



REO

Components for
medical technology



Medical technology

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Service



Guarantee

Winning quality – extra peace of mind, thanks to the expanded REO manufacturer's guarantee.

We believe in the quality of our own products and are confident of the durability of all components used, which is why we have extended the legal [guarantee from one to two years](#).



Safety

We offer you devices with the highest possible operational safety. Should any unwanted events occur with any of our products, your professional emergency responder will be available to help you over the telephone free of charge. If the situation or query cannot be resolved over the telephone, you have the opportunity to have the defective device sent back after consultation.



Repairs

After telephone consultation, and after the defective product has been received, we can even offer you [express repairs](#) if possible. This minimises downtime in the event of a fault and guarantees a swift exchange.



Hotline

Our REO sales specialists look forward to giving you a helping hand. Contact your REO contact partner or call our hotline to receive further information about our services and the REO portfolio.

Medical technology lifesavers

Modern examination and operating methods would not be possible without the use of electricity. Be it computer tomography, ECG or dental treatment – on the one hand, while the use of electricity has replaced and improved traditional treatment methods, on the other hand, only certain procedures would be possible because of it.

However, the use of electricity also holds dangers for people. A potential hazard is especially high in the medical sector, where electrical appliances are in direct contact with patients.

These sources of danger are subjected to with standards such as the IEC 60601-1, which govern demands for a safe supply of electricity in the medical sector and protect patients from danger.

The plant in Pfarrkirchen develops and produces REO transformers for medical technology which meet globally applicable standards and set standards in matters of reliability and efficiency.



Useful facts about medical technology

The standard IEC 60601-1 and the EU Directive 93/42/EEC govern the safety of medical electrical systems. A large amount of knowledge and experience is needed to implement these in order to guarantee a safe supply of electricity. REO draws on years of tradition in the production of transformers for industrial use and thereby offers solutions which go above and beyond the high standards that a standard sets.

REO transformers are particularly characterised by the following qualities:

- Low leakage field – meaning that high EMC compatibility can be guaranteed
- High band quality – which results in a high level of efficiency and an outstanding performance
- Full grouting – as protection against environmental influences, as well as for better heat dissipation
- Filters, surge protection and starting current limiters are developed and produced by us ourselves, which results in maximum compatibility with the transformers.

As well as producing standard products, REO also possesses a great production depth. In this way, special customer-specific requirements, such as special housing or mounting plates for transformers, can easily be implemented.

Even in medical technology, where there is great emphasis on top-class safety and reliability, all products must be subjected to strict tests. As well as solutions for medical technology, REO has spent years designing and producing testing systems for railway and industrial electronics. More proof that the concepts of safety and product testing are not unknown to REO.

In our in-house test bed, in the Pfarrkirchen REO plant, all transformers are subjected to strict tests to ensure that they are in line with standards. REO is a partner you can rely on. Experience in multiple electrical engineering sectors and a constant eye on the market will always guarantee optimal solutions with state-of-the-art technology.

The benefits of REO components

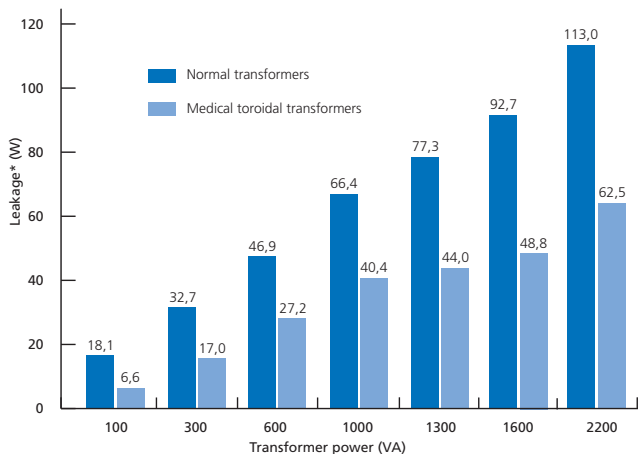
- REOMED with toroidal transformers
- Energy costs reduction, especially for long-term use
- Environmentally friendly, thanks to lower energy consumption
- Integrated starting current limiter
- Integrated short-circuit and overload protection
- Wide range of options
- Long service life

Useful facts about medical technology

REOMED transformers for efficient energy and cost reduction

Thanks to increased burdens on the environment and the resulting environmental awareness, the topic of energy efficiency is back in the spotlight. REOMED transformers help to achieve this goal. The following illustration compares the leakage values between a conventional transformer and a

REOMED transformer at different power values. The direct comparison makes the extreme leakage differences easy to recognise.



