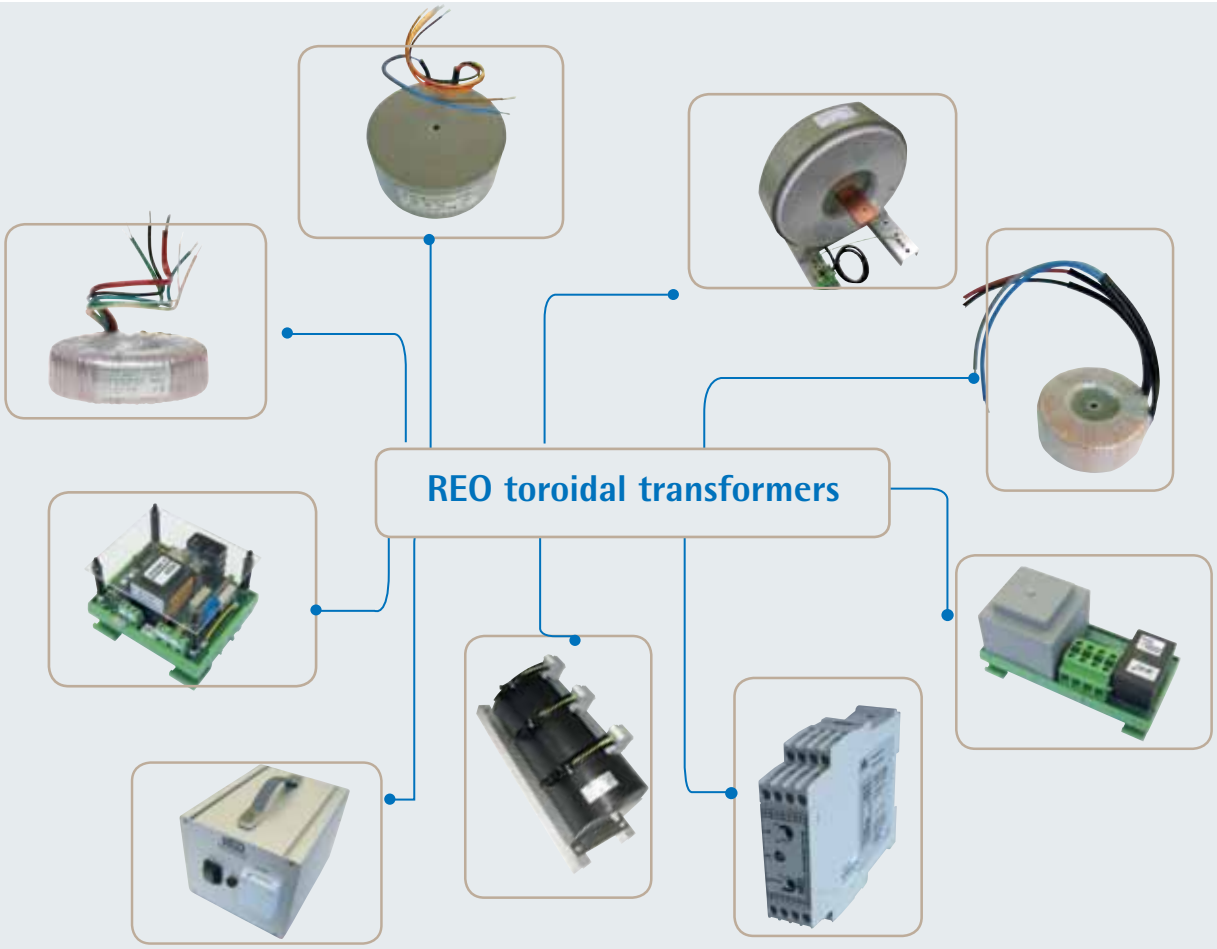
REO toroidal transformers

Product catalogue

ealed centre hole • Fully sealed • Open • High current transformer • Transportable housing transformer • Three-phase toroidal transformer •

Pure|Power|Perfection

Content



Wide range of toroidal transformers for any application

REO has been developing and producing toroidal transformers for more than 25 years continuously optimising the product and the manufacturing processes to ensure constant development and increases component efficiency..

