

Residual current socket 30mA

Order No.: 0477 ..

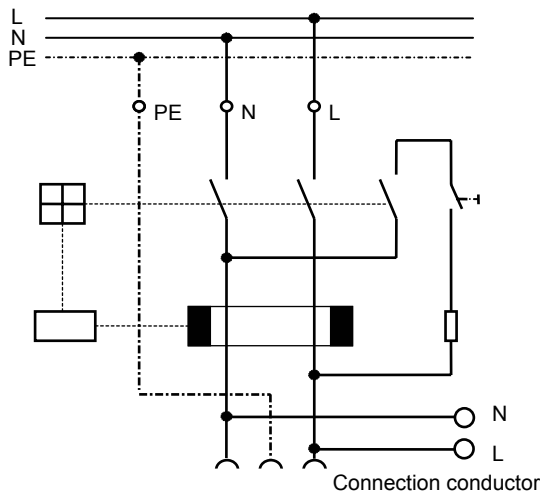
1. Operating description

The operating principle of the residual current socket is identical to that of the residual current device. In a fault-free installation, in which no current is leaking to earth, the currents flowing to and back from cancel each other out in the core balance transformer and no tripping occurs.

However, should a partial current leak to earth due to a fault, the current flowing back from the load will be lower than that flowing to it. This difference in current will trip the leakage current socket within a maximum of 30 ms.

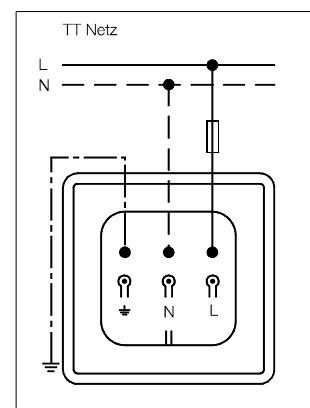
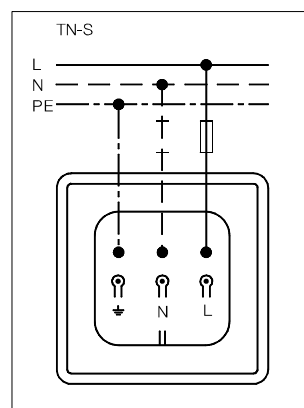
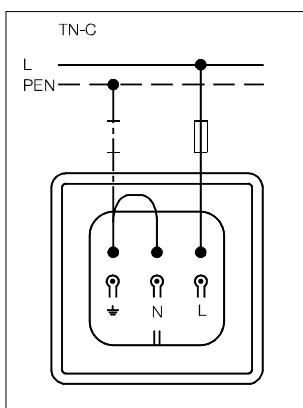
Leakage current protection refers to all appliances and cables, which have an attached FI-protection socket or its connection conductor. However, protection does not extend to the electrical installation upstream of the socket.

2. Circuit diagram



N.B.:
The protective measures of VDE 0100 must also be observed when using the residual current socket.

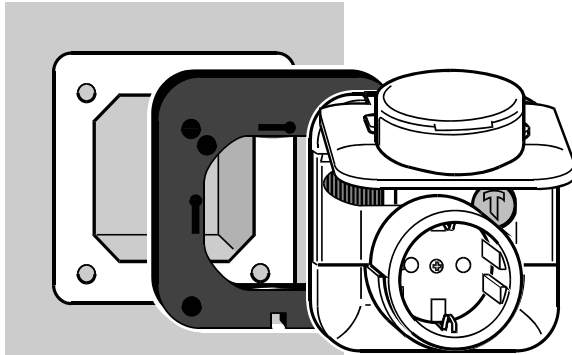
3. Connection diagram



4. Installation

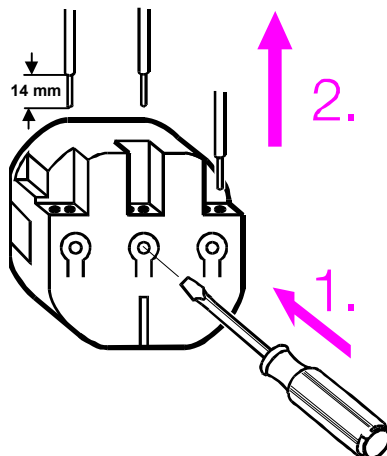
The residual current socket is mounted in a commercially-available sunken patress box with screws.