* Leakage at operating temperature

Savings with toroidal transformers

Comparison of leakages between a normal transformer and a REOMED transformer. The actual energy savings soon become clear.

Options at REOMED

- Power input of 115 V or 230 V or wide range of 100–130 V / 200–250 V
- Output of 115 V or 230 V or wide range of 100–130 V / 200–250 V

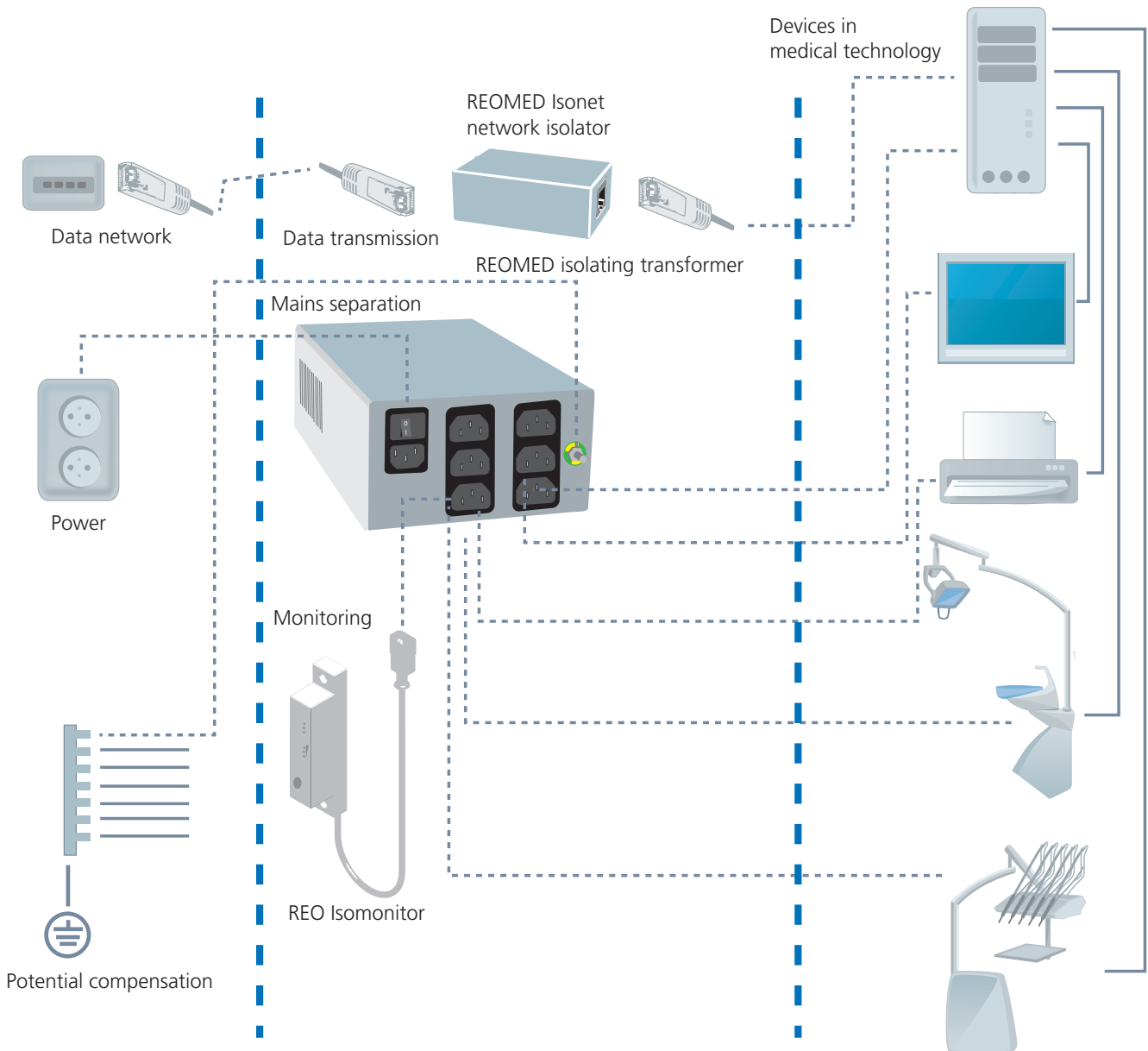
As a standard or as a preference, our REOMED models are equipped as follows:

- REOMED 300 = Option A 10
- REOMED 600 = Option A 50
- REOMED 800 = Option A 50
- REOMED ≥ 1000 = Option A 50

Available as an option:

- Option A 10 = NTC
- Option A 50 = electronic switch-on current limiter
- Option X1 = surge protection
- Option X2 = mains filter
- Option X3 = surge protection + mains filter

Solutions for medical technology



REOMED I

Isolation transformers – Version 3.1

Medical transformers

Medical systems must safely meet the leakage current requirements specified in the standard – if several devices are switched together, the overall leakage current increases accordingly.

The TÜV-certified REOMED isolation transformers are proven and reliable equipment for use with all electrical systems in a medical environment – they limit the leakage current and thus help to ensure patients’ safety.

REOMED isolation transformers are characterised by their very low magnetic stray field and high level of safety, whilst also providing high efficiency and easy connectivity.

In addition to the standard range, these transformers may be constructed in accordance with customer requirements and enhanced by adding an electronic starting current limiter, surge protection and a mains filter.

Advantages

- Wide range of options
- Low weight
- Short-circuit and overload protection
- Integrated starting current limiter
- Sturdy aluminium housing
- Equipotential earthing pin as per DIN 42801
- Plug connections as per IEC 60320
- IEC 60601-1:2005/ AMD1:2012; ANSI/ AAMIES 60601-1:2005/ CR/ 2012 CAN/ CSA C22.2 No. 60601-1:14 (medical technology) USA and Canada IEC 60601-1-2:2014 (partly); EN/ IEC 61000-3-2:2014; EN/ IEC 61000-3-3:2013

REOMED I Version 3.1



Standard IEC 60601-1 (ed 3.1) / NRTL
Standard IEC 60601-1-2 (ed 4.0)

Technical data

REOMED I ed 3.1	
Input voltage	115 / 230 V
Output voltage	115 / 230 V
Rated power input	300 - 2200 VA
Housing protection rating	IP 20
Weight	4,5 - 19,0 kg
Ground leakage current at 127/254 V / 50/60 Hz	< 300 / 500 μ A
Number of output sockets	4 - 9 as per IEC 320
Test voltage	4 kVac (between primary and secondary winding)
Max. Ambient temperature	40 °C
Isolation resistance	> 2 M Ω
Protective conductor resistance	< 0,1 Ω

All devices possess a starting current limiter (NTC or electronic), potential compensation as per DIN 42801, a primary power cable and a protective temperature limiter. Devices can be fixed using wall, table or floor mounting.



REOMED II

Isolation transformers – Version 3.1

Medical transformers

The REOMED II isolation transformer is a reliable leakage current limiter in medical systems.

Voltage-resistant materials – combined with high-quality processing – provide safe isolation from the mains input side. The inbuilt isolation transformers are designed for low internal energy loss, resulting in very low no-load losses. With regards to the input power of REOMED II, values of <1 % have been reached.

A circuit breaker ensures that the transformers are protected against overload and short-circuiting on both the input and output sides.