Toroidal transformers are particularly used when a compact yet robust power supply is required. REO transformers are used in the entire sector of electronics and electro technology and have, in addition to the small dimensions, significant advantages in comparison with the standard EI transformers.

In general all REO transformers are designed and manufactured according to EN ISO 9001 and each product is individually tested to ensure compliance. The transformer is only released if the results are successful. Further standards used for the production of REO toroidal transformers:

- **DIN EN 61558-2-1; DIN EN 61558-2-4; DIN EN 61558-2-6**
- **DIN EN 61558-2-2; DIN EN 61558-2-13**
- **DIN EN 60601-1**
- **UL/cRU certified conforming to OBJY2/OBJY8.E251513: Approved to insulation class B**

Content

Application areas:

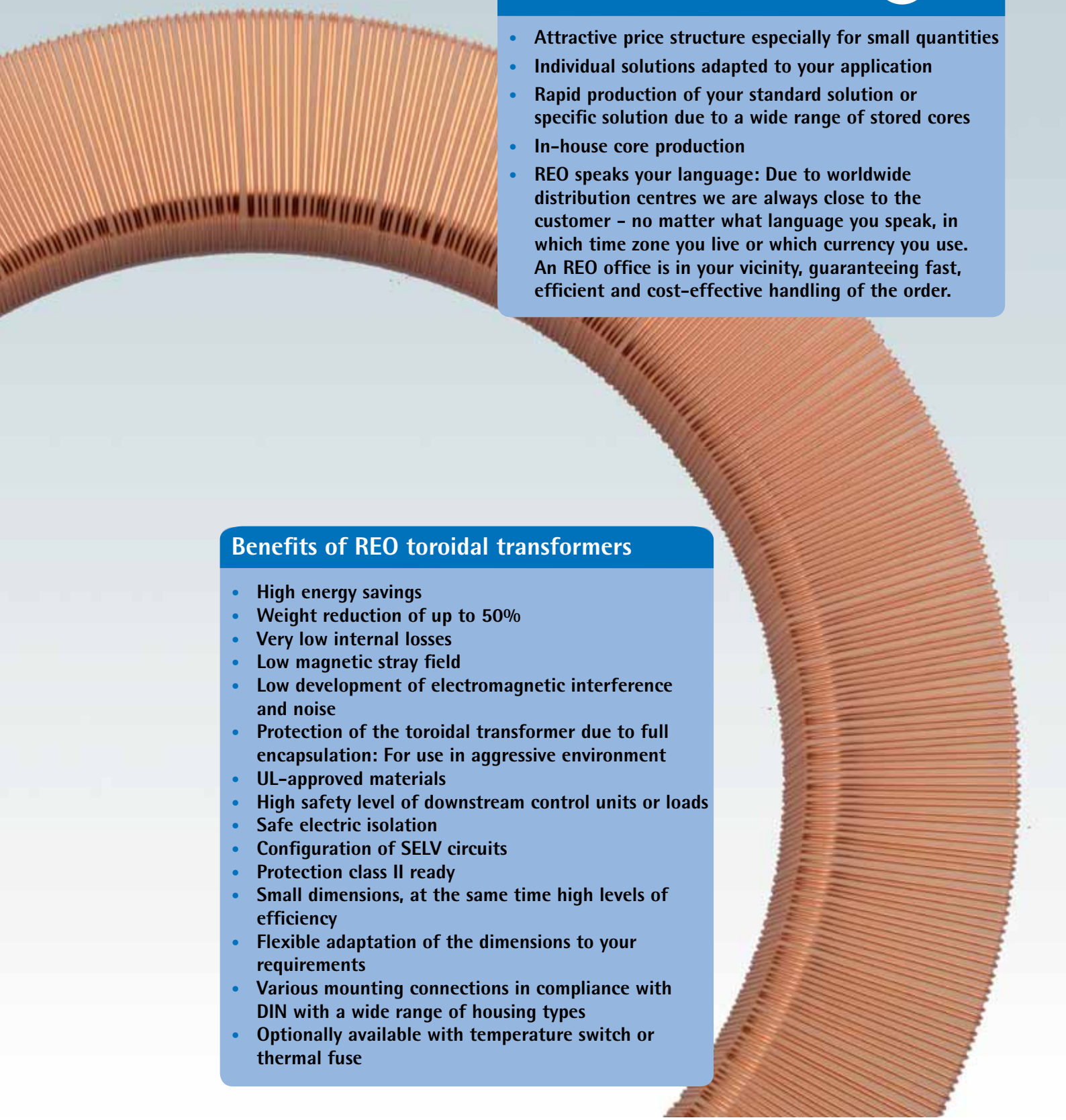
Drives technology

Medical applications

Railway solutions

The REO benefits at a glance

- Attractive price structure especially for small quantities
- Individual solutions adapted to your application
- Rapid production of your standard solution or specific solution due to a wide range of stored cores
