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DOLD



Measuring and Monitoring



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VARIMETER

Residual current monitor (RCM)
Insulation monitoring device (IMD)
Insulation fault detection system (EDS)

Residual current and insulation monitoring

VARIMETER

Does constant availability go without saying?

You know the situation: complex production systems, high requirements in terms of the quality, delivery time and reliability, permanent cost pressure. This requires more than ever a comprehensive operational readiness in order to be able to maintain and improve the competitiveness at the international level.

In practice, however, a comprehensive operational readiness is often given only conditionally, because insulation faults may slowly but progressively occur due to ageing, moisture, pollution, mechanical damage and other factors. Consequences of such undiscovered errors are costly plant shut-downs and operational downtime, repair costs and usually high costs resulting from production downtime. In the worst case these insulation faults are even a frequent cause of fires and personal injuries.

The solution is simple:

Protection of people and machines by insulation monitoring and timely information about emerging critical operating conditions. DOLD Insulation and residual current monitoring systems have been successfully used for many years in most various areas.

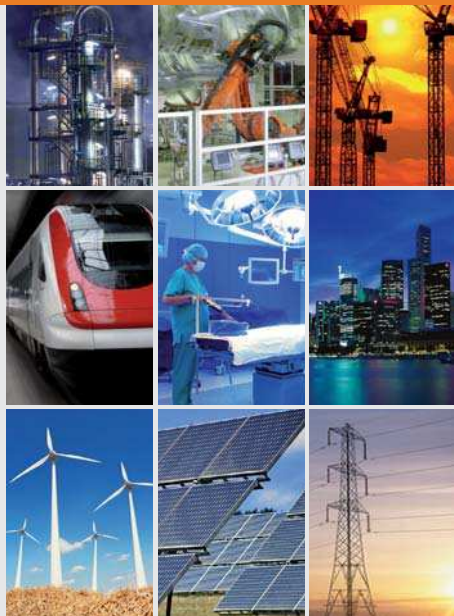
Automate the preventive maintenance.

In other words, we provide monitoring devices that alert already in the development stage of even the smallest insulation fault. In this way the fault can be removed in due time - before it comes to a standstill of your plant or the people working are exposed to a danger.

Various system architectures, various functioning principles:		
System architecture:	earthed systems TN /TT system (TN-S system)	non-earthed systems IT systems
System type:	AC, DC, combined systems	AC, DC, three-phase current and combined systems
Measurement principle:	Measurement of the residual current using residual current transformer. All monitored conductors (except for the protective conductor) go through one residual current transformer.	Measurement of the insulation resistance against the ground.
Main reasons for monitoring:	Prevention of damages to the systems and system downtime, data losses, personal and fire protection	Prevention of damages to the systems and system downtime, data losses, personal and fire protection
Solution:	Residual current monitoring with the aid of VARIMETER RCM	Insulation monitoring with the aid of VARIMETER IMD and VARIMETER EDS
Field of application:	<ul style="list-style-type: none">• Data centres, EDP devices and systems• Office and administrative areas• Power supply and distribution centres• Communication systems• Transportation technology (airports, ships, railway, ...)• Production processes (with controlled drives)• Machines and plants• Frequency inverters• UPS systems• Battery installations• Power plants <p>... and many other fields and areas</p>	<ul style="list-style-type: none">• Mobile power generator• Areas used for medical purposes• Transportation technology (railway, airports, ships, ...)• Control circuits (robots, ...)• Main circuits (controlled drives)• Transportation systems with hoisting devices• Power supply (battery networks, ...)• Disconnected consumers (pumps, ...)• Emergency lighting• Power plants• Solar plants <p>... and many other fields and areas</p>
Standards:	<ul style="list-style-type: none">• DIN VDE 0100-410: Low-voltage electrical installations, Part 4-41: Protective measures - Protection against electric shock• DIN VDE 0100-551:Low-voltage electrical installations Part 5-55: Selection and erection of electrical equipment - Other equipment - Clause 551: Low-voltage generating sets• DIN VDE 0100-710: Low-voltage electrical installations, Part 7-710: Requirements for industrial premises, areas and systems of special type - areas used for medical purposes• DIN EN 61557-8: Electric safety in low-voltage networks up to AC 1000 V and DV 1500 V - Devices for checking, measuring or monitoring the protective measures - Part 8: Insulation monitoring devices for IT systems• DIN EN 61557-9: Electric safety in low-voltage networks up to AC 1000 V and DV 1500 V - Devices for checking, measuring or monitoring the protective measures - Part 9: Installations for insulation fault detection in IT systems• DIN EN 62020: Electric insulation material - Devices for monitoring the residual current for indoor installations and similar applications (RCMs)	

Maximum availability, for more efficiency

Advantages for you at a glance:



- ▶ Better operational and industrial safety: Preventive maintenance for protection of people and machines from dangers associated with electric current. No operational downtime in case of a single-pole short-circuit to the ground.
- ▶ Better fire safety: Timely detection of sneaky insulation faults. Minimisation of faulty electric arcs which represent a frequent cause of fires.
- ▶ Better accident safety: No malfunctions of machines and systems caused by short-circuits to the ground.
- ▶ High efficiency: Prevention of costly plant shut-downs, production downtime or data loss thanks to timely notification. Reduction of costs associated with maintenance, repair and re-commissioning.
- ▶ Optimised maintenance: Instant error localisation and information forwarding by centralised or decentralised alarm indication.
- ▶ Everything from a single source: In addition to variety of measurement and monitoring devices with standard function, we also offer you our long-standing experience in the development of individual, efficient problem solutions. Everything for protection of humans and machines.

And what can we do for you?

Custom-made solutions for monitoring

Starting from economical standard devices for monitoring individual parameters with multi-functional devices all the way to flexible, expandable fault reporting systems. DOLD offers a custom-made solution for protection of your machines and systems.



Residual current monitor (type A) IL 5882



Residual current monitor (type B) RN 5883



Insulation monitors MK 5880N



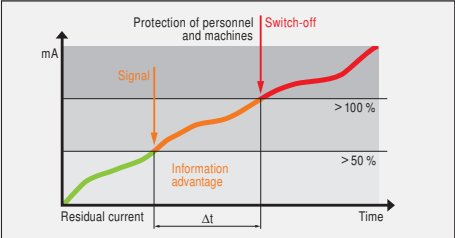
Insulation monitors LK 5896

Residual current monitoring

VARIMETER RCM

Applications

Residual current monitoring device, also known as RCM (**Residual Current Monitor**), measures and monitors the residual and fault currents in earthed systems (TN, TT systems). They are used in systems in which a message should be sent in event of an error; but the system should not be switched off. Disturbances resulting from insulation faults will therefore not lead to any unwanted operational down-time, damage to components and higher costs.



Information advantage obtained thanks to residual current monitoring


Difference to the residual current circuit breaker:

Residual current circuit breaker, so-called RCD (**Residual Current Protective Device**), always leads to an immediate switch-off. The costly shut-down of the system or data losses can result from this.

On the other hand, residual current monitoring devices can display the existing residual current and indicate a case of exceeding the response value and/or switch off as well if required. The system operator in this way receives the information about the existing critical operating conditions early enough and in this way is able to prevent potential personal and component damages or fires.

The residual current monitoring device of the VARIMETER RCM family, with external or even integrated residual current transformer, will permanently monitor your system and check it for residual currents. Prevention of insulation disturbances will be indicated early enough for the measures of preventive maintenance and repair to be implemented successfully.

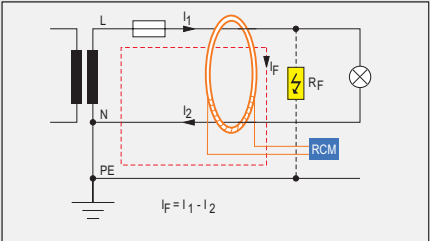
Overview of the residual current monitor: Use in earthed systems (TN, TT systems)

			
Device type	IL 5882	IR 5882	RN 5883
Classification according to IEC/TR 60755	Type A (AC, DC pulsating)		Type B (AC, DC even and pulsating)
Residual operating current	adjustable: 10 mA ... 10 A or 10 mA ... 30 A		adjustable: 10 mA ... 3 A
Response delay	adjustable		adjustable
Auto / manual reset	can be selected via the control terminal		+
Switching element / relay	2 x 1 c/o contact (pre-warning / alarm)		2 x 1 c/o contact (pre-warning / alarm)
Analogous output	-		0-10 V (optionally)
Auxiliary voltage	AC/DC 12 V, AC/DC 24 ... 230 V		AC/DC 24 ... 80 V, AC/DC 80 ... 230 V
Overall width	35 mm	105 mm	52,5 mm
Residual current transformer accessories	ND 5016, ND 5019	integrated (Ø 28 mm)	ND 5015, ND 5018

for earthed systems

Functioning principle of a residual current monitor (RCM)

All lines of the outflow which is to be protected (except for the protection line) will go through the residual current transformer. The sum of all currents equals zero in error-free mains; no voltage will be induced in the transformer. If a residual current flows via the ground, the difference in the current will be caused in the transformer. It will be recorded and evaluated by the electronic system of the residual current monitoring device.





Functioning principle of a residual current monitor

The measurement process is applied to residual current monitoring devices which are used with pure AC currents and pulsating DC currents (type A according to IEC/TR 60755). All residual current monitoring devices sensitive to universal current (type B) require implementation of a special measurement process. They are suitable for measurement of all residual current types in electrical systems: AC currents, pulsating and even DC residual currents.

Advantages

- ▶ Simple operation
- ▶ Tripping values can be adjusted via a potentiometer
- ▶ Wire break detection
- ▶ External or integrated residual current transformer
- ▶ Standard or sensitive to universal current
- ▶ Customer-specific versions

And what can we do for you?