The mains input side must be operated with a mains switch with a green light. A two-pole circuit breaker on the mains side and a one-pole circuit breaker on the output side provide protection.

There is no need to keep replacement fuses available, and there is also no risk of confusion as a result.

Furthermore, a temperature switch is integrated into the power isolation transformer, providing additional safety if there is no internal cooling system.



Standard IEC 60601-1 (ed 3.1) / NRTL
Standard IEC 60601-1-2 (ed 4.0)

Advantages

- Small dimensions
- Sturdy aluminium housing
- Mains switch with green light
- Low overall weight
- Integrated circuit breakers
- Plug connections as per IEC 60320
- IEC 60601-1:2005/ AMD1:2012; ANSI/ AAMIES 60601-1:2005/ CR/ 2012 CAN/ CSA C22.2 No. 60601-1:14 (Medizintechnik) USA und Canada IEC 60601-1-2:2014 (Partly); EN/ IEC 61000-3-2:2014; EN/ IEC 61000-3-3:2013

Technical data

REOMED II Version 3.1	
Input voltage	230 V
Output voltage	230 V
Rated power input	660 - 2000 VA
Housing protection rating	IP 20
Weight	7,7 - 18,0 kg
Primary circuit breaker	4 - 12 A
Secondary circuit breaker	3 - 10 A
Ground leakage current at 254 V / 50/60 Hz	< 500 µA
Number of output sockets	6x as per IEC 320
Test voltage	4 kVac (between primary and secondary winding)
Max. Ambient temperature	40 °C
Isolation resistance	> 2 MΩ
Protective conductor resistance	< 0,1 Ω

All devices possess a starting current limiter (NTC or electronic), potential compensation as per DIN 42801, a primary power cable and a protective temperature limiter. Devices can be fixed with wall, table or floor mounting.

REOMED Isonet network isolator

Accessories

The REOMED Isonet network isolator is used for the electrical isolation of devices in copper wire-bound Ethernet networks. The isolation protects devices and people from the effects of possible electrical voltage spikes on network power cables. Potential equalisation currents via the network cable shielding are reliably prevented.

