current analysis and optionally for the connection to the Modbus RTU field bus
- Status output of insulation fault detection via external switching output
- Memory characteristics adjustable via bridge X1-X2
- Collective signalling relay to output preliminary warning and alarm states
- Pushbutton for manual reset of alarm states as well as testing of current transformers and their calibration
- Terminal connection for the storage of alarm states
- Width: 105 mm

Product Description
The locating current injector RR 5886 in connection with the insulation fault locator RR 5887 monitors and localises insulation faults in complex AC/DC networks (IT systems). The external current transformers work independently of each other. They are simply connected to the measuring channels of the insulation fault locator RR 5887 and are calibrated by it. The number of measuring channels is increased by combining several insulation fault locators via a RS-485 bus connection. The search for insulation faults in extensive networks can be refined in this manner. Two different alarm levels facilitate the timely detection of a dangerous insulation state. The devices are operated easily and intuitively thanks to automatic balancing and a clear layout of the setting elements. The early detection and localisation of insulation faults permits their quick and targeted correction.

Function Diagram

Connection Terminals

<table>
<thead>
<tr>
<th>Terminal designation</th>
<th>Signal description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1, A2</td>
<td>Auxiliary voltage AC or DC</td>
</tr>
<tr>
<td>K1..K4, I1..I4</td>
<td>Current transformer meas. channel</td>
</tr>
<tr>
<td>SH, GND, Rb, B, A, Ra</td>
<td>RS-485 Bus (galvanic separation)</td>
</tr>
<tr>
<td>X1, X2</td>
<td>Switching input</td>
</tr>
<tr>
<td>G, H</td>
<td>Status switch output</td>
</tr>
<tr>
<td>N1, N2, N3, N4</td>
<td>Insulation fault detection</td>
</tr>
<tr>
<td>11, 12, 14</td>
<td>Indicator relay prewarning (changeover contact)</td>
</tr>
<tr>
<td>21, 22, 24</td>
<td>Indicator relay alarm (changeover contact)</td>
</tr>
</tbody>
</table>
Switching input

The device is equipped with a switching input (terminals X1, X2), which can be furnished either with a simple wire bridge or selected actively as digital control input from an external device with max. 24 V DC. The input is low-active, i.e. when applying a low-level, the function "ALARM MEMORY" is active, otherwise it is inactive.

If the function is active, no prewarning/alarm states are reset following an insulation fault locating cycle. A reset takes place only after pushing the "Alarm reset / Test / Transformer calibration" button for at least 3 sec. Only the prewarning / alarm states are stored. The residual current values transmitted via Modbus are always up-to-date.

<table>
<thead>
<tr>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Influence of discharge capacities</strong></td>
</tr>
<tr>
<td>The insulation fault locator is also able to perform reliable measurements under the influence of discharge capacities up to a certain size. The influence of discharge capacities depends on the insulation resistance and the mains voltage. Reliable detection of insulation resistance is ensured up to a discharge capacity of 1 µF. The lower the mains voltage, the greater the permissible discharge capacity may be. For example, with mains voltages of 50 V, 20 µF and more can also be processed without problem.</td>
</tr>
</tbody>
</table>

Insulation fault detection is no longer possible if the influence of the discharge capacities becomes too great. The measuring result may become poorer, in addition, when the discharge capacities are distributed unevenly in the network. However, the symmetry relationships of the insulation fault resistances themselves do not affect the quality of the measurement.

**Attention:**

If insulation faults are present between several conductors and PE, mains compensation currents flow through the insulation fault resistances overlaying the actual insulation fault currents. The measured insulation fault current can be reduced by half here in the extreme case.

If several insulation faults occur simultaneously in a network, the test current is divided among the individual fault branches. Depending on the fault resistance, it may happen that the maximum test current is not sufficient to address all detectors. To prevent such insulation faults from remaining undetected, it is recommended to position a current transformer in the main branch of the monitored network, which reliably detects the overall insulation fault (see connection diagram).

Common operation of insulation monitor and insulation fault location system

Insulation monitoring and insulation fault location are often used in addition (s. connection example). As a rule, an insulation monitor detects an insulation fault and then controls an insulation fault location system that locates the fault. During localization, the insulation monitor should temporarily stop his monitoring activity in order to avoid mutual interference between the insulation monitoring device and the localization system.