Overview of the residual current transformer: Use in earthed systems (TN, TT systems)			
			
Residual current transformer for device type ("top hat" rail and screw mounting)		IL 5882	RN 5883
Inner diameter:	24 mm	ND 5016/024	ND 5015/024
	35 mm	ND 5019/035	ND 5015/035
	70 mm	ND 5019/070	ND 5015/070
	105 mm	ND 5019/105	ND 5018/105
	140 mm	-	ND 5018/140
	210 mm	-	ND 5018/210

Insulation monitoring

VARIMETER IMD

Applications

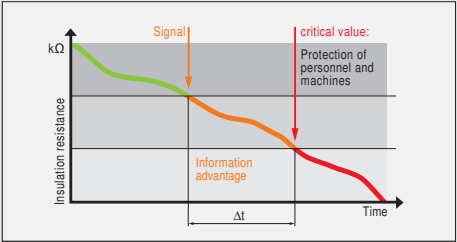
Insulation monitoring device (abbreviated: IMD), monitors the insulation resistance in non-earthed systems (IT systems). DIN VDE 0100-410 and DIN VDE 0100-710 standards mandate the use of an insulation monitoring device in non-earthed systems, in order to detect a first occurring fault between an active conductor and a component or against the ground. The IMD has to emit an optical and / or acoustic signal if a first fault occurs. Disturbances which are the result of insulation faults and costly operational downtimes, personal and other damage associated with them are prevented.

Timely information:

In non-earthed power supply systems (IT systems), no active conductors are connected directly to the ground. In case of an insulation fault, only a small residual current can flow for that reason, caused by the system leakage capacitance. Devices protecting from over-current do not respond in this case and the voltage supply remains maintained. The working






process, such as an operation, for instance, can be completed. Permanent monitoring of the insulation resistance carried out by the IMD ensures timely receipt of information about potential hazards. Faults can be removed early enough.

The insulation monitoring device is connected between the active mains conductors and the ground. When the measurement process is active, it supplies the mains with a measuring



Information advantage obtained thanks to insulation monitoring

Overview of the insulation monitoring device: Use in non-earthed systems (TN, TT systems)

						
Device type	IL 5880 IP 5880	MK 5880N	MH 5880/500	RP 5888	IL 5880/200 IP 5880/200	
Classification	Monitoring of three-phase current and combined systems				Monitoring consumer switched off	
IMD-Typ	AC					
Nominal voltage of the IT system	AC 0 ... 500 V	AC 0 ... 500 V	AC 0 ... 500 V	AC 0 ... 500 V	AC 0 ... 500 V	
Measuring frequency	10 ... 3000 Hz	10 ... 1000 Hz	10 ... 1000 Hz	10 ... 1000 Hz	10 ... 3000 Hz	
Response value	5 ... 100 kΩ	5 ... 100 kΩ	5 kΩ ... 5 MΩ	5 kΩ ... 5 MΩ	5 kΩ ... 5 MΩ	
Switching element / relay	1 x 2 Changeover contact	1 x 2 Changeover contact	2 x 1 Changeover contact	2 x 1 Changeover contact	2 x 1 Changeover contact	
Analogous output	-	-	+	+	-	
Auxiliary voltage	+	+	+	+	+	
Overall width	IL: 35 mm IP: 70 mm	22.5 mm	45 mm	70 mm	IL: 35 mm IP: 70 mm	
Accessories	RK 8832 ¹⁾	RK 8832 ¹⁾	RK 8832 ¹⁾	RK 8832 ¹⁾	RK 8832 ¹⁾	

¹⁾ Buzzer

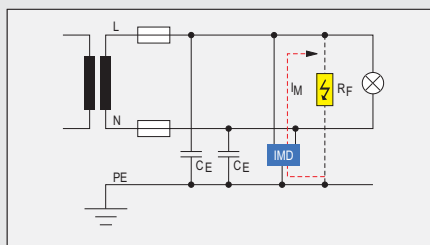
²⁾ Indicating instrument

³⁾ Coupling device

for non-earthed systems

Functional principle of the insulation monitoring device (IMD)

voltage. If an insulation fault occurs, the measuring circuit will close and a small current, proportional to the insulation fault will flow. This measuring current is evaluated by the electronic system of the device. If there are uncertainties in case of a certain insulation resistance (response value), a message will be sent via the device.



Principle in which the insulation monitoring device functions






Insulation monitoring devices of the VARIMETER IMD family are available for both the DC and the AC voltage as well as for combined systems, such as for instance, systems with floating voltage and frequency, high system leakage capacitance or the DC component of the current.

Please contact us for further advice. We will be glad to help you.

Advantages

- ▶ Simple operation
- ▶ Tripping values can be adjusted via a potentiometer
- ▶ For mains with up to AC 1000 V and DC 1000 V
- ▶ Monitoring of early warning alarm threshold value.
- ▶ For system leakage capacitance of up to 3000 μF
- ▶ Customer-specific versions

And what can we do for you?

									
IL 5881	IL 5881/100	RN 5897/300	RN 5897/010	UH 5892	LK 5894	LK 5895	LK 5896		
Monitoring of DC systems		Monitoring of mobile power generators	Monitoring of combined systems			... for higher system leakage capacitance e.g. solar systems			
DC		AC/DC							
DC 12 ... 280 V, DC 24...500 V	DC 12...280 V	DC 0 ... 300 V AC 0 ... 300 V	DC 0 ... 300 V (1000 V) AC 0 ... 250 V (760 V) (with coupling device)	DC 0 ... 600 V	DC 0 ... 690 V, AC 0 ... 690 V	DC 0 ... 1000 V AC 0 ... 1000 V	DC 0 ... 1000 V AC 0 ... 1000 V		
-	-	DC or 40 ... 1000 Hz	DC or 16 ... 1000 Hz	DC or 40 ... 60 Hz	DC or 16 ... 1000 Hz				
5...200 kΩ	5...200 kΩ	10 kΩ ... 1 MΩ	1 kΩ ... 2 MΩ	fixed, within the range 10 ... 440 kΩ	1 kΩ ...2 MΩ	1 kΩ ...2 MΩ	1 kΩ ...2 MΩ		
1 x 2 Changeover contact	1 x 2 Changeover contact	2 x 1 Changeover contact	2 x 1 Changeover contact	1 Changeover contact	2 x 1 Changeover contact	2 x 1 Changeover contact	3 x 1 Changeover contact		
-	-	-	-	+	-	-	+		
+	-	+	+	+	+	+	+		
35 mm	35 mm	52.5 mm	52.5 mm	45 mm	90 mm	90 mm	90 mm		
RK 8832 ¹⁾	RK 8832 ¹⁾	RK 8832 ¹⁾	RK 8832 ¹⁾ , RP 5898 ²⁾	RK 8832 ¹⁾ , EH 5861/004 ³⁾	RK 8832 ¹⁾	RK 8832 ¹⁾	RK 8832 ¹⁾ , EH 5861/004 ³⁾		

Insulation fault detection system

VARIMETER EDS

Applications

The reliability of the systems can be improved by using non-earthed power supply systems (IT systems), since the one-pole direct connection of the power supply to the ground remains maintained and the system can continue with its operation. Protective elements such as the line circuit breaker or fuses will respond only when a second error occurs. Immediate removal of the fault is in this case necessary. DIN VDE 0100-410 also recommends the first insulation fault in IT systems to be removed as soon as possible.

A device for insulation fault detection, also known as IFLS (Insulation Fault Location System), enables a fast localisation of insulation faults in an non-earthed power supply system. It is integrated within the insulation monitoring device and in case of a fault, it will supply a test current between the live line and the ground. The insulation fault will be localised with the aid of the residual current transformer in the consumer's outflow.




The insulation fault detection system of the VARIMETER EDS family (Earth-Fault Detection System), which consists of the test current transformer RR 5886 and the insulation fault detection device RR 5887, will automatically localise the fault source.

You will receive all necessary information about the faulty circuit and consumer's outflow during operation, which is of particularly great importance in widely diffused and complex systems. The maintenance and repair of your system can be planned as optimally as possible thanks to it. VARIMETER EDS is appropriate to use in most various areas.



Wide range of application

Overview of the insulation fault detection system: Use in non-earthed systems (IT systems)

			
Device type	RR 5886	RR 5887	RR 5887/001
Classification	Test current generator	4-channel insulation fault detecting device	8-channel insulation fault detecting device
Nominal voltage of the IT system	DC, AC, 3 AC 24 ... 360 V	DC, AC, 3 AC 24 ... 360 V	DC, AC, 3 AC 24 ... 360 V
Fault memory	-	can be selected via the control terminal	
BUS interface	RS-485	RS-485	RS-485
Operating mode	Master / Slave	Slave	Slave
Auxiliary voltage	AC/DC 100 ... 230 V	AC/DC 100 ... 230 V	AC/DC 100 ... 230 V
Overall width	105 mm	105 mm	105 mm
Residual current transformer accessories	-	ND 5017	ND 5017

for non-earthed systems

Functioning principle of an insulation fault detection system (EDS)

The search procedure of the test current generator RR 5886 is normally activated by an insulation monitoring device when the response value is exceeded. The test current generator will then start supplying a test signal to the IT system. This limited test current will be evaluated in connection with the insulation fault detecting device RR 5887 and the residual current transformer connected to it, and the insulation fault will be in this way localised in the IT system. By connecting several insulation fault detection devices via one RS 485 bus connection, the number of measuring channels can be increased in increments of either 4 or 8 channels and the search for the insulation faults in widely diffused non-earthed power supply systems is refined in this way

Field of application

- ▶ Power plants
- ▶ Ship building industry
- ▶ Transportation technology
- ▶ Industrial systems
- ▶ Hospitals

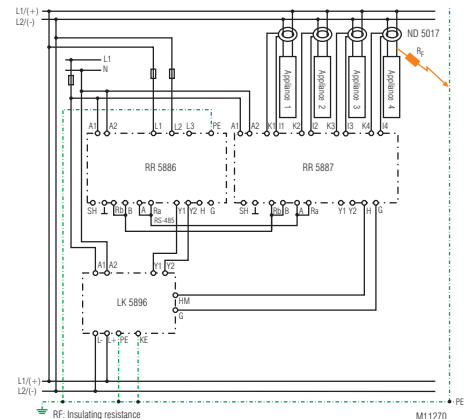
Two different alarm levels, pre-warning and alarm, enable an early detection of faulty consumers. The insulation fault detection system of the VARIMETER EDS family can be operated more intuitively and simply thanks to automatic adjustment of the residual current transformer and clear design of adjusting and displaying units. The early detection and localisation of insulation faults enable their fast and target-oriented removal. As a user, you have many advantages from the operational safety and great availability of your IT system.