- In-house core production
- REO speaks your language: Due to worldwide distribution centres we are always close to the customer – no matter what language you speak, in which time zone you live or which currency you use. An REO office is in your vicinity, guaranteeing fast, efficient and cost-effective handling of the order.



Benefits of REO toroidal transformers

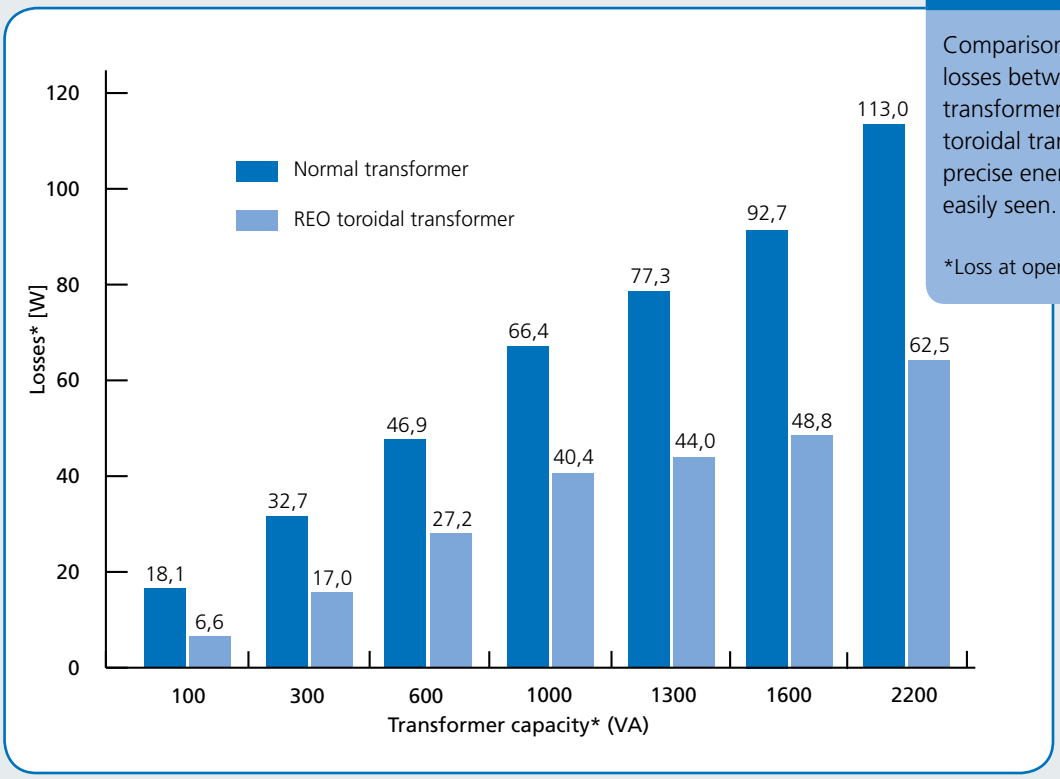
- High energy savings
- Weight reduction of up to 50%
- Very low internal losses
- Low magnetic stray field
- Low development of electromagnetic interference and noise
- Protection of the toroidal transformer due to full encapsulation: For use in aggressive environment
- UL-approved materials
- High safety level of downstream control units or loads
- Safe electric isolation
- Configuration of SELV circuits
- Protection class II ready
- Small dimensions, at the same time high levels of efficiency
- Flexible adaptation of the dimensions to your requirements
- Various mounting connections in compliance with DIN with a wide range of housing types
- Optionally available with temperature switch or thermal fuse