N.B.: Only a qualified electrician may install the residual current socket. The current installation instruction must be observed on installation.



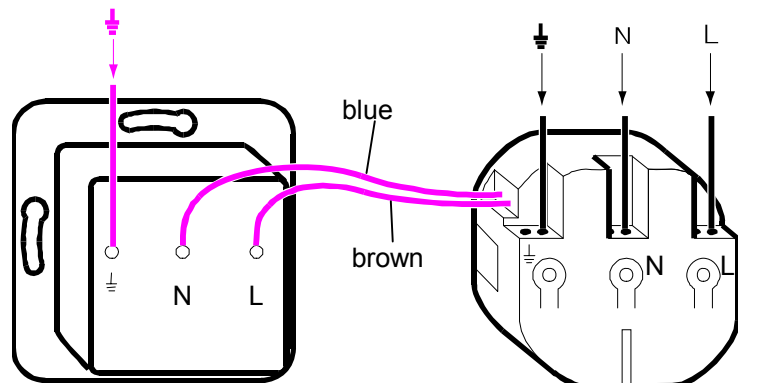
For the fm-water-protected model (IP 44), a rubber seal is placed between the FI-protection socket and the wall.

5. Push-in terminals



Press the lug to release the connecting leads.

6. Connection conductor



normal sealed contact socket

Residual current socket

Additional normal sealed contact sockets, which are then protected against leakage current, can be attached to FI-protected connection conductor.

7. Operating test

The operation of the residual current socket must be tested after installation. When the residual current socket is live and switched on („I“) it must trip when the test button („Test“) is pressed. This test should be carried out at least once per month, to guarantee perfect operation of the residual current socket in the case of a fault. The residual current socket must also be tested for perfect operation with a suitable test unit.

Equipment which trips the residual current socket during operation is faulty and must be inspected / repaired by an electrician.

The residual current socket itself must not be repaired.

8. Testing the protective provisions

Apart from operation, the effectiveness of the protective measure under the valid installation rules must be checked. The highest permissible earthing resistances are as follows for protection from indirect contact:

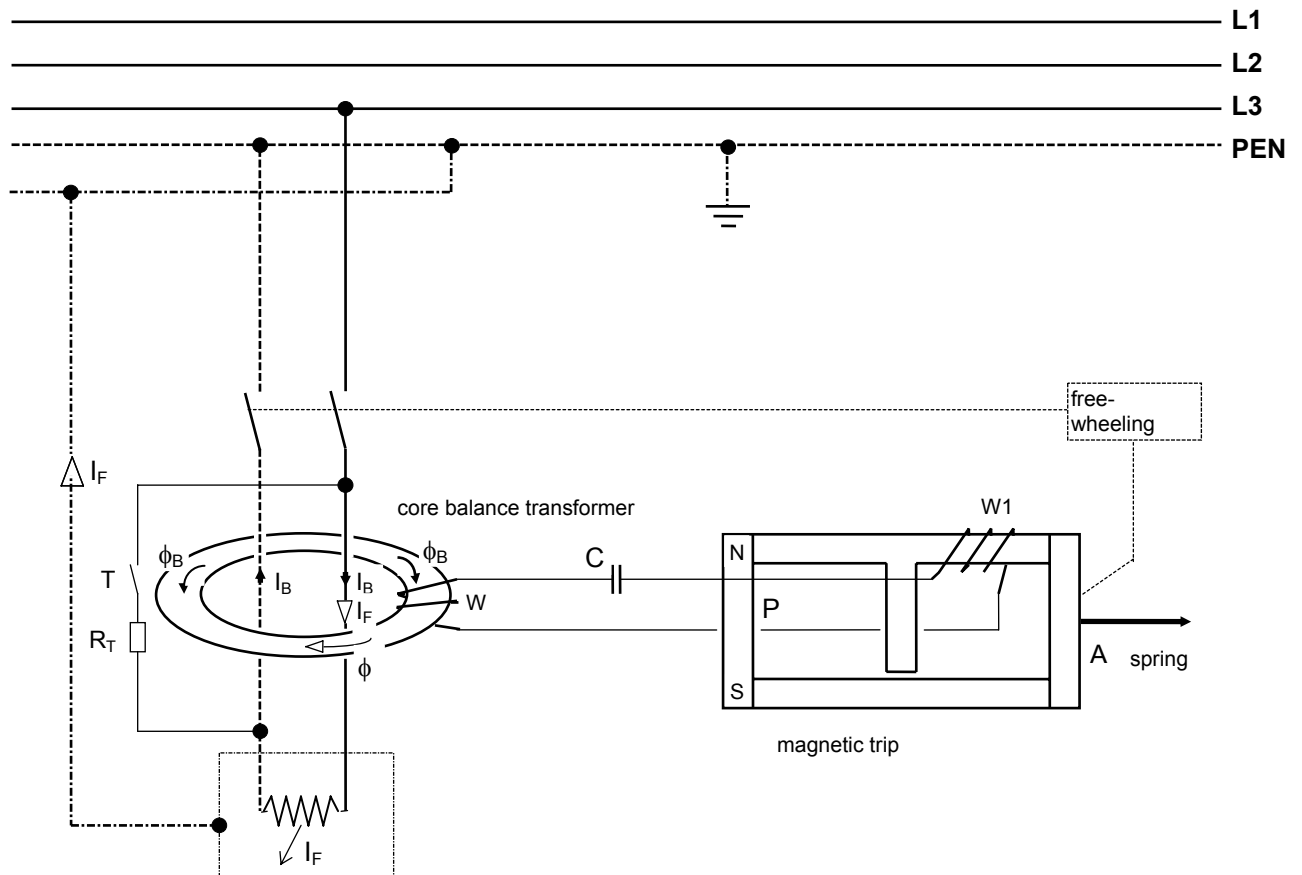
Highest permissible touch potential	Highest permissible earthing resistance at rated fault current
	30 mA
25 V	833 Ω
50 V	1.666 Ω

9. Technical data

Rated voltage:	230 V / 50 Hz
Rated current:	16 A
Rated fault current:	30 mA
Conductor size:	1,5 - 2,5 mm ²
VDE test under	DIN VDE 0664
Ambient temperature:	- 25 °C ... + 40 °C

10. Theoretical method of operation of a residual current device on AC and pulsating DC current

The operating current I_B flowing to and back from the loads generates two magnetic field ϕ_B in the core balance transformer. These fields are reciprocally rectified and therefore cancel each other out.



In the case of a fault, i.e. if a fault current I_F leaks to earth, and additional magnetic field ϕ_F is generated, inducing an AC current in the trip winding W of the core balance transformer which is fed to the magnetic trip.

The force of permanent magnet P retains the armature A of the magnetic trip. If winding $W1$ is excited by the AC voltage from the core balance transformer, an electro-magnetic field forms which acts against the field of the permanent magnet, weakening it. The armature spring is now strong enough to pull the armature away from the permanent magnet. The energy of the falling armature trips the residual current device.

In the case of pulsating DC fault currents, which change their magnitude but not their direction, the energy emitted by the trip winding W is considerably lower. The electromagnetic field generated by the current in winding $W1$ is thus usually too weak to override the permanent magnetic field and make the armature drop.

A condenser C is thus installed in the tripping circuit, with a capacity sufficient to form an oscillating circuit in conjunction with windings W and $W1$, with a natural frequency of 50 Hz.


It is thus possible to aggregate the energy of the individual fault current surges and trip the residual current device correctly.

Acceptance of guarantee

We accept the guarantee in accordance with the corresponding legal provisions.

Please return the unit postage paid to our central service department giving a brief description of the fault:

Gira
Giersiepen GmbH & Co. KG
Service Center
Dahlienstrasse 12
D-42477 Radevormwald

 The CE sign is a free trade sign addressed exclusively to the authorities and does not include any warranty of any properties.

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