Advantages

- ▶ Automatic and fast localisation of faulty circuits
- ▶ Increased reliability and availability of the system
- ▶ Optimal planning of maintenance and repair work
- ▶ No manual and time-consuming fault detection
- ▶ Simple operation
- ▶ Monitoring of complex systems

Insulation fault detection - Block diagram

The example of the block diagram shows the basic structure of selective insulation monitoring using the test current generator RR 5886 and the insulation fault detection device RR 5887. As soon as an insulation monitoring device installed in an IT system, such as, for instance an LK 5895, reaches its response value, a test current generator will be activated by it and will automatically start the insulation fault detection process. The test signals generated are collected and evaluated by the connected residual current transformer ND 5017. Light emitting diodes which are allocated to the respective transformer, will enable simple localisation of a faulty consumer outflow. Due to the fact that the insulation monitoring device LK 5896 does not influence the insulation fault detection process, the test current generator will generate a switch-off signal at its terminals, for the measurement circuit of the insulation monitoring device.

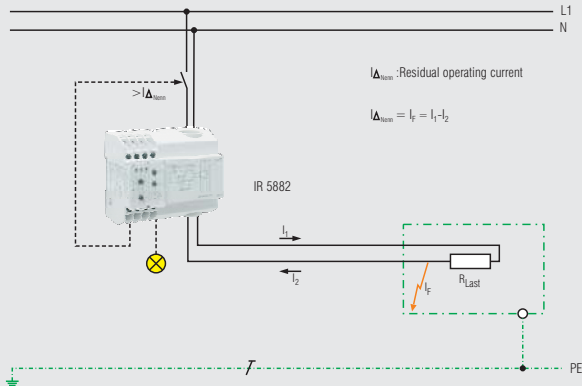


Block diagram of the insulation fault detection process

Examples of application of the VARIMETER

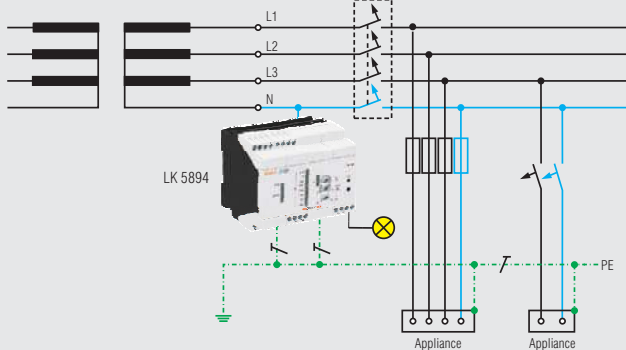
Example of application of residual current monitoring device IR 5882

The compact residual current monitoring device IR 5882 is suitable for use in the installation and industrial switchboards. The AC residual currents as well as pulsating DC residual currents will be recorded and evaluated with the aid of the integrated residual current transformer. Machines and systems are permanently monitored and checked for insulation faults. The residual current transformer IR 5882 will be additionally installed within the existing protective device and significantly increase the system availability and operational safety due to early detection of insulation faults.



Example of application of insulation monitoring device LK 5894

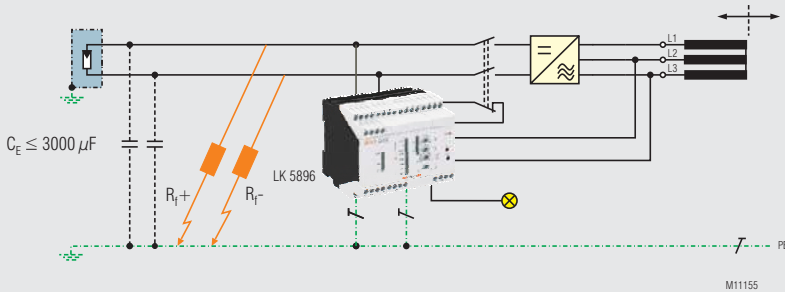
The insulation monitoring device LK 5894 is used by preference in industrial systems using the non-earthed DC / AC and combined systems. It is suitable for nominal voltages of up to 690 V without a need for any additional ballast, and can also manage the system leakage capacitance of up to 1000 μ F. When a first insulation fault occurs, a warning will be issued, but nevertheless, the system can be normally operated afterwards. In order to prevent the industrial system to be switched off by fuses or protective devices in case a second insulation fault occurs, the first fault has to be removed as soon as possible.



Electrical safety at your disposal

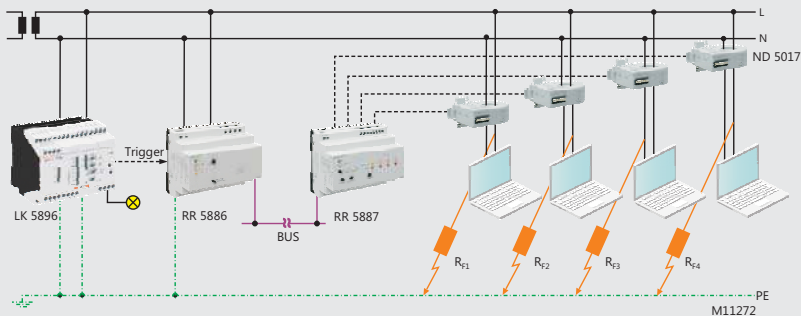
Example of application of insulation monitoring device LK 5896

The insulation monitoring device LK 5896 is optimally designed for monitoring of photo-voltaic systems thanks to its two measurement circuits, the main and the auxiliary measurement circuit. Whereas the DC component is monitored and checked for insulation fault by the main measurement circuit before the inverter, the auxiliary measurement circuit evaluates the insulation resistance against the ground on the AC side. And these all take place before the photo-voltaic system is switched on. In order to prevent two measurement circuits from influencing each other, the auxiliary measurement circuit will be deactivated via the control terminal when the system is switched on.



Example of application of the insulation fault detection system RR 5886 / RR 5887

Devices for insulation fault detection can be easily used and are recommended in complex and widely diffused power supply systems. The insulation fault detection system is also advantageous for data centres, which are operated within a non-earthed system (IT system) for the reasons of availability and resistance to interference. The components the insulation of which has been damaged even earlier can be quickly localised and replaced even before their failure or burn-out which can sometimes be associated with data losses. Faulty circuits and consumer outflows are directly visualised on the insulation fault detection device RR 5887.



Our experience. Your safety.

VARIMETER - Monitor, measure, control

Innovative monitoring solutions

DOLD offers a universal program of measuring and monitoring solutions which have been successfully in use worldwide for several decades already. DOLD develops tailored products for protection of your machines and systems, in addition to mono-functional standard devices for monitoring individual measurement variables and multi-functional solutions.

We will be happy to inform you about other monitoring solutions.

Please contact us for further advice.



VARIMETER PRO

Universal measurement relays MK 9300N / MH 9300 of the VARIMETER PRO series can monitor up to 9 different parameters at a time. Quite simply and without any extensive wiring.



VARIMETER EX

Thermistor engine-protective relays MK 9163N ATEX and MK 9003 ATEX of the VARIMETER EX series reliably prevent thermal overload of the engine. The devices monitor and protect the standard engines equipped with PTC thermistors and explosion-protected engines in accordance with the standard 94/9/EC.



VARIMETER NA

DOLD offers a safe and standard-compliant solution for optimal mains monitoring of photo-voltaic systems, wind turbine, hydroelectric power plant and combined heat and power units with their new voltage and frequency monitoring device RP 9811 of the VARIMETER NA family.



VARIMETER

The space-saving phase monitoring device RK 9872 from the VARIMETER family monitors the under-voltage as well as over-voltage, and the phase sequence in the three-phase mains at the same time. For instance, in all applications of AC engines and machines.



DOLD



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VARIMETER IMD

DOLD 

Insulation monitor RN 5897 - Insulation monitoring for modern IT systems

The demand for the availability of machines and apparatus in the region of factory machinery and process technology is constantly increasing. The requirement for this is a functioning and reliable power supply. Unexpected insulation faults in the system can lead to unwanted power supply failures, and even cause personal injury or property damage. This is why insulation monitoring equipment is typically used in IT systems.

The **insulation monitor RN 5897** from the **VARIMETER IMD** series by DOLD was developed especially for use with modern power supplies. These are often comprised of converters, thyristor regulators, and direct current components. Through EMV interference suppression measures, high leakage capacitance onto the ground is present. The RN 5897 is suited for system leakage capacitances of up to 1000 μF , and for voltages up to AC/DC 300 V. Using the additional ballast unit RP 5898, it is possible to install the unit in systems with voltages of up to AC 760 V and DC 1000 V.

Besides an adjustable alarm threshold, the insulation monitor also has an adjustable pre-alarm threshold. A multicoloured LCD screen constantly updates stating the current insulation value. The insulation monitors guarantee additional surveillance over current-free networks. A selective earth fault detection of L+ and L- enables quick fault localisation.

Advantages and customer benefit

- ▶ Recognition of symmetrical and asymmetrical insulation faults
- ▶ Quick error localization through selective earth fault detection based on L+ und L-
- ▶ Preventive fire and plant protection
- ▶ Multi-color display to show the insulation value
- ▶ Universal use in ungrounded AC-, DC- and AC/DC networks
- ▶ Suitable for system leakage capacitance of up to 1000 μF
- ▶ Easy to adjust parameters with a rotary dial and menu organization

Our experience. Your safety.