Current transformer calibration

Current transformer calibration is performed after switching on the device or after pushing the "Alarm reset / Test / Transformer calibration" pushbutton to compensate tolerances of the magnetic material of the current transformers and the resulting differences of the magnetic amplification.

Insulation fault measurement in AC/DC networks

If an alternating current network, containing a downstream rectifier, is monitored, insulation fault detection can also be performed in the direct voltage circuit if the discharge capacities in this circuit are not too high. Because fault detection can be performed simultaneously in two different network forms – alternating current network and direct current network – the indications displayed for prewarning and alarm are quantitatively valid only for the network form set with the rotary switch. The network form set will deliver results deviating by the factor 2. However, they can still be analysed in terms of their tendency, i.e. a potential insulation fault is still indicated.

Insulation fault current display

The locating current injector takes the power for the test current from the monitored network itself. Insulation fault current measurements are nearly identical both for AC and DC networks. However, a difference in the level of the test current is obtained through the network form itself. With AC networks, the test current is only half the value as with DC networks. With 3AC networks, the factor is 0.67. These differences are taken into account when determining the level of the insulation fault current and with the display of the alarm values.
Indication of alarm states

The display of an alarm state as well as the response of the corresponding common alarm signalling relay act at least for the duration of a measuring cycle (12 sec). The alarm state is cancelled again when the respective threshold of the insulation fault current, under consideration of a defined hysteresis, is fallen below again.

The switching terminal "ALARM MEMORY" must be equipped if the alarm state shall persist permanently.

The response threshold for the insulation fault current does not depend on the network form chosen.

Prewarning

Response threshold: 1 mA
Indication: Yellow LED continuously on
Common alarm relay: Collective signalling relay "Prewarning" responds
Hysteresis for return: 0.1 mA
Duration of the alarm state: Until response threshold if fallen below

Alarm

Response threshold: 5 mA
Indication: Red LED continuously on
Common alarm relay: Collective signalling relay "Alarm" responds
Hysteresis for return: 0.5 mA
Duration of the alarm state: Until response threshold if fallen below

No insulation faults present

Indication: The yellow LED briefly (200 ms) lights after the measuring cycle has been completed

Display of current transformer faults

The insulation fault locator does not feature any control elements for setting the completion of current transformers. For this reason, the device must detect the presence of transformers independently. This happens together with the transformer calibration after switching on the device or after pushing the "Alarm Rest/ Test/ Transformer calibration" button.

The device can detect both, a transformer short circuit and a broken supply line (open transformer contact) individually for each channel.

The check for transformer faults is cyclically repeated after an insulation fault measurement has been completed allowing a transformer fault to be detected also under ongoing operation.

Short circuit at current transformer

Indication: Red LED flashes
Duration of indication: Until the short circuit is resolved

Indication detected/interrupted current transformer

Indication: Yellow LED flashes
Duration of indication: Until current transformer test is completed or open current transformer connection is closed again

Indication of invalid insulation fault measurements

If the value determined for the insulation fault current is invalid, e.g. because of excessive discharge capacities, or the direction of line routing through the current transformer is wrong, this condition is also indicated.

Indication: Yellow LED flashes
Duration of indication: Until a valid measured value is determined again or the line direction through the transformer was turned around

Modbus RTU

For communication between motor controller and a supervising control the Modbus RTU protocol according to Specification V 1.1b3 is used.

<table>
<thead>
<tr>
<th>Address/Baud rate setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pos. Potentiom. ADR 10x</td>
</tr>
<tr>
<td>Adress Modbus RTU</td>
</tr>
<tr>
<td>Pos. Potentiom. BAUD</td>
</tr>
<tr>
<td>Baud rate</td>
</tr>
</tbody>
</table>

The device address and baudrate are only read once after application of the auxiliary voltage.

Bus Interface

<table>
<thead>
<tr>
<th>Protocol</th>
<th>Modbus Seriell RTU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adress</td>
<td>100 bis 109</td>
</tr>
<tr>
<td>Baud rate</td>
<td>1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200</td>
</tr>
<tr>
<td>Data bit</td>
<td>8</td>
</tr>
<tr>
<td>Stop bit</td>
<td>2</td>
</tr>
<tr>
<td>Parity</td>
<td>None</td>
</tr>
</tbody>
</table>

More information about the interface, wiring rules, device identification and communication monitoring can be found in the Modbus user manual.

