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# Michael Riedel

Transformatorenbau GmbH

PRODUCT OVERVIEW

O v e r 2 5 y e a r s p r a c t i c e i n q u a l i t y p r o d u c t s





# Single-Phase Transformers



**Options:**

AC 380 / 400 / 420 // 230 V

AC 380 / 400 / 420 // 24 V (up to 800 VA)

AC 220 / 230 / 240 // 230 V

AC 220 / 230 / 240 // 24 V (up to 800 VA)

EN 61558-2-2 / EN 61558-2-4 / EN 61558-2-6



\* Series RSTN UL-CSA

RSTN-transformers can be applied worldwide and meet national and international regulations.

**Particular advantages of series RSTN**

- Voltage adaptation via +5% taps
- Compact construction at low weight
- High reliability and long service life
- Low total losses, thus high efficiency
- Higher than average output at short-time duty (S3)
- Temperature reserves, even at ta 60°C/B full current load possible
- High stability of output voltage

**Construction types**

- Control transformers comp. to EN 61558-2-2
- Isolation transformers comp. to EN 61558-2-4 (output voltage AC 230V)
- Safety transformers comp. to EN 61558-2-6 (output voltage AC 24V)
- Identical construction type RSTN certified UL-CSA
- Identical construction type REIA in normal design up to max. 600V resp. 20A, but without taps on the primary side. Secondary current up to 63A possible

Type	Weight kg	Dimensions in mm						Attachment
		a	b	c	d	e	f	
RSTN 50	1,2	78	59	90	56	46	2x45	M 4
RSTN 75	1,6	85	61	95	64	47	2x46	M 4
RSTN 100	2,1	85	75	95	64	61	2x53	M 4
RSTN 130	2,3	96	77	104	84	61	50	M 5
RSTN 200	2,9	96	87	104	84	70	54	M 5
RSTN 250	3,7	96	100	104	84	84	61	M 5
RSTN 320	4,5	105	101	111	84	85	62	M 5
RSTN 400	5,2	120	105	120	90	82	58	M 5
RSTN 500	6,9	120	121	120	90	102	69	M 5
RSTN 630	7,8	150	108	147	122	83	57	M 6
RSTN 800	10,0	150	125	**147	122	101	65	M 6
RSTN 1000	12,8	150	151	147	122	127	78	M 6
RSTN 1100	12,7	174	129	154	135	97	63	M 6
RSTN 1300	14,7	174	139	154	135	105	68	M 6
RSTN 1600	16,7	174	149	154	135	116	73	M 6
RSTN 2000	21,0	195	156	175	150	125	73	M 8
RSTN 2500	24,0	195	172	175	150	146	85	M 8
RSTN 3000	26,9	195	184	175	150	152	87	M 8

\*\* For 24V types measurement c + 10mm

# Single-Phase Transformers (EMC)



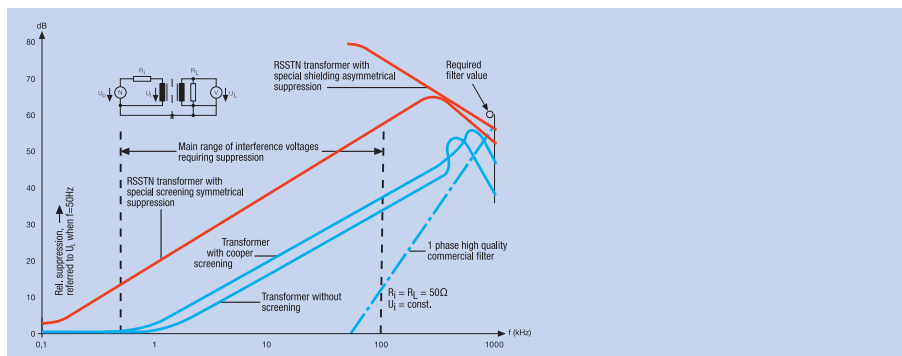
**Options:**

AC 220 / 230 / 240 // 230 V

EN 61558-2 / EN 61558-4



Anti-interference transformers with special high permeability shielding



**Particular advantages of series RSSTN**

- Excellent wide band interference voltage suppression of both symmetrical and asymmetrical factors (see chart)
- Voltage adaptation via +5% taps
- Compact construction at low weight
- High stability of output voltage