Insulation monitor RN 5897

Technical features

- ▶ Insulation monitoring in accordance with IEC/EN 61557-8
- ▶ Standard type RN 5897/010 with option to connect an external ballast unit RP 5898 for voltages up to AC 760 V, DC 1000 V
- ▶ 2 separated, adjustable response thresholds (e.g. can be used for pre-alarm and alarm)
- ▶ Adjustment range
 1. Response value (pre-alarm): 20 kΩ ... 2 MΩ
 2. Response value (alarm): 1 kΩ ... 250 kΩ
- ▶ 1 changeover each for insulation fault pre-alarm and insulation fault alarm
- ▶ Load or closed current principle adjustable for signaling relay
- ▶ Multi-colored display to show the current insulation resistance, the device status, and for setting parameters
- ▶ Setting for maximum system leakage capacitance to shorten response times
- ▶ Automated and manual device self test
- ▶ Selectable alarm memory
- ▶ Manipulation protection through sealed clear cover
- ▶ External control input for combined Test / Reset button
- ▶ 3 wide voltage ranges for the auxiliary voltage
- ▶ Construction width 52.5 mm

Order information

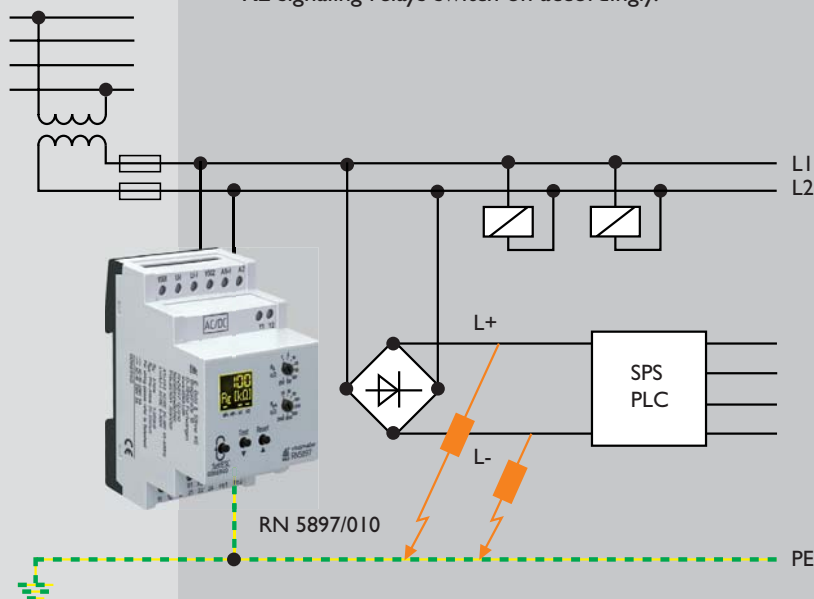
Standard type: RN 5897.12/010 AC/DC 24 ... 60 V
Item number: 0066940

Standard type: RN 5897.12/010 AC/DC 85 ... 230 V
Item number: 0066941

Standard type: RP 5898
Item number: 0066944

Examples of application

Monitoring of a mixed IT network for insulation faults with the RN 5897. The insulation monitor is connected to L1 and L2 on the AC side and measures the insulation resistance against PE. If threshold values set on the device (pre-alarm or alarm) are exceeded, this is displayed on the multi-color screen of the RN 5897, and the K1 and K2 signaling relays switch on accordingly.



If you have high system leakage capacitances up to 3000 μF, you need a second additional measuring circuit or analog outputs?

LK 5896



Insulation monitor
RN 5897



Accessories



Coupling device
RL 5898



Coupling device
RP 5898



Buzzer
RK 8832

Areas of application

- ▶ UPS systems / battery networks
- ▶ Networks with frequency converters
- ▶ Elevators
- ▶ Hybrid and battery-powered vehicles
- ▶ Mobile generators



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VARIMETER EDS

DOLD 

Insulation fault location system with Modbus RTU -
Precise localisation of faults during operation

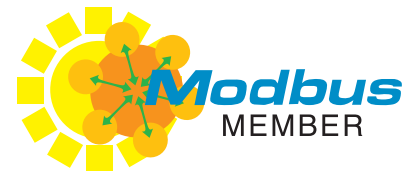
In extensive industrial systems, the localisation of insulation faults can be a cost-intensive and time-consuming process. The **insulation fault location systems** from the **VARIMETER EDS** family of DOLD, comprising the **RR 5886** test current generator and the **RR 5887** insulation fault location device, localise insulation faults quickly and reliably in complex insulated AC/DC mains (IT systems).

A device for insulation fault detection, also known as IFLS (Insulation Fault Location System), enables the rapid localisation of insulation faults in non-earthed power supply systems. It is employed along with an insulation monitor and in the event of a fault it injects a test current between the current-carrying conductors and the earth. It allows the quickest possible localisation of components with pre-existing insulation damage so that they can be replaced before a complete failure occurs, i.e. there is no need to shut down the plant. Protective devices such as circuit breakers or fuses only trip after a second fault. Immediate fault rectification is therefore required.

During operation you receive all necessary information regarding faulty circuits and consumer outputs, which can be visualised directly on the RR 5887 insulation fault detection device. Via the Modbus RTU interface, insulation fault current values can be read out from the connected devices. This allows the optimum planning of the maintenance and repair of your plant. VARIMETER EDS is suitable for use in a great variety of sectors.

Advantages and customer benefits

- ▶ Automatic and rapid localisation of faulty circuits
- ▶ Increase in reliability and system availability
- ▶ Optimum planning of the maintenance and repair
- ▶ No manual and time-consuming fault detection
- ▶ Simple operation
- ▶ Monitoring of complex systems
- ▶ With Modbus RTU interface



Our experience. Your safety.

Insulation fault location system

Technical features

- ▶ Insulation fault detection in AC, DC and AC/DC mains (IT systems) per: DIN EN 61557-9 (VDE 0413-9):2009 and DIN EN 61557-1 (VDE 0413-1)
- ▶ Modbus RTU
- ▶ Status output for insulation fault detection via external switch output
- ▶ 105 mm installation width

RR 5886

- ▶ External control possible via insulation monitor
- ▶ Button for manual test current output
- ▶ Terminal connection for automatic test current output

RR 5887

- ▶ Connection of max. 4 or 8 differential current transformers
- ▶ Manual or automatic reset selectable via jumper Y1-Y2
- ▶ Button for manual resetting of alarm conditions
- ▶ Terminal connection for saving alarm conditions



Test current generator
RR 5886



Insulation fault location device
RR 5887



Differential current transformer
ND 5017/024

Order information

Standard type: RR 5886 AC/DC 85 ... 230 V
Item number: 0068220

Standard type: RR 5887.12 AC/DC 85 ... 230 V
Item number: 0068221

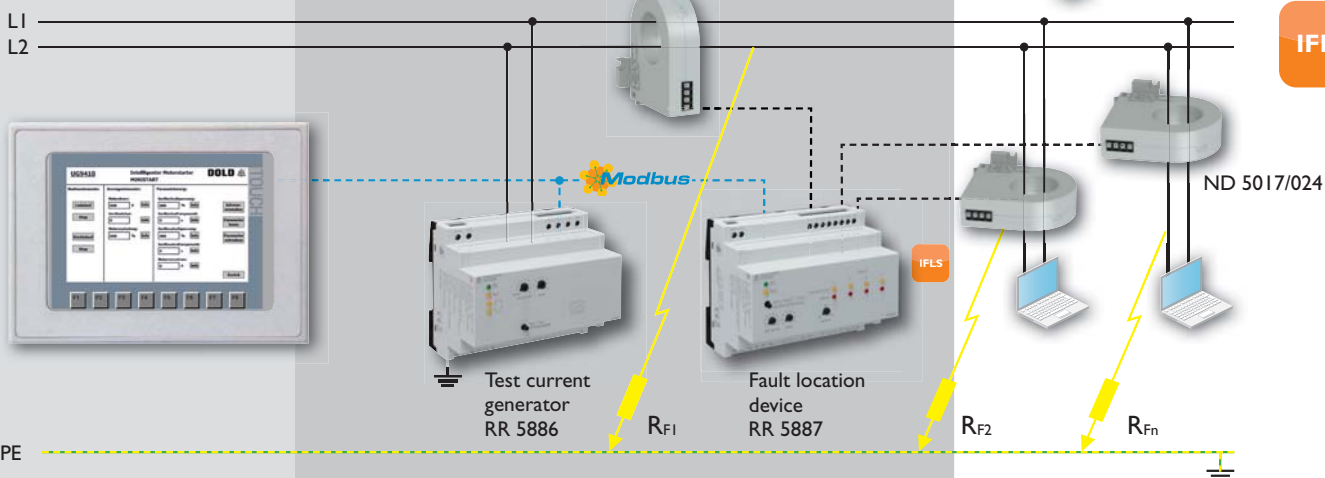
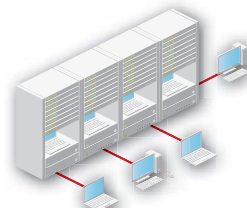
Standard type: ND 5017/024
Item number: 0066017

Application

Devices for insulation fault location can be particularly advantageous when dealing with complex and ramified power supply systems. Computer centres, which are operated using non-earthed mains (IT systems) for reasons of availability and interference immunity, can also benefit from the use of an insulation fault location system. It allows the quickest possible localisation of components with pre-existing insulation damage so that they can be replaced before a complete failure occurs. Faulty circuits and consumer outputs can be visualised directly on the insulation fault location device RR 5887 and can be read out via the Modbus RTU interface.

Application areas

- ▶ Power stations
- ▶ Shipbuilding
- ▶ Transportation technology
- ▶ Industrial systems
- ▶ Hospitals



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VARIMETER IMD

DOLD 

Insulation monitor RN 5897/020 - Insulation monitoring for DC charging stations

The number of electric vehicles is constantly increasing and will grow even faster in the future. This will also drive forward the expansion of the charging station infrastructure, as DC charging stations are the first choice when electric vehicles need to be charged in the shortest possible time. Electrical safety must be guaranteed during the charging process. For this purpose, an unearthed DC power supply system (IT grid) with insulation monitoring is set up and monitored by means of an insulation monitoring device (IMD). The user must never be exposed to high voltages (up to 1000 V) at any time.

The **insulation monitor RN 5897/020** of the **VARIMETER IMD** family is used especially for DC charging stations according to the IEC/EN 61851-23 standard and monitors the charging process from the charging station into the vehicle. The device is characterised by the short response delay of ≤ 1 s, a rated voltage up to DC 1000 V with coupling device and the detection of asymmetrical as well as symmetrical insulation faults. The integrated voltage measurement ensures reliable detection of the insulation resistance in the IT grid. The insulation monitor also features a self-test. This takes place automatically after power-on and after every full operating hour.