Low energy consumption

REO toroidal transformers for efficient reduction of costs and energy

Due to the increasing environmental impact and the resulting environmental awareness, energy efficiency is a major focus in today's markets

REO toroidal transformers help to achieve this goal. The following chart shows the loss values between a normal transformer and a toroidal transformer with various performance levels. The large loss differences are easily seen from this direct comparison.



Efficient energy reduction

Comparison of the losses between a normal transformer and an REO toroidal transformer: The precise energy savings are easily seen.

*Loss at operating temperature

Toroidal transformer open

Benefits / accessories

- Adaptation of the supply voltage to different output voltages
- No audible noise
- Low magnetic stray field
- Low voltage drop
- Minimal total weight
- Small dimensions
- Connections with free wire or stranded wires
- Mounting set available as accessory
- Standards: EN61558; EN60601

Technical data*

Rated power	30 - 6000	[VA]
Rated current	max. 50	[A]
Input voltage	230	[V]
Output voltage	24 - 690	[V]
Frequency range	50 - 400	[Hz]
Temperature class	T40/E und T40/B	

*Special voltages and higher capacities on request

Setries RFT-O

Toroidal transformer open

Toroidal transformer in open design used as mains transformer, autotransformer, safety isolating transformer, isolating transformer.

Fixed toroidal transformers have significant advantages in comparison with usual transformers: Due to their structure there is a volume reduction of 50% and with a lower weight. Since the toroidal cores have virtually no air gap, only a very low magnetic stray field develops and the transformers are almost free of audible noise. Between open-circuit operation and full load the change of the secondary voltage is several times smaller than with transformers with standard cores.

Toroidal transformer with sealed centre hole

Series RFT-MV

Technical data*		
Rated power	30 - 6000	[VA]
Rated current	max. 50	[A]
Input voltage	230	[V]
Output voltage	24 - 690	[V]
Frequency range	50 - 400	[Hz]
Temperature class	T40/E und T40/B	

*Special voltages and higher capacities on request

Benefits / accessories

- Integrated mounting plate with partial sealing
- No audible noise
- Low magnetic stray field
- Low voltage drop
- High efficiency level
- Direct mounting option with only one screw
- Safe distance to the mounting surface
- Connection with wire or stranded wires
- Standards: EN61558; EN60601

Toroidal transformer with sealed centre hole

Toroidal transformer with sealed centre hole used as mains transformer,
autotransformer, safety isolating transformer, isolating transformer.

The toroidal transformers with sealed centre hole or sealed socket have the same advantages as the open transformers, however they also provide a good mounting solution for the transformer. This allows faster time and lower cost mounting as only a central stud is required. A safe distance from the mounting surface is ensured.

Please visit www.reo.de for further information

Toroidal transformer fully sealed

Technical data*		
Rated power	30 - 6000	[VA]
Rated current	max. 50	[A]
Input voltage	230	[V]
Output voltage	24 - 690	[V]
Frequency range	50 - 400	[Hz]
Temperature class	T40/E und T40/B	

*Special voltages and higher capacities on request

Series RFT-VV

Benefits / accessories

- Fully sealed in plastic housing
- High efficiency level
- Very low open-circuit losses
- No audible noise
- Low voltage drop
- Protection class IP 54
- Low magnetic stray field
- Optimal mechanical protection
- Protection against humidity and dust
- Regular heat distribution
- Connection with wires, stranded wires or clamps according to VGB 4
- Standards: EN61558; EN60601

Toroidal transformer fully sealed

Toroidal transformer fully sealed as mains transformer, autotransformer, safety isolating transformer, isolating transformer.

