RESIDUAL CURRENT MONITORING DEVICES

according to IEC 62020
Standards Compliant Residual Current Monitoring
Standards Compliant Residual Current Monitoring

ENSURE SYSTEM AVAILABILITY

ESPECIALLY IN MARKET SEGMENTS WITH SENSITIVE APPLICATIONS (E.G. DATA CENTERS, HOSPITALS, INDUSTRIAL POWER SUPPLY SYSTEMS), UNINTERRUPTED RCM MONITORING IS OF CRUCIAL IMPORTANCE.

Continuous residual current monitoring enables dangerous fault currents to be detected at an early stage, thereby avoiding damage to the system as well as production downtimes. RCM measurement in accordance with DIN EN 62020 offers a good and safe alternative wherever the realization of insulation resistance measurements or residual current devices would entail a great deal of effort and cost.

ADVANTAGES OF CONTINUOUS RESIDUAL CURRENT MONITORING

Avoidance of production interruptions, reduced maintenance costs and ensuring the functionality of TN-S systems are goals that can be achieved with continuous residual current monitoring.

INCREASE THE SAFETY OF ELECTRICAL INSTALLATIONS

Continuous RCM monitoring, combined with an early warning system, identifies the need for action and, with the resulting measures, improves fire protection. In the area of final subcircuits, residual currents of >30 mA which are hazardous to persons are detected and reported in a timely manner. EMC interference due to interference currents is minimized.

REDUCTION OF MEASURING EFFORT FOR REPEAT TESTING

The use of suitable RCM measurement devices according to the DIN EN 62020 standard allows the omission of insulation measurements in accordance with IEC 60364-6:2016 on stationary electrical systems and the shutdown which these require. The costs for the legally required recurring inspection of electrical operational safety for fixed installations (German Social Accident Insurance, DGUV V3) can be reduced considerably.

SAVE COSTS AND INCREASE HIGH-LEVEL AVAILABILITY

Uninterrupted monitoring of the installation is ensured through continuous monitoring. Errors are detected immediately, not just later when the recurring test is performed. The high personnel and administration costs associated with a system shutdown are reduced considerably and costs are saved. Faults due to interference currents in building structures, electrical operating equipment and data lines are minimized.

JANITZA RESIDUAL CURRENT MONITORING

RCM 201-ROGO and RCM 202-AB enable continuous monitoring of TN-S systems and comply with DIN EN 62020/VDE 0663/IEC 62020. This refers to residual current monitoring devices which check circuits for the occurrence of a residual current and trigger an alarm if a set alarm value is exceeded.
RCM 201-ROGO

**HIGH MEASURING ACCURACY**
- 1% of measurement range
- Measurement of residual currents in the measurement ranges 5 / 10 / 25 / 125 A

**STANDARDS-COMPLIANT TO IEC 62020**
- Recording, evaluation and monitoring of Type A residual currents

**RETROFITTABLE**
- Rogowski RCM current transformers for large cable cross sections and busbars up to 4000 A

**ALARM FUNCTION**
- Configurable limit values and alarm output via digital output and Modbus

**COMPATIBILITY**
- Compatible with Janitza measuring devices RCM inputs

**COMMUNICATION**
- RS-485 interface (protocol: Modbus RTU)
- Compatible with all communication-enabled Janitza Modbus master devices

---

Further information and details at: https://www.janitza.com/rcm-201-rogo.html

---

Rogowski coils available in different lengths:

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>50 mm</td>
<td>160 mm</td>
</tr>
<tr>
<td>100 mm</td>
<td>310 mm</td>
</tr>
<tr>
<td>175 mm</td>
<td>550 mm</td>
</tr>
<tr>
<td>250 mm</td>
<td>785 mm</td>
</tr>
<tr>
<td>365 mm</td>
<td>1150 mm</td>
</tr>
</tbody>
</table>

Additional lengths in planning!
RCM 202-AB

RESIDUAL CURRENT TRANSFORMER
- Residual current measurement, up to 2 residual current transformers
- Measurement range, AC/DC 10 mA ... 20 A

PERIPHERALS
- 2 analog outputs
- 2 alarm outputs
- Compatible with RCM inputs of the UMG 96-RM-E & UMG 96-PA with RCM module

COMMUNICATION
- RS485 interface (protocol: Modbus RTU)
- Compatible with all communication-enabled Janitza Modbus master devices

RCM ANALYSIS
- Evaluation of AC and DC
- Harmonic spectrum up to 2 kHz, Type B
- Mixed current up to 20 kHz, Type A, Type B+

HISTORICAL DATA
- Memory for measured values and extreme values with time stamp

ON-SITE OPERATION
- High resolution LCD display with intuitive operation

PATENTED MEASURING METHOD
- Type A, B, B+ measurement with passive residual current transformers

STANDARDS-COMPLIANT TO IEC 62020
- Detection, evaluation and monitoring of residual current types A, B and B+

Further information and details at: https://www.janitza.com/rcm-202-ab.html
APPLICATIONS

RCM 201-ROGO
Standards-compliant Type A measurement on the busbar
The RCM 201-ROGO residual current monitoring device complies with standard DIN EN 62020 and is used for monitor systems and consumers that must be operated without interruption. It is ideally suited for monitoring residual currents in TN-S systems. The main application of the stand-alone device is the measurement of Type A residual current for large cross-section or busbar systems. In combination with a Rogowski coil (included in the scope of delivery), the user enjoys flexibility even in confined spaces and also benefits from the retrofitting capability of the measurement device.