Advantages and customer benefits

- ▶ Response delay of ≤ 1 s
- ▶ Nominal voltage up to DC 1000 V
- ▶ Integrated voltage metering
- ▶ Self-test function after every full operating hour
- ▶ Detection of symmetrical and asymmetrical insulation faults
- ▶ Fast fault localization through selective earth fault detection according to L+ and L-
- ▶ Multicolour display for indication of insulation value
- ▶ Universally applicable in unearthed AC, DC and AC/DC grids
- ▶ Simple setting of parameters via rotary switch and menu navigation

Our experience. Your safety.

Insulation monitor RN 5897/020

Technical features

- ▶ Suitable for DC charging stations for electric vehicles according to IEC/EN 61851-23
- ▶ Insulation monitoring according to IEC/EN 61557-8
- ▶ With connection facility for an external coupling device RP 5898 for voltages up to 1000 V
- ▶ 2 separate adjustable response thresholds (using e.g. for pre-alarm and alarm)
- ▶ Adjustment range 1st response value (pre-alarm): 20 k Ω ... 500 k Ω
- ▶ Adjustment range 2nd response value (alarm): 1 k Ω ... 100 k Ω
- ▶ 1 changeover contacts each for insulation failures-pre-alarm and -alarm
- ▶ Energized or de-energized on trip can be selected for indicator relay
- ▶ Multi-coloured display for indication of the current insulation resistance, the device status and for parameter setting
- ▶ Automatic and manual device self-test
- ▶ Alarm storage selectable
- ▶ Manipulation protection through sealable transparent cover
- ▶ External control input for combined test / reset button with additional stop of the measuring function
- ▶ 3 wide voltage ranges for the auxiliary voltage
- ▶ Width 52.5 mm

Order information

Standard type: RN 5897.12/020 DC 12 ... 24 V
Item number: 0068260

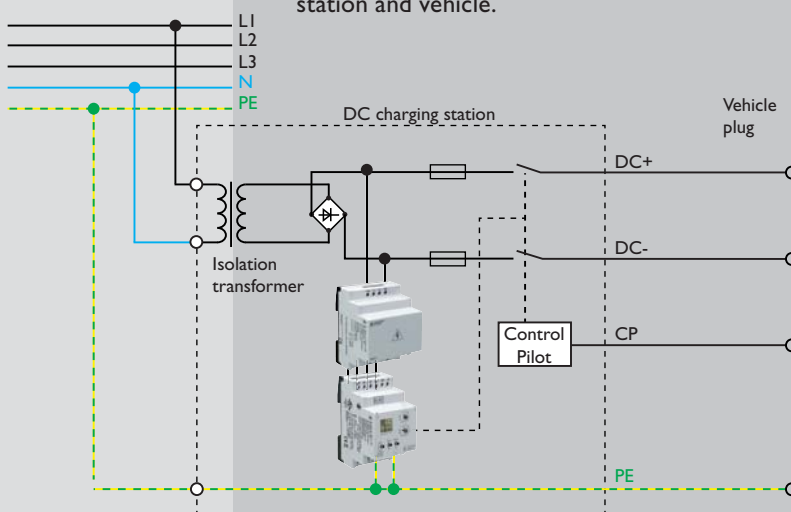
Standard type: RN 5897.12/020 AC/DC 24 ... 60 V
Item number: 0068258

Standard type: RN 5897.12/020 AC/DC 85 ... 230 V
Item number: 0068259

Standard type: RP 5898 / RL 5898/61
Item number: 0066944 / 0068315

Application example

The RN 5897/020 offers a standard-compliant solution for monitoring the insulation resistance of DC charging stations. The charging station is fed from an earthed TN-(C)-S system and passes via an isolating transformer into an unearthed IT system. This IT system can be advantageously monitored for insulation faults with the RN 5897/020. When a vehicle is connected to the charging station, the insulation monitor monitors the insulation of the entire system, including the charging station and vehicle.



Do you need an **extended**
temperature range of
- 40 ... + 70 °C ?

RN 5897/320



Insulation monitor
RN 5897/020



Accessories



Coupling device
RL 5898



Coupling device
RP 5898



Buzzer
RK 8832

Fields of application

- ▶ UPS systems
- ▶ Unearthed AC, DC, AC/DC mains
- ▶ Mains with frequency converters
- ▶ Battery networks
- ▶ Mobile generators



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VARIMETER IMD

Insulation Monitor LK 5895 / LK 5896



With the new **Insulation Monitors LK 5895** and **LK 5896** from the **VARIMETER IMD** family, DOLD offers a convincing solution for insulation monitoring of non-earthed AC, AC/DC, and DC power supplies (IT systems). The devices increase the availability of plants and are used for preventive maintenance and repair. Faults are detected even during operation and costly plant standstills are prevented. The insulation monitors were specially designed for use in modern power supplies that often include rectifiers, converters, thyristor controllers or directly connected DC components. EMC interference suppression with its leakage capacitances against earth plays an important role in this matter. The two insulation monitors meet these requirements.

Besides a faster fault localisation by selective earth fault detection and optimised measuring times, the insulation monitors can deal with system leakage capacitances of up to 3000 μF . They are also universally applicable in non-earthed DC/AC and mixed networks from 0 V to 1000 V nominal voltage. The maximum voltage is up to DC 1500 V and AC 1100 V without additional adaption device. An additional measurement circuit allows simultaneous monitoring of an AC network which is galvanically isolated from the main measurement circuit. Universal analogue outputs for the insulation resistance output complete the device's functionality.

Advantages and customer benefit

- ▶ Preventive fire and plant protection
- ▶ Early insulation fault detection during operation
- ▶ No additional adaption device needed
- ▶ Fast error localisation via selective earth fault detection to L+ and L-
- ▶ Suitable for universal application in non-earthed DC/AC and mixed networks
- ▶ Suitable for large-scale system leakage capacitances up to 3000 μF
- ▶ Simple adjustment via latching rotary switches
- ▶ Reliable monitoring, also in voltage-free network
- ▶ LK 5896 with additional measurement circuit

Our experience. Your safety.

Insulation Monitor LK 5895 / LK 5896

Technical features

- ▶ Insulation monitoring in accordance with IEC/EN 61557-8
- ▶ Detection of symmetrical and asymmetrical insulation faults
- ▶ Measurement circuits can be switched off via control terminals, e.g. in case of network connection
- ▶ 1 changeover contact each for prewarning and alarm
- ▶ 3. Output relay to indicate broken wire and device faults
- ▶ Max. voltage up to DC 1500 V and AC 1100 V
- ▶ Adjustment range prewarning threshold: 20 kΩ ... 2 MΩ
- ▶ Adjustment range alarm threshold: 1 kΩ ... 250 kΩ
- ▶ Open circuit or closed circuit principle selectable for output relay
- ▶ Adjustment of maximum system leakage capacitance to reduce response time
- ▶ LED chain for indication of the current insulation resistance
- ▶ Indication of active measurement circuits
- ▶ Automated and manual device self test
- ▶ Manual or auto alarm reset selectable
- ▶ External test and reset buttons can be connected
- ▶ Construction width 90 mm

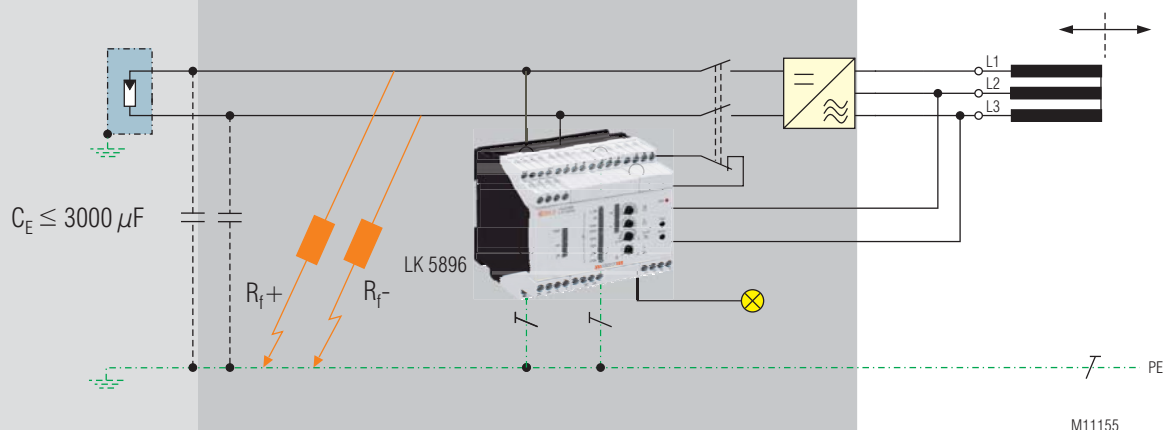
Order information

Standard type: LK 5895.12/010 DC 20 ... 30 V
Item number: 0065217

Standard type: LK 5896.13/100 DC 20 ... 30 V
Item number: 0065131

Application

With its two measurement circuits, i.e. the main measurement circuit and the additional measurement circuit, the insulation monitor LK 5896 is perfectly suitable for photovoltaic systems. While the main measurement circuit monitors the DC side for insulation faults in front of the inverter, the insulation resistance against earth can be analysed on the AC side by means of the additional measurement circuit. And this is done prior to connection to the photovoltaic system. In order to prevent a reciprocal influence of both measurement circles, the additional measurement circuit is deactivated via control terminal when connecting the system.



Principle of a non-earthed IT system with insulation monitoring
also after the inverter, before connection

You need a device for
system leakage capacitances
up to 1000 μF?

LK 5894



Insulation monitor
LK 5896

Accessories



Buzzer
RK 8832



Indicating instrument
RP 5898

Fields of application

- ▶ Non-earthed DC/AC and mixed IT networks
- ▶ UPS systems
- ▶ Networks with frequency converters
- ▶ Battery networks
- ▶ DC driven networks
- ▶ Photovoltaic systems
- ▶ Hybrid cars or battery operated cars

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VARIMETER IMD

DOLD 

Insulation monitor LK 5896/900

With the new **insulation monitor LK 5896/900** from the **VARIMETER IMD** family, DOLD is offering an exciting solution for compliant insulation monitoring in coupled networks. The device can be used flexibly in ungrounded AC, AC/DC, and DC power supply systems (IT systems), and can even handle high network leakage capacitances of up to 3000 μF . In coupled IT systems, the LK 5896/900 takes over insulation measurements, making it possible to operate multiple insulation monitors in coupled networks without them influencing one another. If the coupled network is broken, each insulation monitor automatically takes over insulation monitoring tasks for its own individual network. This means the LK 5896/900 increases the availability of systems, serving as part of preventative maintenance and repair.