All benefits of the toroidal transformer are combined in fully sealed toroidal transformers in a special plastic housing. The shape of the housing can be adapted exactly to the application. The plastic housing provides optimal mechanical protection against humidity and dust and provides in addition better heat conduction which leads to an increased power density.

The mounting is carried out by means of a central screw and allows therefore a short mounting time.

High current transformer

Technical data*		
Rated power	815 - 4000	[VA]
Input voltage	230	[V]
Output voltage	0,8 - 1,67	[V]
Frequency range	50 - 400	[Hz]
Temperature class	T40/E und T40/B	

*Special voltages and higher capacities on request

Series RFT-HS

Benefits / accessories

- Partial sealing with large push-through opening for cables or power rails
- Compact design
- Very low magnetic stray field
- Simple and quick mounting
- High electromagnetic capability without additional components
- Pre-mounted on aluminium rails with clamps according to VGB 4
- Standards: EN 61558

High current transformer according to the current transformer principle

High current transformers enable the simple transformation of low primary currents into very high secondary currents. The compact and robust design is already provided with a reinforced insulation. With this uncoated copper bars, which are already safely insulated by the primary coil without additional measures, can be used as secondary coil.

The high current transformers are completely premounted on stable aluminium profiles and are provided with connection terminals according to VGB 4 ((Unfallverhütungsvorschrift „Elektrische Anlagen und Betriebsmittel“, regulation for the prevention of accidents (UVV) ‘Electrical installations and working materials’). In addition a connection for the earthing of the mounting rails is provided. Even higher output currents can be achieved with parallel connected units.

Typical areas of application are: Test devices for control gear, especially cables, switches and contactors.

Please visit www.reo.de for further information

Transportable housing transformer

CE

Benefits / accessories

- Decoupling of RFI noise appearing on contaminated circuits
- Integrated main input socket, main switch, device fuse and output socket
- Unearthed output voltage for onstruction of an IT network
- Electric isolation from supply
- High insulation resistance
- Low capacitance isolating transformer
- Broad spectrum of interference suppression
- Integrated mains filter with high attenuation
- Standards: EN61558

Technical data*

Rated power	300 - 900	[VA]
Input voltage	230	[V]
Output voltage	230	[V]

*Special voltages and higher capacities on request

Series RFT-SST

Transportable housing transformer

Transformer with isolating transformers with especially segregated winding. Due to the low capacitance design and use of an additional high quality filter an attenuation of up to 90 dB can be achieved. An isolating transformer ensures - even in test environments - additional safety.