Flexible measuring current transformer in different lengths:
- Space-saving and fast installation
- Easy retrofitting in existing systems
- No shutdown of the system required for installation
- Analog output for external measurement devices provided

RCM 202-AB
Monitoring of Type A to B+ residual currents
The two-channel residual current monitoring device meets the requirements of the DIN EN 62020 standard. A recurring insulation test can be omitted or at least limited. Typical applications are low-voltage main distribution boards (LVMDB) and subdistribution panels (SDP) in grounded systems (e.g. TN-S systems). The RCM 202-AB is a safe cross-industry alternative if current interruptions due to a residual current device (RCD) or an insulation resistance measurement cannot be tolerated. Complete integration into the GridVis® software is possible. The device can be integrated directly via the RS-485 interface.

Patented measuring method
Suitable as an RCM at any point, e.g. direct current systems, frequency converters, or applications with increased fire protection requirements.
- Can be combined with any standard Janitza residual current transformer
- Residual currents of Type A to Type B+
- Measurement up to 20 kHz (Type B+) possible
- Exact measurement on several levels

MEANING OF TYPE A, B, B+

A
Sinusoidal alternating current
Sinusoidal alternating current, pulsating alternating current

B
Universally current sensitive
Smooth and pulsating direct currents as well as alternating currents up to 2 kHz

B+
Universally current sensitive
Smooth and pulsating direct currents as well as alternating currents up to 20 kHz
Application examples for types of residual currents

**TYP A**
- Sinusoidal alternating current, pulsating alternating current
- FC (frequency converter)
- 50 Hz residual current
- EMC filter
- M 3~

**TYP B**
- Smooth and pulsating direct currents as well as alternating currents up to 2000 Hz (universally current sensitive)
- FC (frequency converter)
- M 3~

**TYP B+**
- Smooth and pulsating direct currents as well as alternating currents up to 20 kHz (universally current sensitive)
- FC (frequency converter)
- M 3~
- Various frequency components

EMC filter
TN-S systems are mandatory for new installations. Conversion to TN-S systems is also recommended for older TN-C-S systems. The functionality of TN-S systems can be monitored and logged continuously with Janita RCM solutions.

In many industries and application areas, this requirement represents a key function for the safety and economic success of the company.

In practice, all three phases and the neutral conductor run through the summation current transformer. In systems without neutral conductors, for example in controlled drives, only the three phases of the summation current transformer are used. When the system is in the fault-free state, the summation current is zero or close to zero (within the tolerance range), so that the current induced in the secondary circuit is also zero or close to zero. If, on the other hand, a residual current flows to ground in the event of a fault, the current imbalance in the secondary circuit causes a current to be detected, reported and evaluated by the RCM measurement device.

**POWER SUPPLY WITHOUT FAILURES**

**Alert before switching off – An objective of residual current monitoring**

The decisive factor is to detect any disturbances early on, before fuses or residual current devices (RCDs) of affected systems or socket power circuits are switched off. For this purpose, the increases in residual currents, which are typically very gradual (e.g. triggered by insulation faults and operating currents of system components or consumers that become too high), must be monitored, evaluated and reported before failures occur!
RESIDUAL CURRENT TRANSFORMERS FOR THE RCM 202-AB

CT-AC-RCM
Plug-on residual current transformer
- In combination with Janitza Universal Measuring Devices (UMG), the residual current to ground of machines or systems can be determined
- Compact design
- Detection of very small currents
- Round interior window, in mm: 35, 80, 110, 140, 210

CT-AC-RCM A
Separable residual current transformer
- In combination with Janitza Universal Measuring Devices, the residual current to ground of machines or systems can be determined
- Compact design
- Detection of very small currents
- Separable current transformer, ideal for retrofitting
- Round interior window, in mm: 110, 150, 310

DACT
Residual current transformer
- For residual current detection in 3-wire and 4-wire alternating current networks
- Highly sensitive current sensor for detecting even the smallest residual currents
- High level of safety thanks to integrated overvoltage protection
- Flexible use due to a wide frequency range
- Round interior window, in mm: 20

KBU
Separable residual current transformer
- Simple and cost-effective installation
- Practical locking system: No need to disconnect and remove the primary conductors
- Available in various dimensions
- No interruption of operation
- Rectangular inside window, in mm: 20 x 30, 50 x 80, 80 x 120
Power Grid Monitoring Software

A Fundamental Component for RCM Monitoring and Analysis

GridVis® RCM Report
- Meaningful statistics on exceedances of limit values for residual currents and operational interruptions
- Support for system testing and the obligation to provide verification
- Verification of a "clean" TN-S system
- Optimal for large systems with many RCM measurement points
- Support of devices with dynamic limit value monitoring or static limit values
- Status overview with signal colors for a general overview

Residual current 1
Residual current 2
Residual current 3
With GridVis®, technicians and business managers are given the data necessary to:

- Receive early alerts before a failure
- Identify failures and vulnerabilities
- Evaluate uptime as a whole
- Create a basis for predictive maintenance
- Calculate key performance indicators
- Depict cost centers
- Monitor status messages

GridVis® – Convenient and versatile

- Convenient programming and parameter configuration
- Link measurement points & create dashboards
- Web-based alarm manager with escalation management
- Versatile presentations
- Automated reports and exports
- Histories and topologies
- Analysis of the effects of nonlinear loads and filter currents
- Integration of RCM systems from other manufacturers via OPC UA or Modbus

Total residual current 1

Total residual current 2

GridVis® 
System and energy monitoring at the highest level