Function-Codes

At RR 5887 the following function codes are implemented:

<table>
<thead>
<tr>
<th>Function-Code</th>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0x04</td>
<td>Read Input Register</td>
<td>Device state / read current transformer state and insulation fault currents</td>
</tr>
</tbody>
</table>
### Indication of alarm- and function states

#### Summary: Indication of alarm- and function states

<table>
<thead>
<tr>
<th>Operation</th>
<th>State of transducer</th>
<th>Insulation failure current Ifs</th>
<th>Indication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring operation</td>
<td>Transducer connection ok</td>
<td>Prewarning: Ifs &gt; 1 mA</td>
<td>Yellow LED continuously on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Alarm: Ifs &gt; 5 mA</td>
<td>Red LED continuously on</td>
</tr>
<tr>
<td></td>
<td></td>
<td>No Insulation failure: Ifs &lt; 1 mA</td>
<td>Yellow LED briefly lights at the end of the measuring cycle</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Measurement value invalid</td>
<td>Yellow LED flashes</td>
</tr>
<tr>
<td></td>
<td>Short circuit at transducer</td>
<td></td>
<td>Red LED flashes</td>
</tr>
<tr>
<td></td>
<td>Breaking at transducer</td>
<td></td>
<td>Yellow LED flashes</td>
</tr>
<tr>
<td></td>
<td>Transducer not connected</td>
<td></td>
<td>No indication</td>
</tr>
<tr>
<td>Transducer Test / calibration</td>
<td>Transducer short circuit</td>
<td></td>
<td>Red LED flashes</td>
</tr>
<tr>
<td></td>
<td>Transducer detected</td>
<td></td>
<td>Yellow LED flashes</td>
</tr>
</tbody>
</table>

### Technical Data

#### Auxiliary voltage

- **Measured nominal voltage** $U_{meas}$: AC/DC 24 ... 80 V; AC/DC 85 ... 230 V
- **Operating voltage** $U_e$: AC/DC 21 ... 88 V; AC 77 ... 265 V, DC 77 ... 290 V
- **Frequency range**: DC or AC 45 ... 400 Hz
- **Nominal consumption**: DC max. 3 W; AC max. 3.5 VA

#### Monitored network

- **Operating voltage** $U_{op}$: DC / AC / 3AC 21 ... 500 V
- **Measured nominal voltage** $U_{meas}$: DC / AC / 3AC 24 ... 455 V
- **Frequency range**: AC / 3AC 40 ... 60 Hz
- **Rated current range for insulation test currents**: 1 ... 5 mA
- **Maximum test current output**: 6.5 mA
- **Response sensitivity**: 0.4 mA
- **Response time**: 15 s
- **Measuring accuracy**: ± 10 %
- **Bus (galvanic separation)**: RS-485

#### Current transformer

- **Terminals**: K1, I1 ... K4, I4
- **Residual Current Transformer**: ND 5017
- **Burden**: 180 Ω
- **Rated voltage**: 500 V
- **Rated frequency**: 40 ... 60 Hz
- **Response sensitivity**: 0.2 mA
- **Measuring range**: 0.5 ... 10 mA
- **Number of measuring channel**: 4

#### Switching input

- **Terminals**: X1, X2
- **Configuration (passive)**: Bridge set / input low resistance
- **Configuration (active)**: Input open / input high-resistance

#### Switching output

- **Terminals**: H(+), G(−)
- **Switching output (passive)**: Transistor outputs
- **Insulat. fault detection active**: Output low resistance (minimal 220 Ω via PTC)
- **Insulat. fault detection inactive**: Output high resistance
- **Switching voltage max.**: 24 V
- **Switching current max. (24 V)**: 10 mA

#### RS-485 Bus

- **Terminals**: SH, ⊥, Rb, B, A, Ra
- **Bus**: Galvanic separation
- **Transmission medium**: Twisted, shielded two-wire line (SH)
- **Network termination**: Bus termination via bridges Rb, B and Ra, A
Connection alarm signalling relay

Output: 2 changeover contacts
Contact material: AgNi + 0.3 µm Au
Limiting continuous current (I_{max}): 2 x 5 A
Switching capacity to AC 15
NO contact: 3 A / AC 230V IEC/EN 60947-5-1
NC contact: 1 A / AC 230V IEC/EN 60947-5-1
Electrical life to AC 15
At 3 A, AC 230V: 2 x 10⁸ switching cycl. IEC/EN 60947-5-1
Short circuit strength max. fuse rating: 6 A gG / gl IEC/EN 60947-5-1
Mechanical life: > 20 x 10⁸ switching cycles