Three-phase isolating transformer

CE

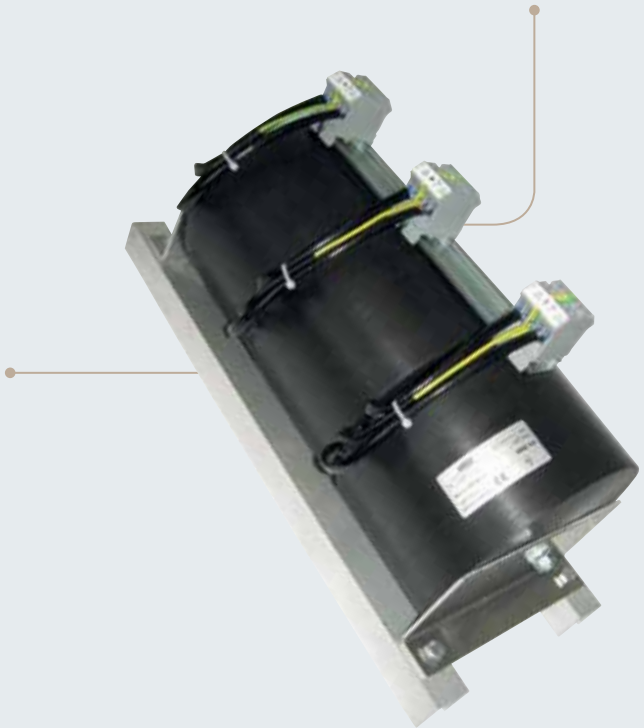
Benefits / accessories

- Use with contamination levels of up to PD3
- Protection class IP 00 to IP 54 (with terminal box)
- Resistant to shock and vibration (optional)
- Use of high quality cores for reduction of power loss
- Flexible adaptation to customer specifications (modified voltages, voltage tappings, power values, protective against humidity, high protection level, temperature monitoring, additional outputs and alternative vector groups possible)
- Optional: All materials on request according to REO UL system E251513
- Standards: IEC/DIN EN 61558

Series D-RFT

Technical data*		
Rated power	600 - 15.000	[VA]
Input voltage	3 x 400; 3 x 230	[V]
Output voltage	3 x 230; 3 x 400	[V]
Frequency range	50 - 400	[Hz]
Temperature class	T40/E; T40/B	[%]
Rated current	bis 3 x 21	[A]

*Special voltages and higher capacities on request



Three-phase isolating transformer

Three-phase isolating transformer D-RFT connect three-phase alternating voltage systems of the same frequency with different voltages.

The isolating transformer is used for protective separation between input winding and output winding (by double or increased insulation, shielding winding).

Please visit www.reo.de for further information

Switch-on current limiter with magnetic biasing

CE

Benefits / accessories

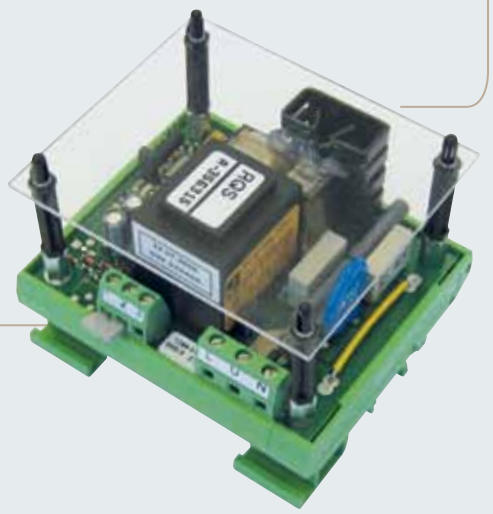
- Protection class IP 00, IP 20
- Low starting current of the transformer
- Transformer input can be turn on/off without fuse failure or breakers tripping
- Use of transformers with low-loss sheets

Technical data*

Rated voltage	115 - 230	[V]
Supply frequency	45 - 65	[Hz]
Rated current	max. 16	[A]
Start delay	ca. 500	[ms]
Operating temperature	0 - 45	[°C]

*Special voltages and higher capacities on request

Series ED 1/16



Switch-on current limiter

The switch-on current limiter ED 1/16 allows direct switching-on of single phase transformers without upstream safety devices being triggered due to the inrush current.

The switch-on current-limiter is suitable for normal transformers as well as for toroidal transformers and steel-lamination transformers.