Besides quick error localization through selective earth fault detection and optimized measurement times, the insulation monitor recognizes errors even during operation, avoiding expensive machine downtimes. In addition, it can be used universally in ungrounded AC, DC, and AC/DC networks from 0 V to 1000 V rated voltage. The maximum voltage is up to DC 1500 V and AC 1100 V without additional ballast. A trigger input and output are used to monitor coupled IT systems, without the insulation monitors negatively influencing one another. Universal analogue outputs for the insulation resistance output complete the device's functionality.

Advantages and customer benefit

- ▶ Preventive fire and plant protection
- ▶ System for sequential monitoring of separated networks which can also be connected (network coupling)
- ▶ Quick error localization through selective earth fault detection based on L+ und L-
- ▶ Universal use in ungrounded AC-, DC- and AC/DC networks up to 1000 V rated voltage
- ▶ Suitable for large-scale system leakage capacitances up to 3000 μF
- ▶ Simple adjustment via latching rotary switches
- ▶ Reliable monitoring even when network voltage supply is cut
- ▶ No additional ballast unit required

Our experience. Your safety.

Insulation monitor LK 5896/900

Technical features

- ▶ Insulation monitoring in accordance with IEC/EN 61557-8
- ▶ Recognition of symmetrical and asymmetrical insulation faults
- ▶ 1 changeover contact each for prewarning and alarm
- ▶ 3. Output relay to indicate wire wire breakage and device faults
- ▶ Adjustment range prewarning threshold: 20 kΩ ... 2 MΩ
- ▶ Adjustment range alarm threshold: 1 kΩ ... 250 kΩ
- ▶ Open circuit or closed circuit principle selectable for output relay
- ▶ Adjustment of maximum system leakage capacitance to reduce response time
- ▶ LED chain for indication of the current insulation resistance
- ▶ Indication of active measurement circuits
- ▶ Automated and manual device self test
- ▶ Selectable alarm memory
- ▶ External test and reset buttons can be connected
- ▶ With "watchdog timer" to monitor the trigger signal
- ▶ Construction width 90 mm



Insulation monitor
LK 5896/900

Accessories



Buzzer
RK 8832



Indicating instrument
RP 5898

Order information

Standard type: LK 5896.13/900 DC 20 ... 30 V
Item number: 0066991

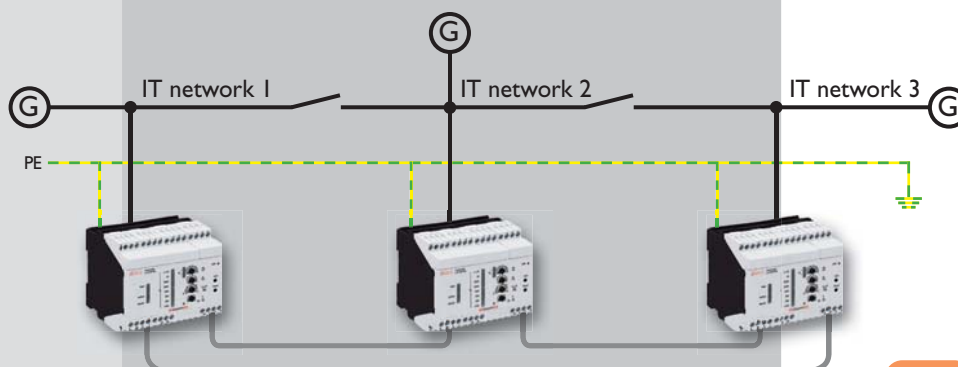
Areas of application

Insulation monitoring of separated, ungrounded AC, DC, and AC/DC networks which can also be connected.

- ▶ UPS systems
- ▶ Networks with frequency converters
- ▶ Battery networks
- ▶ Networks with DC drives
- ▶ IT systems with high leakage capacitances

Examples of application

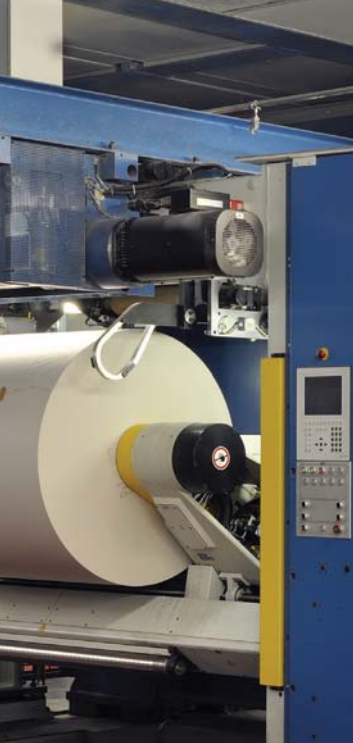
The LK 5896/900 insulation monitor is predestined for use in coupled IT systems. A trigger input and output are used to monitor separated IT systems which can also be coupled during operation without the insulation monitors negatively influencing one another.



Principle of a coupled IT system with insulation monitoring



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VARIMETER IMD

Insulation Monitor LK 5894



With the new **Insulation Monitor LK 5894** from the **VARIMETER IMD** family, DOLD offers a convincing solution for insulation monitoring of non-earthed AC, AC/DC, and DC power supplies (IT systems). The LK 5894 increases the availability of plants and is used for preventive maintenance and repair. Faults are detected even during operation and costly plant standstills are prevented. The insulation monitor was specially designed for use in modern power supplies that often include rectifiers, converters, thyristor controllers or directly connected DC components. EMC interference suppression measures with its leakage capacitances against earth play an important role in this matter. DOLD's insulation monitor meets the criteria.

Besides a faster fault localisation by selective earth fault detection and optimised measuring times, the insulation monitor can deal with system leakage capacitances of up to 1000 μF . It is also universally applicable in non-earthed DC/AC and mixed networks from 0 V to 690 V nominal voltage. The maximum voltage can be up to DC 1000 V and AC 760 V without additional adaption device.

The device can be adjusted quickly and easily with its latching rotary switches. The measuring circuit monitoring for broken wire detection and the LED chain for indication of the current insulation resistance are further convincing features of the LK 5894.

Advantages and customer benefit

- ▶ Preventive fire and plant protection
- ▶ Early insulation fault detection during operation
- ▶ No additional adaption device needed
- ▶ Fast error localisation via selective earth fault detection to L+ and L-
- ▶ Suitable for universal application in non-earthed DC/AC and mixed networks
- ▶ Suitable for system leakage capacitances up to 1000 μF
- ▶ Simple adjustment via latching rotary switches
- ▶ Reliable monitoring, also in voltage-free network
- ▶ Measuring circuit monitoring of wire breakage

Our experience. Your safety.

Insulation Monitor LK 5894

Technical features

- ▶ Insulation monitoring in accordance with IEC/EN 61557-8
- ▶ Detection of symmetrical and asymmetrical insulation faults
- ▶ 2 changeover contacts
- ▶ Max. voltage up to DC 1000 V and AC 760 V
- ▶ Adjustment range prewarning threshold: 20 k Ω ... 2 M Ω
- ▶ Adjustment range alarm threshold: 1 k Ω ... 250 k Ω
- ▶ Open circuit or closed circuit principle selectable for output relay
- ▶ Adjustment of maximum system leakage capacitance for reduction of response time
- ▶ Simple, clearly structured setting of the device with screw driver
- ▶ LED chain for indication of the current insulation resistance
- ▶ Display „measurement circuit active“
- ▶ Automated and manual device self test
- ▶ Construction width 90 mm

Order information

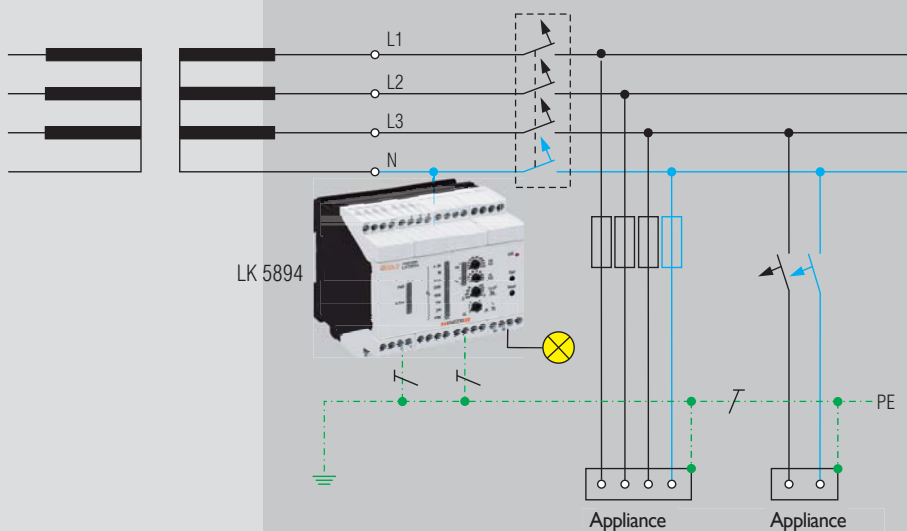
Standard type: LK 5894.12/010 DC 20 ... 30 V
Item number: 0065331

Fields of application

- ▶ DC / AC and mixed IT networks
- ▶ UPS systems
- ▶ Networks with frequency converters
- ▶ Battery networks
- ▶ DC driven networks
- ▶ Hybrid cars or battery operated cars

Application

The application example illustrates an insulation monitor in an IT system. When a first insulation fault occurs, a warning or alarm is displayed. When a second insulation fault occurs, fuses or circuit breakers will shut down the plant.



Principle of a non-earthed IT system with insulation monitoring

Do you have **leakage capacities up to 3000 μ F**, do you need a **second additional measuring circle or analogue output**?