Terminal designation relay:

Prewarning: Alarm:

M11062

General Data

Nominal operating mode: Continuous operation
Temperature range:
Operation: - 20 ... + 60 °C
Storage: - 25 ... + 60 °C
Relative air humidity: 93 % at 40 °C
Altitude: ≤ 2000 m
Clearance and creepage distance
Rated impulse voltage / pollution degree: 4 kV / 2 IEC 60664-1
EMC
Electro static discharge (ESD): 8 kV (air) IEC/EN 61000-4-2
HF irradiation 80 MHz ... 2.7 GHz: 10 V / m IEC/EN 61000-4-3
Fast transients: 2 kV IEC/EN 61000-4-4
Surge voltage between wires for power supply: 2 kV IEC/EN 61000-4-5
Between wire and ground: 4 kV IEC/EN 61000-4-5
HF-wire guided: 10 V IEC/EN 61000-4-6
Interference suppression: Limit value class B EN 55011
Degree of protection
Housing: IP 40 IEC/EN 60529
Terminals: IP 20 IEC/EN 60529
Housing: Thermoplastic with VO behaviour acc. to UL subject 94
Vibration resistance: Amplitude 0.35 mm Frequenz 10 ... 55 Hz, IEC/EN 60068-2-6
Climate resistance: 20 / 060 / 04
Terminal designation: EN 50005
Wire connection DIN 46228-1/-2/-3/-4
Fixed screw terminals
Cross section: 0.2 ... 1.5 mm² (AWG 24 - 16) solid or 0.2 ... 1.5 mm² (AWG 24 - 16) stranded wire with ferrules
Stripping length: 7 mm
Fixing torque: 0.4 Nm
Mounting: DIN-rail IEC/EN 60715
Weight: Approx. 225 g

Dimensions
Width x height x depth: 105 x 90 x 71 mm

Technical Data

Output: AC/DC 24 ... 240 V
Limiting continuous current (I_{max}): 2 x 5 A
Switching capacity to AC 15
NO contact: 3 A / AC 230V IEC/EN 60947-5-1
NC contact: 1 A / AC 230V IEC/EN 60947-5-1
Electrical life to AC 15
At 3 A, AC 230V: 2 x 10⁸ switching cycl. IEC/EN 60947-5-1
Short circuit strength max. fuse rating: 6 A gG / gl IEC/EN 60947-5-1
Mechanical life: > 20 x 10⁸ switching cycles

Terminal designation relay:

Prewarning: Alarm:

M11062

Standard Type

RR 5887.12 AC/DC 85 ... 265 V
Article number: 0068221
• Auxiliary voltage: AC/DC 85 ... 230 V
• Rated current for insul. test: 5 mA
• Maximum test current output: 6.5 mA
• Response sensitivity: 0.4 mA
• Prewarning
(Hysteresis: 0.1 mA): 1.0 mA
• Alarm (Hysteresis: 0.5 mA): 5.0 mA
• Width: 105 mm

Variant

RR 5887.12/010 AC/DC 85 ... 265 V
Article number: 0067891
• Auxiliary voltage: AC/DC 85 ... 230 V
• Rated current for insul. test: 1.0 mA
• Maximum test current output: 1.0 mA
• Response sensitivity: 0.3 mA
• Prewarning
(Hysteresis: 0.1 mA): 0.5 mA
• Alarm (Hysteresis: 0.1 mA): 1.0 mA
• Width: 105 mm

Ordering example

RR 5887 12 / 0 AC/DC 85 ... 230 V
Auxiliary voltage
Number of measuring channels:
0: 4-channel
1: 8-channel
0: Industrial plants
1: Rooms for medical purposes
Contacts
Type
Parameter table

Every slave owns an output-configuration- and actual value table. In these tables it is defined under which address the parameters can be found.