Switch-on current limiter with attenuation resistance

Benefits / accessories

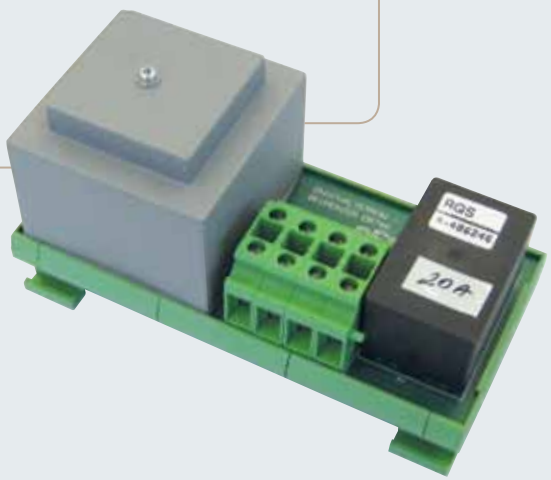
- Compact design
- Long operating life
- Mounting on a standard rail
- Robust relay technology
- Safe to touch according to VBG 4

Technical data*

Input voltage	90 - 260	[V]
Output voltage	90 - 260	[V]
Rated current	max. 32	[A]
Start delay	ca. 100	[ms]

*Special voltages and higher capacities on request

Series ED 746



Switch-on current limiter with damping resistance

REO switch-on current limiters allow the safeguarding with rated current as well as the use of circuit-breakers.

The area of application includes inductive and capacitive loads, such as rectifier, motors (circular saws, etc.) and transformers.

Please visit www.reo.de for further information

Current controller

Technical data

Input	
Input current	0...16 A, AC
Frequency range	45...50...65 Hz
Curve shape	Sinusoidal
Overcurrent capability	2 x I_N constantly
Connection type	Push-through connection Ø 4,2mm
Switching output	
Relay output	1 changeover contact
Max. switching voltage	250 V AC/DC
Max. switching current	2 A
Switching hysteresis	adjustable via DIP switches
Delay time	typ. 0,1...10 s
Operating and closed-circuit behaviour	adjustable via DIP switches
Relay status display	amber LED (relay active)
General data	
Supply voltage	20...30 V, DC
Max. current consumption	< 30 mA
Precision of adjustment	< 0,5 % typ.
Signal acquisition time	40 ms
Ambient temperature range	0....+40 °C
Protection	IP 20
Installation position	Any
Supply/relay connection type	Screw terminal 2,5 mm²
Insulation test voltage	3 KVac

Series 869

Benefits / accessories

- Twofold overload capability
- Separate switching output with relay
- Adjustable current switching threshold and switching hysteresis
- No additional losses in the measuring circuit
- Status display with LED
- Operating or closed-circuit operation
- Safe electrically isolated primary and secondary circuits
- Top-hat rail mounting
- Screw terminal connection
- Standard housing
- Simple installation

Current controller

The type 869 current relay converts signals into digital form. The set current is monitored inductively on the line fed through the housing. If the set current is exceeded, the inbuilt relay switches over. The switching threshold is set coarsely via DIP switches (within the device) and precisely with a front-mounted potentiometer.