REOMED Isonet network isolator



EN 60950-1
EN 60601-1

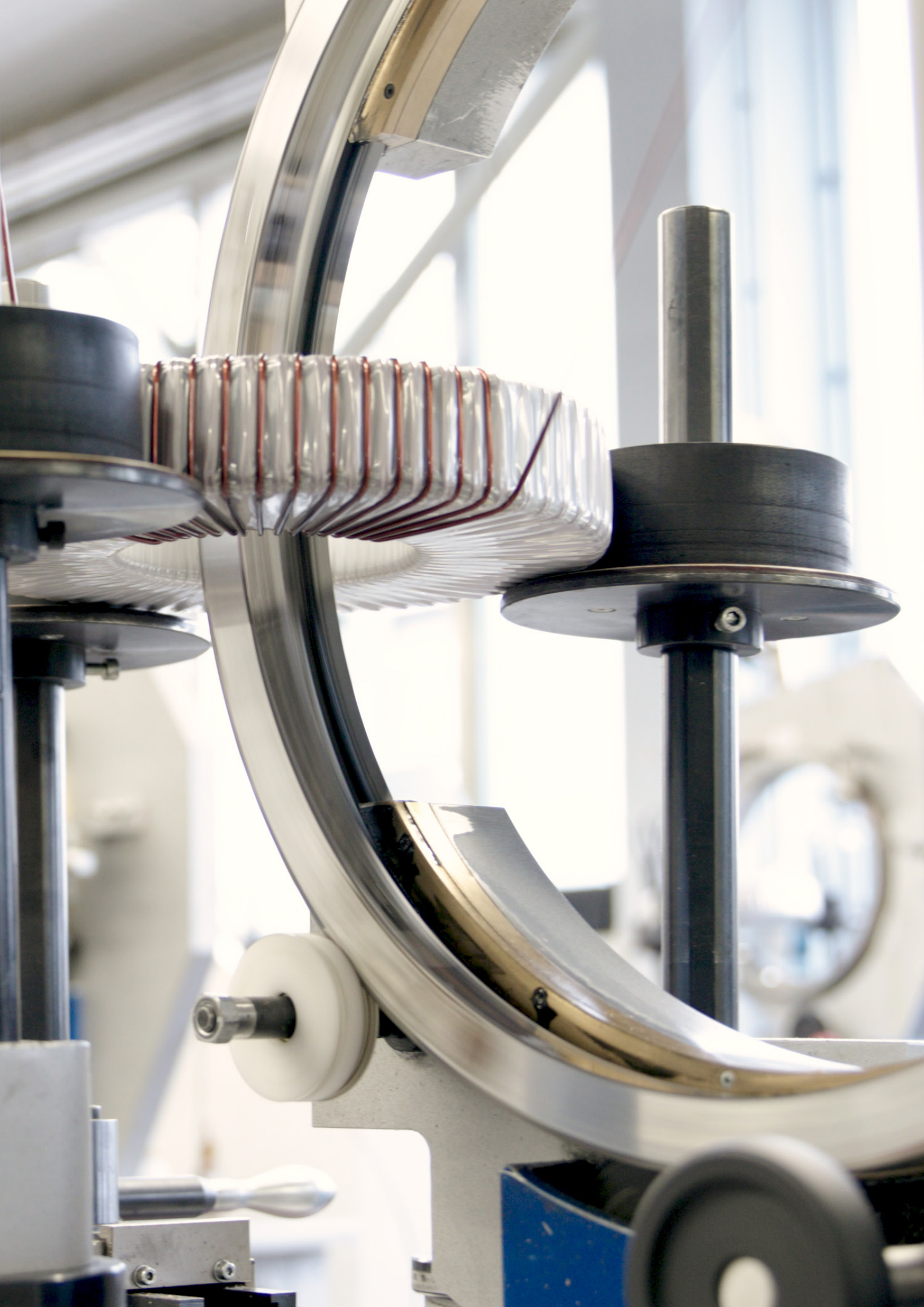
Advantages

- Protection in both transfer directions
- Interruption of the shield connection of the network cable
- No additional power supply required
- No software installation required
- Maintenance-free
- RoHS compliant
- EN 60950-1
- EN 60601-1

Technical data

REO network isolator	
Isolation voltage	4 kV
Input / output connector	RJ45
Supported network protocols	10BaseT, 100BaseTx, 1000BaseT
Insertion loss	-1,3 max. dB
Return loss	-8 min. dB
Protection rating	IP 20
Max. voltage of the connected devices	250 Vac rms
Operating temperature	-10 bis +70 °C
Storage temperature	-40 bis +85 °C
Air humidity	10 bis 90 % (without condensation)
Housing	Plastic
Weight	45 g
Dimensions [H x W x D]	25 x 66 x 40 mm





Isomonitor - isolation monitor for REOMED transformers

Accessories

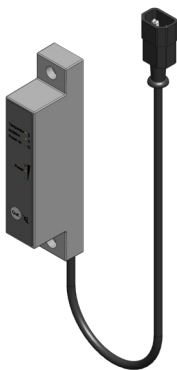
Conventional protective measures against isolation faults, such as fault current circuit breaks for home installations, may not recognise potential isolation faults on the output side when isolation transformers are used. The ISOMONITOR monitors the dielectric resistances of both live contacts of the isolation transformer's output socket against grounding potential and generates a warning signal in the event of a fault.

Isolation resistance is monitored in case the threshold value of 50 k Ω (25 k Ω) is exceeded. If this value is exceeded, both an acoustic signal (a pulsating tone of approx. 3 kHz, approx. 98 db) and a visual signal (LED indicator) are generated. The ISOMONITOR can be directly connected to one of the output sockets on the isolation transformer. Other optional functions are monitoring the transformer temperature with aural and visual alarms, and a visual display of the transformer's power consumption.