LK 5896



Insulation monitor
LK 5894

Accessories



Buzzer
RK 8832

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VARIMETER IMD

DOLD 

Insulation monitor RN 5897/300 - Safety for mobile generators

The **insulation monitor RN 5897/300** from the **VARIMETER IMD** series by DOLD was developed especially for use with mobile generators. In mobile applications, such as in emergency vehicles or on construction sites, electrical energy must be used to reliably prevent injuries and property damage. Furthermore, mobile generators need to guarantee immediate operational readiness, without requiring time-consuming procedures to set up safeguards (such as installing and calibrating grounding systems, testing RCD, etc.). That's why the safeguard "electrical separation with insulation monitoring and shutdown" is available. It triggers an automated shutdown within < 1 s if the insulation resistance sinks below $100 \Omega / V$, even at extreme temperatures. The RN 5897/300 meets these demands, and fulfills the requirements of DIN VDE 0100-551 for mobile generators.

The insulation monitor is suitable for system leakage capacitance of up to $30 \mu F$, and is designed for universal use in ungrounded AC, DC and AC/DC networks up to 300 V rated voltage. Besides an adjustable alarm threshold, the insulation monitor also has an adjustable pre-alarm threshold. A multicolored LED status light keeps users informed continuously on the current operating status. The device guarantees reliable monitoring, even in a network without current.

Advantages and customer benefit

- ▶ Increased protection for operators and devices
- ▶ No limitation of cord length or number of connected devices
- ▶ Ready for immediate use
- ▶ No requirement for an electrician to calibrate protective safeguards
- ▶ Wide temperature range from $-40 \dots +70^\circ C$
- ▶ Multi-color LED device status light to display operational status
- ▶ Easy to adjust parameters with a rotary dial
- ▶ Early recognition of insulation faults

Our experience. Your safety.

Insulation monitor RN 5897/300

Technical features

- ▶ In accordance with DIN VDE 0100-551 for mobile generators
- ▶ Operational temperature range: - 40 ... + 70 °C
- ▶ Trips within < 1 s, if the insulation resistance drops below 100 Ω / V
- ▶ Insulation monitoring in accordance with IEC/EN 61557-8
- ▶ 2 response thresholds which can be set independently (e.g. available for pre-alarm and alarm)
- ▶ Adjustment range 1. Response value (pre-alarm): 20 k Ω ... 1 M Ω
- ▶ Adjustment range 2. Response value (alarm): 10 k Ω ... 250 k Ω
- ▶ 1 changeover each for insulation fault pre-alarm and insulation fault alarm
- ▶ Load or closed current principle adjustable for signaling relay
- ▶ With multi-color LED device status lights to display operational status
- ▶ Automated and manual device self test
- ▶ Selectable alarm memory
- ▶ Manipulation protection through sealed transparent cover
- ▶ External control input for combined Test / Reset button
- ▶ 3 wide voltage ranges for the auxiliary voltage
- ▶ Installation width 52.5 mm

Order information

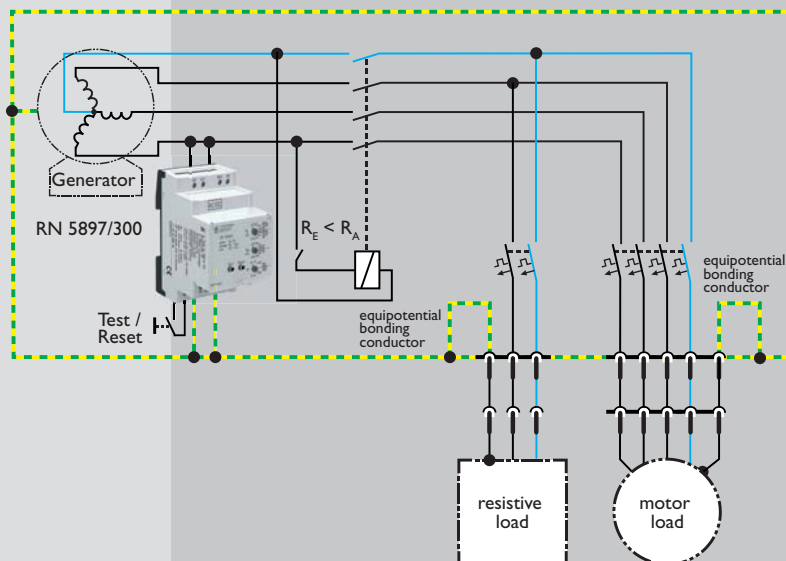
Standard type: RN 5897.12/300 DC 12 ... 24 V
Item number: 0067252

Standard type: RN 5897.12/300 AC/DC 24 ... 60 V
Item number: 0066942

Standard type: RN 5897.12/300 AC/DC 85 ... 230 V
Item number: 0066943

Examples of application

Monitoring mobile generators with the protective feature "electrical separation with insulation monitoring and shutdown" in accordance with DIN VDE 0100-551. If the insulation resistance falls below the minimum response level (standards require max. 100 Ω / V), the insulation monitor will trip within < 1 s and interrupt the electricity supply through a main switch.



If you have high system leakage capacitances up to 3000 μ F, you need a second additional measuring circuit or analog outputs?

LK 5896



Insulation monitor
RN 5897/300



Accessories



Buzzer
RK 8832

Areas of application

- ▶ Mobile generators
- ▶ UPS systems / battery networks
- ▶ Networks with frequency converters
- ▶ Hybrid and battery-powered vehicles



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VARIMETER RCM

DOLD 

Residual current monitor IR 5882 Reliable detection of fault currents

Our compact **residual current monitor IR 5882** of the **VARIMETER RCM** family of DOLD measures AC fault currents and pulsating DC fault currents. The device signals them via its potential-free change over contacts dependent on the adjusted respond values for prealarm and alarm. The IR 5882 is also suitable for the use in consumer units and industrial panels due to the integrated residual current transformer and a depth of only 63 mm.

Residual current monitors are measuring and monitoring residual- and fault currents in grounded voltage systems. They will be used in plants where they should signal a failure but not disconnect. Compared to current protection switches that are switching-off immediately at certain measuring fault currents, residual current monitors are showing a fault current early and are signaling an insulation degradation for an output contact for example.

Due to the early detection of insulation faults as well as preventive maintenance and service outside the operating time, unexpected stand stills of machines and plants can be avoided and do not result to inadvertent operating interruptions, damages or high costs.

Your advantages

- ▶ Integrated residual current transformer (diameter 28 mm)
- ▶ Time- and cost optimal service / maintenance
- ▶ Preventive fire- and plant protection by early fault signal
- ▶ Simple adjustment via snapping rotary switches
- ▶ Wire break detection in measuring circuit
- ▶ Wide auxiliary voltage range AC/DC 24 - 230V

Our experience. Your safety.

Residual current monitor IR 5882

Technical features

- ▶ According to IEC /EN 62 020
- ▶ For AC currents and pulsating DC currents, Type A according to IEC/TR 60755
- ▶ Frequency range 20 ... 2000 Hz
- ▶ Storing of alarm value is selectable
- ▶ With prewarning
- ▶ With proof- and delete button
- ▶ Wire break detection in measuring circuit
- ▶ Short reaction time
- ▶ Width of 105 mm with integrated residual current monitor
- ▶ With adjustable response delay t_v
- ▶ Closed- circuit current principle (output relay not activated in case of a fault)
- ▶ LED- display for auxiliary voltages, prewarning and alarm



Residual current monitor
IR 5882

Order information

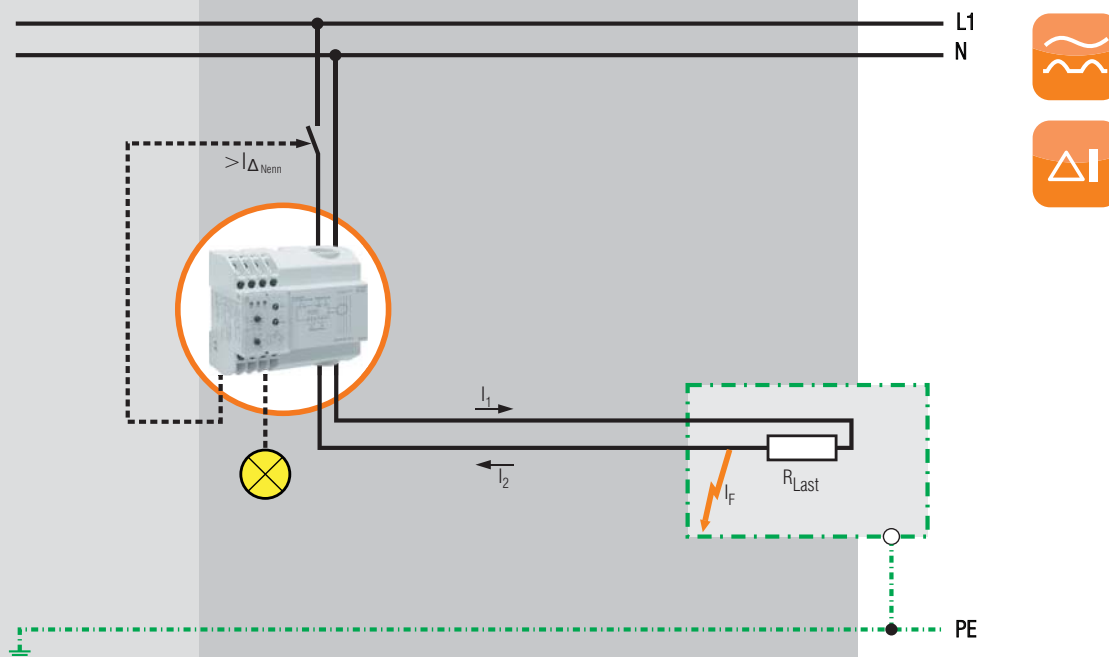
Standard type: IR 5882.38 AC/DC 24-230V 10A $t_v=5s$
Article number: 0066743

Application

Our compact residual current monitor IR 5882 is suitable for the use in consumer units and industrial panels. With the integrated residual current transformer it is possible to measure and analyse AC fault currents as well as DC fault currents. Machines and plant will be monitored permanently. Our residual current monitor IR 5882 will be additionally installed to the already existing protection equipment and allows a higher plant availability and plant safety due to early detection of insulation faults.