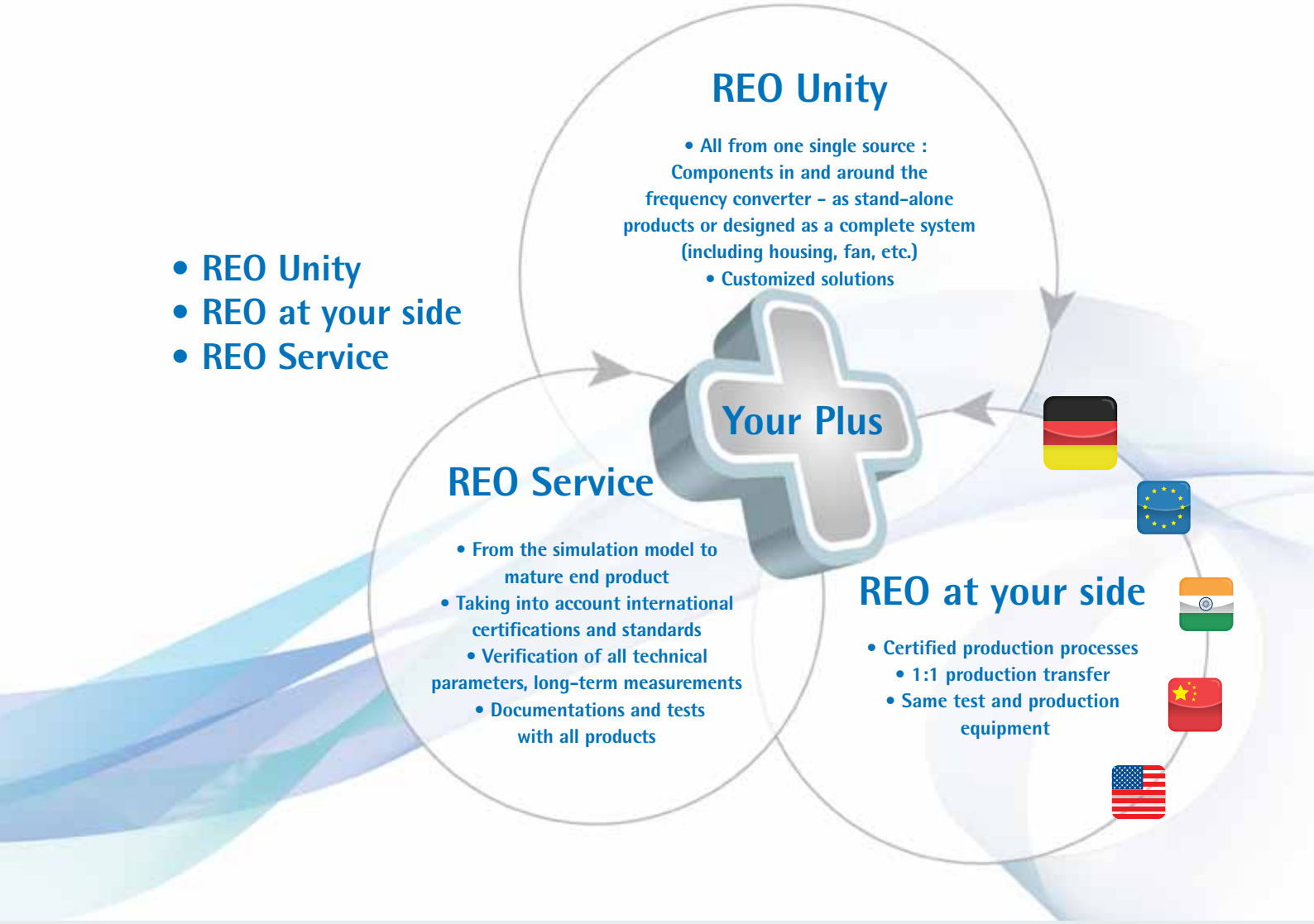
To prevent the relay "fluttering" around the switching point, switching hysteresis can be set. The relay can provide Normally Open or Normally Closed contacts.

DIP switches

Current	S8	S7	S6	S5
0...1 A	1	1	1	1
1...2 A	1	1	1	0
2...3 A	1	1	0	1
3...4 A	1	1	0	0
4...5 A	1	0	1	1
5...6 A	1	0	1	0
6...7 A	1	0	0	1
7...8 A	1	0	0	0
8...9 A	0	1	1	1
9...10 A	0	1	1	0
10...11 A	0	1	0	1
11...12 A	0	1	0	0
12...13 A	0	0	1	1
13...14 A	0	0	1	0
14...15 A	0	0	0	1
15...16 A	0	0	0	0

Your REO-Plus

- REO Unity
- REO at your side
- REO Service



Worldwide Sales Network

With a worldwide sales network and comprehensive product portfolio, REO can react rapidly to your wishes anywhere in the world - no matter what language you speak. Besides our wide selection of standard products, we can of course offer you tailor-made solutions, developed specially to meet your wishes. Our production facilities in China, India and the USA are equipped in exactly the same way as those in Germany, and designed to provide the same product at the same quality. Using the same software and with with development and design in Germany we ensure that REO products are always up to the latest state of the art.

Wherever you are, even after the 1000th production run, a REO product always has the same quality.

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