VARIMETER RCM
Residual Current Monitor
IR 5882

Translation of the original instructions

0283270

With internal residual current transf.

Product Description

The residual current monitor IR 5882 of the VARIMETER RCM series is used for early detection of insulation faults and detects residual currents with alternating currents and pulsating direct currents in earthed systems (type A). The residual current measurement is carried out via an integrated current transformer. In contrast to the residual current circuit breaker, the residual current monitor IR 5882 does not immediately switch off the mains when a fault is detected, but only indicates the fault. LEDs indicate operational readiness, pre-alarm and alarm. Other features include a check and delete function. The IR 5882 residual current monitor thus offers an information advantage for targeted and cost-effective maintenance measures before the system comes to a standstill.

Your advantages

- Preventive fire and system protection
- Increasing the availability of plants by early fault detection
- With internal residual current transformer
- Protection against manipulation by sealable transparent cover over setting switches

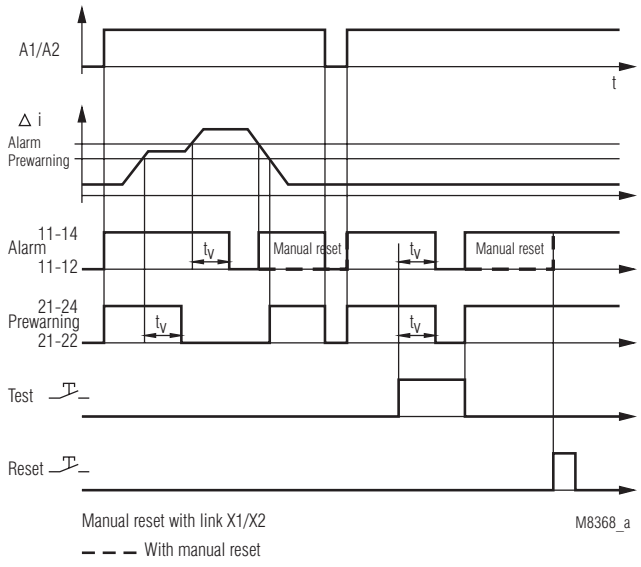
Features

- According to IEC/EN 62020
- For AC and pulsating DC currants Type A to IEC/TR 60755
- 9 tripping values from 10 mA to 10 A or from 10 mA ... 30 A
- Frequency range 20 ... 2000 Hz
- Selection of manual or automatic reset
- With prewarning
- With test and reset button
- Short reaction time
- With adjustable delay t_v
- De-energized on trip
- LED indication for auxiliary supply and state of contact
- 2 x 1 changeover contact
- 63 mm deep with terminals near to the bottom to be mounted in consumer units or industrial distribution systems according to DIN 43880
  - Width 105 mm
  - With internal residual current transformer

Approvals and Markings

*) For IR 5882

Function Diagram



Application

Detection of insulation faults in grounded voltage systems. The residual current relay is used to maintain electrical plants before faults occur. Decrease in insulation can be detected and indicated early without interruption of operation.

Function

The function of the IR 5882 can be compared to a fault current circuit braker unit. It detects and indicates residual currents, but does not disconnect. At the device IR 5882 the residual current transformer is integrated. All conductors of the voltage system to be monitored are run through the CT except the ground wire. In a fault free voltage system the sum of all current is 0 and the CT induces no secondary voltage. If due to an insulation fault a fault current flows to ground, the current difference in the CT creates a measuring current, which is detected and measured by the IR 5882.

The unit has 2 x 1 changeover contacts. Contact 11-12-14 for alarm (AL) and 21-22-24 for prewarning (VW). Prewarning is detected at 70 % of the selected alarm value. With external bridge X1-X2 the alarm is stored and has to be reset by pressing the reset button or by disconnecting the auxiliary supply. Without bridge X1-X2 the unit works with auto-reset and the fault is not stored. With the button "Test" a fault can be simulated (Alarm). Each contact is delayed with an adjustable time delay t_v (same delay time for alarm and pre-warning).

To avoid unauthorised adjustment of the potentiometers the unit has a transparent cover that could be seald with laquer. Two holes above the push buttons allow activation of test and reset.