**Input Register (Device state / process data):**

<table>
<thead>
<tr>
<th>Register-Adresse</th>
<th>Protocol-Adresse</th>
<th>Name</th>
<th>Value range</th>
<th>Description</th>
<th>Data type</th>
<th>Access rights</th>
</tr>
</thead>
<tbody>
<tr>
<td>30001</td>
<td>0</td>
<td>State Insulation fault detection</td>
<td>0 … 1</td>
<td>0: Insulation fault detect. inactive. 1: Insulation fault detect. done / insulation fault currents valid</td>
<td>UINT16</td>
<td>Read</td>
</tr>
<tr>
<td>30002</td>
<td>1</td>
<td>No. of channels</td>
<td>4 … 8</td>
<td>0x0004: 4-channel variant 0x0008: 8-channel variant</td>
<td>UINT16</td>
<td>Read</td>
</tr>
<tr>
<td>30003</td>
<td>2</td>
<td>Max. insulation fault</td>
<td>1 … 5</td>
<td>Max. insul. fault in mA</td>
<td>UINT16</td>
<td>Read</td>
</tr>
<tr>
<td>30004</td>
<td>3</td>
<td>Network form</td>
<td>0 … 2</td>
<td>0x0000: DC 0x0001: AC 0x0002: 3AC</td>
<td>UINT16</td>
<td>Read</td>
</tr>
<tr>
<td>30005 ... 30008</td>
<td>0x0004 ... 0x0007</td>
<td>State Current transformer 1 ... 4</td>
<td>0x00000 ... 0x20FF</td>
<td>MSB: Transformer not connected 0x01: Transformer connected 0x02: Prewarning 0x04: Alarm 0x10: Short circuit 0x20: State of transform. unknown/faulty. LSB: Insul. fault current x 0.1 mA (0xFF: Invalid meas. value)</td>
<td>UINT16</td>
<td>Read</td>
</tr>
<tr>
<td>30009 ... 30012</td>
<td>0x0008 ... 0x000B</td>
<td>State Current transformer 5 ... 8</td>
<td>0x00000 ... 0x20FF</td>
<td>MSB: Transformer not connected 0x01: Transformer connected 0x02: Prewarning 0x04: Alarm 0x10: Short circuit 0x20: State of transform. unknown/faulty. LSB: Insul. fault current x 0.1 mA (0xFF: Invalid meas. value)</td>
<td>UINT16</td>
<td>Read</td>
</tr>
<tr>
<td>30013</td>
<td>0x000C</td>
<td>Alarm memory</td>
<td>0x00000 ... 0xFFFF</td>
<td>MSB: Bit 7 ... 0 Alarm occured in current transformer 8 ... 1. LSB: Bit 7 ... 0 prewarning occured in current transformer 8 ... 1</td>
<td>UINT16</td>
<td>Read</td>
</tr>
</tbody>
</table>

*) The stored alarm states remain until reset by the alarm push button.
Insulation fault detection in AC / DC / 3AC IT networks in connection with the locating current injector RR 5886

- External selection via an insulation monitoring device possible

**System overview**

**Insulation fault without external Modbus-Master (stand-alone system)**

**Insulation fault with external Modbus-Master**

**Example for Modbus setting:**

<table>
<thead>
<tr>
<th>Device</th>
<th>Adresse-Potentiometer</th>
<th>Potentiometer position</th>
<th>Modbus Adress</th>
</tr>
</thead>
<tbody>
<tr>
<td>RR 5886</td>
<td>ADR 101 – 109</td>
<td>Master</td>
<td></td>
</tr>
<tr>
<td>RR 5887/1</td>
<td>ADR 100 – 109</td>
<td>0 (optional)</td>
<td></td>
</tr>
<tr>
<td>RR 5887/2</td>
<td>ADR 100 – 109</td>
<td>0 (optional)</td>
<td></td>
</tr>
<tr>
<td>…</td>
<td>ADR 100 – 109</td>
<td>0 (optional)</td>
<td></td>
</tr>
</tbody>
</table>

**Example for Modbus setting:**

<table>
<thead>
<tr>
<th>Device</th>
<th>Adresse-Potentiometer</th>
<th>Potentiometer position</th>
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</tr>
</thead>
<tbody>
<tr>
<td>RR 5886</td>
<td>ADR 101 – 109</td>
<td>1</td>
<td>101</td>
</tr>
<tr>
<td>RR 5887/1</td>
<td>ADR 100 – 109</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>RR 5887/2</td>
<td>ADR 100 – 109</td>
<td>2</td>
<td>102</td>
</tr>
<tr>
<td>…</td>
<td>ADR 100 – 109</td>
<td>…</td>
<td>…</td>
</tr>
</tbody>
</table>
• The Residual Current Transformer ND 5017/024 is designed for DIN rail mounting or screw-type mounting
• Mounting on the top-hat rail may be done horizontally or vertically