Application sectors

- ▶ Building automation
- ▶ Data center
- ▶ Air conditionings
- ▶ Cooling systems



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VARIMETER RCM

DOLD 

Residual current monitor RN 5883 - Reliably detect fault currents

The **residual current monitor RN 5883** (type B) from the **VARIMETER RCM** family by DOLD detects fault currents with DC or AC components in earthed networks. Here, the differential current measurement is implemented via the ND 5015 external differential current transformer. With an installation depth of 71 mm, the RN 5883 is also suitable for use in installation consumer units and industrial cabinets.

Residual current monitors (RCMs) measure and monitor differential currents or fault currents in earthed power supply systems. They are installed in systems in which a message rather than a shut-down is to be initiated in the event of a fault. In comparison to residual current breakers (or residual current devices - RCDs), which trip in the event of a defined fault current being measured and cause an immediate shut-down, residual current monitors indicate a fault current early and report a degradation of insulation via an output contact for example.

The early detection of insulation faults along with preventative maintenance and repair outside operating hours allows unexpected downtimes for machines and systems to be avoided and this in turn avoids undesirable operational interruptions, property damage and high costs.

Advantages and customer benefits

- ▶ Space-saving switch cabinet installation with a width of just 52.5 mm
- ▶ Time and cost optimised maintenance / repair
- ▶ High system availability through early fault reporting
- ▶ Simple adjustment via stepped rotary switches
- ▶ Broken wire detection in the measurement circuit
- ▶ 4 measurement ranges from 10 mA to 3 A
- ▶ Adjustable pre-alarm

Our experience. Your safety.

Residual current monitor RN 5883

Technical features

- ▶ Acc. to IEC/EN 62 020, VDE 0663
- ▶ For AC and DC systems Type B, acc. to IEC/TR 60755
- ▶ For detection of insulation faults in earthed networks
- ▶ 4 measurement ranges from 10 mA ... 3 A
- ▶ Alarms and pre-alarms with manual reset possible
- ▶ With adjustable switching delay
- ▶ Energized or de-energized on trip selectable
- ▶ LED display for operation, pre-alarm and alarm
- ▶ With test function
- ▶ Display via LED chain for differential current
- ▶ With analogue output as an option
- ▶ Broken wire detection
- ▶ Adjustment protection for the rotary switch with transparent cover which can be lead-sealed
- ▶ 52.5 mm installation width

Order information

Standard type: RN 5883.12/6I AC/DC 80 ... 230 V
Item number: 0066451

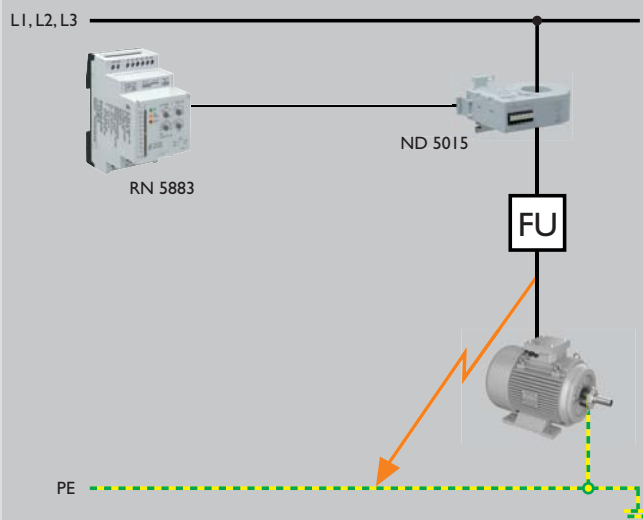
Standard type: ND 5015/035/6I
Item number: 0066841

Areas of application

- ▶ Co-generation plants
- ▶ Medical facilities
- ▶ Battery and UPS systems
- ▶ Laboratory facilities
- ▶ Printing machines

Application examples

The differential current measurement is implemented via an external differential current transformer. All power lines of the output (without PE) to be protected are routed through the transformer. In a fault-free network the sum of all currents will be zero, so no voltage will be induced in the differential current transformer. However, if an insulation fault results in a fault current flowing to earth, the current difference in the transformer will induce a current which will be detected and evaluated by the RN 5883. In the event of the threshold value being exceeded, the device switches to alarm condition and the LEDs for the pre-alarm and alarm flash.



Residual current monitor
RN 5883



Residual current transformer
ND 5015



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VARIMETER

DOLD 

Measuring and monitoring relays - Now with UL approval

In the field of monitoring electrical parameters, DOLD has added new **measuring and monitoring relays** to its **VARIMETER** family. These have UL approval and are equipped with large measuring ranges, adjustable response values and switching delays as well as hystereses. Versatile functionality, flexible adjustment options and a compact design provide maximum protection for your machines and systems. This allows mains and voltage faults to be detected and rectified at an early stage before major consequential damage occurs.

The measuring relays monitor overvoltage and undervoltage, voltage ranges, phase asymmetry and phase sequence. The measurement functions can be easily selected using rotary switches and without a complicated menu structure. Early detection of impending failures and preventive maintenance prevent costly damage, and as a user you benefit from the operational safety and high availability of your system.

Advantages and customer benefits

- ▶ Simple device adjustment via rotary switch
- ▶ Available with UL approval
- ▶ Versatile relays
- ▶ Preventive maintenance through early fault detection
- ▶ Reliable protection of motors and system components
- ▶ Precise monitoring of different measured values
- ▶ Use without additional auxiliary voltage (exception RL 9853)
- ▶ Large measuring range
- ▶ Extensive range of measuring relays from a single source

Our experience. Your safety.

Measuring and monitoring relays

Technical features (for type RL 9877)

- ▶ According to IEC/EN 60 255-1
- ▶ For monitoring 3 and 1 phases
- ▶ Alternating voltages with 50 / 60 Hz
- ▶ Detection of
 - Overvoltage
 - Undervoltage
 - Voltage range excess
 - Phase failure
 - Phase asymmetry
 - Missing neutral conductor or neutral conductor break
 - Direction of rotation in 3-phase networks
- ▶ With or without neutral connection
- ▶ Output: 1 changeover contact
- ▶ Closed-circuit principle
- ▶ Without separate auxiliary voltage
- ▶ Adjustable hysteresis for switching back to good state
- ▶ Adjustable switching delay
- ▶ Fast fault detection
- ▶ Width 35 mm



RL series
35 mm width



RN series
52.5 mm width

Applications

- ▶ Machinery and plant construction
- ▶ Engineering and planning offices
- ▶ Control and switchgear construction
- ▶ Industrial service and repair
- ▶ Building and electrical installation technology



Type



3 AC phase monitor
RL 9877

Multi



Fuse monitor
RL 9075



AC voltage relay
RL 9854



DC voltage relay
RL 9836



3 AC phase monitors
RN 9877

Multi



Fuse monitor
RN 9075



AC/DC current relay
RL 9853



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VARIMETER NA

DOLD 

Voltage and frequency monitor RP 9800 Have the grid under control

Application

When supplying energy into the public mains, additional voltage and frequency monitoring is required for generator sets > 30 kVA (Photovoltaic, combined heating and power generators, wind and hydro generator plants). The device can be used in plants with < 30 kVA, that have an isolator switch, as an alternative to an auto switching isolating device.

Solution

The voltage and frequency monitor **RP 9800** of DOLD offers an optimised solution for mains monitoring when generating energy. To maintain the quality of the grid it is requested all over Europe by the energy companies.

Advantages to you

- ▶ Settings are adapted to the different European standards
- ▶ Simple adjustment with rotational switches
- ▶ All adjusted values are visible on one glance
- ▶ Manipulation is avoided by a sealable transparent cover
- ▶ Several LEDs show the status of the plant
- ▶ Voltage and frequency are indicated by separate output relays
- ▶ Fast reaction time $t < 100$ ms (typ. 75 ms)
- ▶ Required trend monitoring by calculating a 10 minute mean value
- ▶ Adjustable time delay

Our experience. Your safety.

Voltage and frequency monitor RP 9800

Technical features

- ▶ Voltage and frequency monitoring for generator sets > 30 kVA connected to the public grid according VDEW
- ▶ For 3-phase systems with neutral
- ▶ Also for special voltages
- ▶ Disconnection on rise and drop of voltage
- ▶ Disconnection on rise and drop of frequency
- ▶ Disconnection when 10 min mean value differs to nominal voltage
- ▶ Frequency and voltage are indicated by separate output relays
- ▶ Allows connection or re-connection after adjustable time delay
- ▶ Protected against manipulation by sealable cover over setting switches
- ▶ Clear and directly visible settings according to directive
- ▶ High accuracy
- ▶ Dimensions in mm 70 x 90 x 71 (W x H x D)



VARIMETER
RP9800

Ordering data

Standard types:

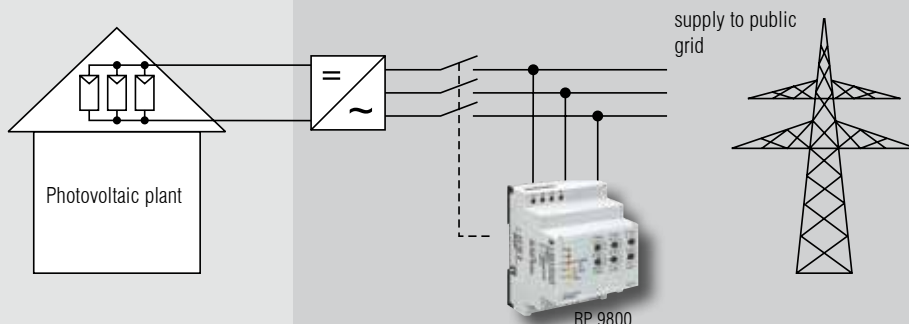
- RP 9800.12 3/N AC 400/230 V
Article number: 0062263
- RP 9800.12 3/N AC 315/182 V
Article number: 0063103
- RP 9800.12/500 3/N AC 400/230 V
Overfrequency adjustable from 50.2 ... 51.5 Hz
in steps of 0.1 Hz
Article number: 0064515

Application

Monitoring of the parameters required by the directive is guaranteed by RP 9800. Avoiding mains interference by the coupling device is only one of numerous applications.

More applications are:

- ▶ Parallel connected single phase inverters: On phase failure the other 2 separate supplied phases are disconnected.
- ▶ Supply by one or more 3-phase inverters: On phase failure in one path or on differences to the required grid quality the RP 9800 initiates disconnection.



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