Connection terminals

Terminal designation	Signal description
A1, A2	Auxiliary voltage
X1, X2	Control input X1/X2 bridged: With manual reset of alarm X1/X2 not bridged: Without manual reset of alarm (Hysteresis function)
11, 12, 14	1. C/O contact (Alarm)
21, 22, 24	1. C/O contact (Pre-warning)

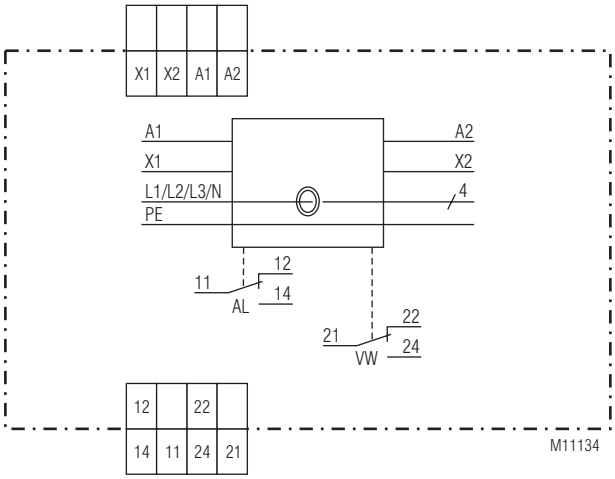
Indication

Green LED "ON": On, when supply connected
Red LEDs "VW", "AL": On, when insulation failure (prewarning and alarm)

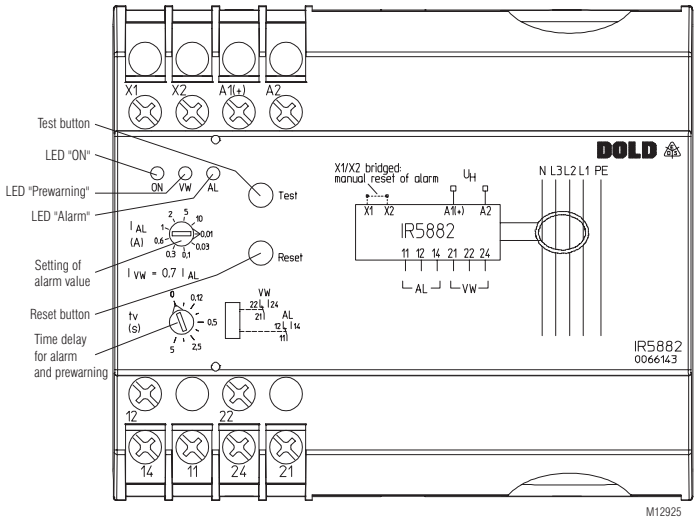
Note

If time is set to 0 and a pulsating fault current is flowing (e.g. 1-way rectified) the output relay may flicker because of the short reaction time. By increasing the time delay this effect can be avoided.

Circuit Diagram



Setting



Technical Data

Input

Auxiliary voltage U_H:	AC/DC 24 ... 230 V
Voltage range:	
AC:	0.8 ... 1.1 U_N
DC:	0.9 ... 1.25 U_N
Nominal frequency U_H:	50 ... 400 Hz
Nominal consumption	
AC 230 V:	4.1 VA
DC 230 V:	1.6 W
AC 24 V:	1.7 VA
DC 24 V:	1.3 W
Measuring value adjustable via rotational switch:	AC 0.01; 0.03 A; 0.1 A; 0.3 A; 0.6 A 1 A; 2 A; 5 A; 10 A or AC 0.01 A, 0.03 A; 0.1 A; 0.3 A; 0.6 A 1 A; 2 A; 7 A; 30 A
Frequency range:	20 Hz ... 2 kHz (At failure current < 50 Hz and the function "auto reset", a switching delay t_v must be adjusted, so that the relay does not buzz before switching)
Hysteresis:	Approx. 4 % of trip value, fixed
Accuracy:	≤ 0 ... - 30 %
Repeat accuracy:	≤ ± 1 %
Temperature drift:	≤ ± 0.05 % / K
Reaction time:	10 ... 40 ms
Response delay t_v:	0 ... 5 s adjustable (logarithmic scale in order to allow also short time delay to be adjusted without problems)

Output

Contacts		
IR 5882:	1 changeover contact for Prewarning, 1 changeover contact for Alarm	
Thermal current I_{th}:	5 A	
Switching capacity		
to AC 15:		
NO contact:	3 A / AC 230 V	IEC/EN 60947-5-1
NC contact:	1 A / AC 230 V	IEC/EN 60947-5-1
To DC 13:		
NO contact:	2 A / DC 24 V	IEC/EN 60947-5-1
NC contact:	1 A / DC 24 V	IEC/EN 60947-5-1
Electrical life		
to AC 15 at 1 A, AC 230 V:	3 x 10^5 switching cycl.	IEC/EN 60947-5-1
Short circuit strength		
max. fuse rating:	4 A gG / gL	IEC/EN 60947-5-1
Mechanical life:	≥ 10^8 switching cycles	