### Technical Data

- **Rated voltage:** 500 V
- **Rated nominal voltage:** 1 A
- **Rated transformation ratio:** 1 : 3000
- **Burden:** 180 Ω
- **Temperature range:** -20 ... +60 °C
- **Rated impulse voltage / pollution degree:** 4 kV / 3
- **Housing:** Thermoplastic with VO behaviour acc. to UL subject 94
- **Vibration resistance:** Amplitude 0.35 mm frequency 10 ... 55 Hz, IEC/EN 60068-2-6
- **Climate resistance:** 20 / 060 / 04
- **Wire connection**
  - Single wire: Up to 1 m
  - ≥ 0.75 mm² twisted: Up to 10 m
  - Cable shield ≥ 0.5 mm²: Up to 25 m
  - (Shield on one side on I-conductor and not to be earthed)
- **DIN rail mounting**
  - Integrated clips for vertical and horizontal mounting
- **Screw fixing:** M3 or M4
- **Fixing torque:** Max. 0.8 Nm
- **Weight:** 97 g

### For DIN rail mounting or screw mounting

<table>
<thead>
<tr>
<th>Dimensions/mm</th>
<th>ND 5017/070</th>
<th>oD</th>
<th>L</th>
<th>H</th>
<th>H1</th>
<th>B</th>
<th>C</th>
<th>F</th>
<th>k</th>
<th>E</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Approx. 315</td>
<td>70</td>
<td>111</td>
<td>110</td>
<td>115</td>
<td>32</td>
<td>37</td>
<td>55</td>
<td>4.2</td>
<td>50*</td>
<td>74*</td>
</tr>
</tbody>
</table>

* Drill tolerance for screw mounting: ±0.5 mm

### Mounting instructions for screw mounting

High forces when mounting may damage the current transformer fixtures. The fixing clips are designed to support the current transformer. Forces that are applied by the cable running through the current transformer can only be tolerated within limitations. During installation and afterwards please make sure that the wires are led through the current transformer without applying pressure and remain stable in that position.
Accessories
Residual Current Transformer ND 5017/120

Technical Data

Ambient temperature: -40 ... +80 °C / 233 K ... 353 K
Inflammability class: V0 according to UL94

Insulation coordination according to IEC 61869-1

- Rated primary current: 1 A
- Rated impulse voltage: 3 kV
- Rated impulse voltage / pollution degree: 8 kV / 3
- Rated transformation ratio: 3000 / 1
-Burden: 200 ... 220 Ω
Inductance: 310 H

Wire connection

- Wire cross section: 0.2 ... 2.5 mm² rigid / 0.2 ... 2.5 mm² flexible / AWG 24 ... 12
- Single wires: Up to 1 m
- Single wires twisted: Up to 10 m
- Shield cable ≥ 0.5 mm²: Up to 25 m

(Shield connected to I-conductor on one side and not grounded)

- Stripping length: 6 mm
- Wire fixing: Terminals with spring connection and direct (Push in) technology
- Actuating force: 40 N max.

Mounting

- DIN rail mounting: Vertical and horizontal mounting on enclosed socket
- ND 5017/120: Screw fastening also possible
- Weight: Approx. 570 g

Note for accessories

The listed current transformers are only approved for operation with this unit.
Insulation monitoring and insulation fault detection with 4 connected current transformers in a AC (DC) - network with subdistribution - insulation fault detection can be controlled by the insulation monitor /LK 5895); bus termination of the first and last device on the RS-485 bus.
Insulation monitoring and insulation fault detection with 4 connected current transformers in a AC (DC) - network with subdistribution - insulation fault detection can be controlled by the insulation monitor /LK 5896); bus termination of the first and last device on the RS-485 bus.

Connection Example
Insulation monitoring and insulation fault detection with 4 connected current transformers in a DC/AC network with subdistribution - insulation fault detection can be controlled by the insulation monitor (RN 5897/010); bus termination of the first and last device on the RS-485 bus.
Modbus control insulation fault detection with external bus master

Connection Example

Modbus RTU Master

RR5886

RR5887

LK5896

RF: Insulation failures resistance

Fuse U and Power coupling 6A

L1/(+)

L2/(-)

L1

N

RS-485

Modbus RTU Master