In the event of a fault, the aural alarm can be reset with an acknowledgement button, and the visual alarm is automatically reset as soon as the fault has been dealt with. Should a function test be performed with the ISOMONITOR, an appropriate test plug (adapter cable required) for simulating an isolation fault must be plugged into one of the output sockets on the isolation transformer. The signal will be triggered while the test plug is plugged in.



Isomonitor – isolation monitor for REOMED transformers



Standard IEC 60601-1-2 (ed 4.0)

In combination with the REOMED
isolation transformer as per:
EN 60601-1
EN 60601-1-2

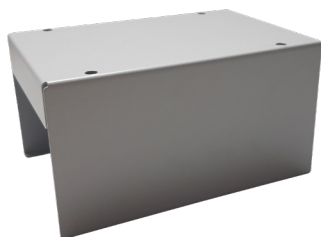
Advantages

- Easy to operate
- Aural and visual signals
- Function test with test plug
- Power consumption display (optional)
- Temperature warning (optional)

Technical data

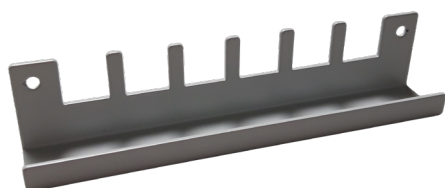
REO Isomonitor			
Rated voltage	230	115	(V)
Working range	200 - 240	100 - 120	(VAC)
Response value	≤ 50	≤ 25	(kΩ)
Response time	< 2		(sec.)
Signal indicators	<p>During operation: LED green (power on)</p> <p>Isolation fault:: LED yellow (isolation)</p> <p>Transformer threshold temperature reached: LED yellow (temperature)</p> <p>Transformer power workload (power): LED green: 30 % LED yellow: 60 % LED red: 90 %</p>		
Aural signal	<p>For isolation fault: pulsating</p> <p>For overtemperature: Continuous tone</p>		
Ambient operating temperature	0... +40		(°C)
Relative ambient operating air humidity	30... 75		(%)
Protective class	II		
Protection rating	IP 20		
Dimensions [H x W x D]	192 x 34 x 56		(mm)

Accessories



Device output trigger safety lock REOMED I

Prevents the unwanted removal of the device plug from the secondary connections.



Device output trigger safety lock REOMED II

Prevents the unwanted removal of the device plug from the secondary connections.



Mounting rails

The fixing rails are mounted at the site of the rubber feet. This means that the device can be fixed firmly to equipment trolleys, etc. Available for all REOMED I and REOMED II devices.



Special Europe power cable (NK5) device plug

CEE7/VII safety contact angular plug to IEC320/C13
Length: 2.0 m

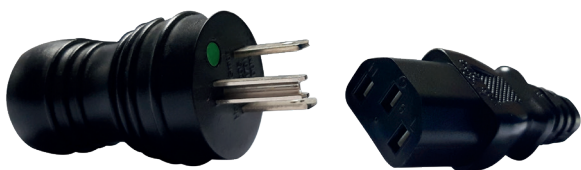


Power cable – Switzerland (NK13) device plug

Type 12 plug to IEC320/C13
Length: 2.5 m

Power cable – USA (NK7) UL-CSA hospital plug

Type LT 205 (green dot) to IEC320/C13
Length: 2.5 m



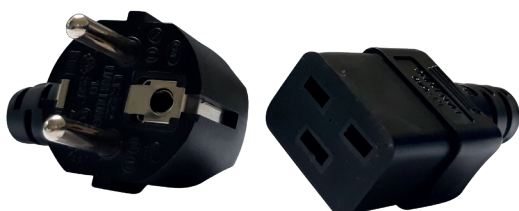
Special Europe power cable (NK8) device plug

CEE7/VII safety contact angular plug to IEC320/C13
Length: 2.5 m / red



Special Europe power cable (NK29) device plug

CEE7/VII safety contact angular plug to IEC320/C19
Length: 2.0 m



Extension cable (NK19) device plug

“Kettle plug” cable (extension)

IEC320-C14 to IEC320/C13 connector socket
Length: 2.0 m



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