General Data

Operating mode:	Continuous	
Temperature range		
Operation:	- 20 ... + 60 °C	
Storage:	- 25 ... + 70 °C	
Altitude:	≤ 2000 m	
Clearance and creepage distances		
Rated impulse voltage / pollution degree		
Auxiliary voltage / contacts:	4 kV / 2	IEC 60664-1
EMC		
Surge voltages:	Class 3 (5 kV / 0.5 J)	DIN VDE0435-303
HF-interference:	Class 3 (2.5 kV)	DIN VDE0435-303
Electrostatic discharge:	8 kV (air)	IEC/EN 61000-4-2
HF irradiation	IEC/EN 61000-4-3, EN 50121-3-2	
80 MHz ... 1 GHz:	20 V / m	
1 GHz ... 2.7 GHz:	10 V / m	
Fast transients:	4 kV (class 4)	IEC/EN 61000-4-4
Surge voltages:	1 kV (class 3)	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 V0-behaviour according UL subject 94	

Technical Data

Vibration resistance:	Amplitude 0.35 mm frequency 10 ... 55 Hz	IEC/EN 60068-2-6
Climate resistance:	20 / 060 / 03	IEC/EN 60068-1
Terminal designation:	EN 50005	
Wire connection:	2 x 2.5 mm² solid or 2 x 1.5 mm² stranded wire with sleeve DIN 46228-1/-2/-3/-4	
Wire fixing:	Flat terminals with self-lifting clamping piece	IEC/EN 60999-1
Fixing torque:	0.8 Nm	
Mounting:	DIN rail	IEC/EN 60715
Weight:	Approx. 300 g	

Dimensions

Width x height x depth:	105 x 90 x 63 mm (inner diameter current transformer: 21.5 mm or 28 mm)

Standard Types

IR 5882.38 AC/DC 24 ... 230 V 50 / 60 Hz 10 A 5 s

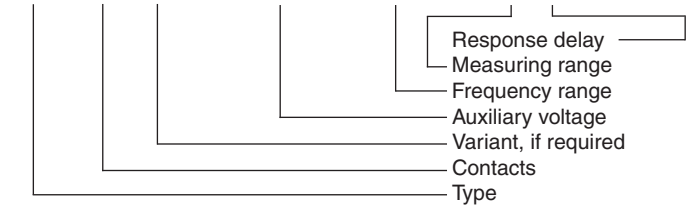
Article number: 0066743

- Internal residual current transformer (Ø 28 mm)
- De-energized on trip
- Auxiliary voltage U_H: AC/DC 24 ... 230 V
- Measuring range: 10 A
- Response delay t_v: 5 s
- Width: 105 mm

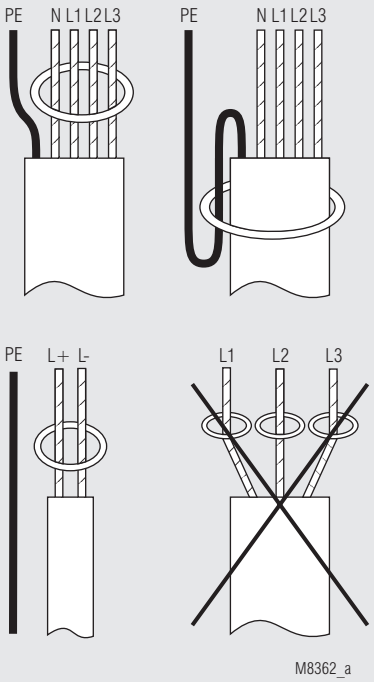
Variant

Ordering example for variant

IR 5882 .38 /_ _ _ AC/DC 24 ... 230 V 50/60 Hz 10 A 5 s



Installation of Wires



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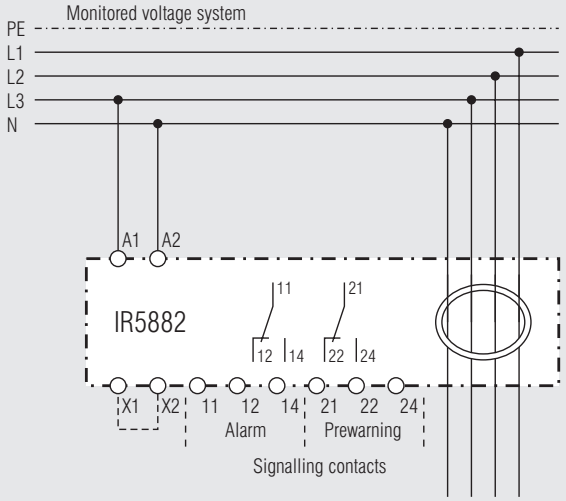
Connection Example



X1-X2 open : Automatic reset
X1-X2 closed : Manual reset

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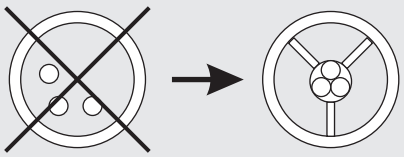
To Avoid Interference with High Starting Currents



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