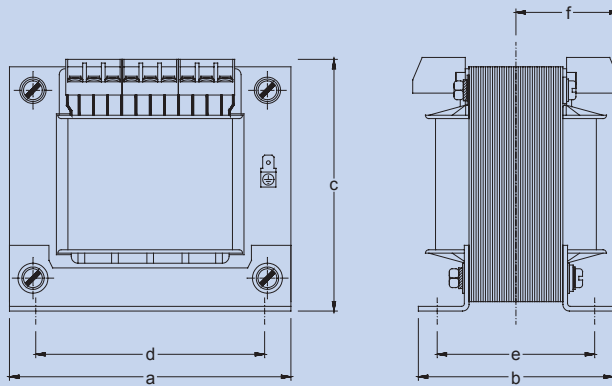
**Construction types**

- Control transformers comp. to EN 61558-2-2
- Isolation transformers comp. to EN 61558-2-4 (output voltage AC 230V)

Type	Weight kg	Dimensions in mm						Attachment
		a	b	c	d	e	f	
RSSTN 50	1,2	78	59	90	56	46	2x45	M 4
RSSTN 75	1,6	85	61	95	64	47	2x46	M 4
RSSTN 100	2,1	85	75	95	64	61	2x53	M 4
RSSTN 130	2,3	96	77	104	84	61	50	M 5
RSSTN 200	2,9	96	87	104	84	70	54	M 5
RSSTN 250	3,7	96	100	104	84	84	61	M 5
RSSTN 320	4,5	120	101	111	84	85	62	M 5
RSSTN 400	5,2	120	105	120	90	82	58	M 5
RSSTN 500	6,9	120	121	120	90	102	69	M 5
RSSTN 630	7,8	150	108	147	122	83	57	M 6
RSSTN 800	10,0	150	125	147	122	101	65	M 6
RSSTN 1000	12,8	150	151	147	122	127	78	M 6
RSSTN 1100	12,7	174	129	154	135	97	63	M 6
RSSTN 1300	14,7	174	139	154	135	105	68	M 6
RSSTN 1600	16,7	174	149	154	135	116	73	M 6
RSSTN 2000	21,0	195	156	175	150	125	73	M 8
RSSTN 2500	24,0	195	172	175	150	146	85	M 8
RSSTN 3000	26,9	195	184	175	150	152	87	M 8



# Universal Transformers



**Options:**

AC 200...550 // 115/**230 V**

AC 200...550 // 21/**24/30** //

42/48/60 V (bis 800 VA)

EN 61558-2-2



Universal control transformers series URST feature several taps primary and 2 to 6 taps secondary. Their use is recommended in cases of cramped storage space combined with the need for high variety, making the use of many diverse single-phase control transformers insensible.

**Particular advantages of series URST**

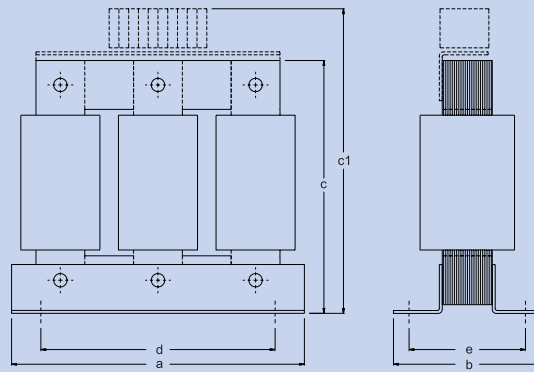
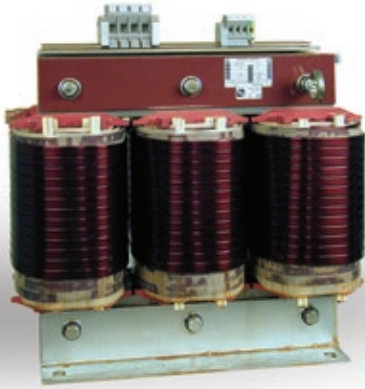
- Transformers for universal application
- Adaptation to input voltage via several primary winding taps  
200 / 220 / 230 / 250 / 270 / 280 / 330 / 350 /370 / 380 / 390 / 400 / 420 / 430 / 440 / 450 / 470 / 490 / 500 / 550 V
- High stability of output voltage
- The provided 2 to 6 secondary winding taps increase application possibilities. On output-side, only the current allocated to each winding section may flow in each connection mode (parallel connection 2 x rated current, series connection 1x rated current)
- High reliability and long service life
- Low total losses, thus high efficiency
- Higher than average output at short-time duty (S3)
- Temperature reserves, even at ta 60°C/B full current load possible

**Construction types**

- Control transformers AC 200...550V // 115/230V
- Control transformers AC 200...550V // 21/24/30V – 42/48/60V

Type	Weight kg	Dimensions in mm						Attachment
		a	b	c	d	e	f	
<b>URST 100</b>	2,00	85	76	85	64	61	2x48	M 4
<b>URST 160</b>	3,80	105	88	103	84	70	2x56	M 5
<b>URST 250</b>	4,50	120	88	114	90	71	2x54	M 5
<b>URST 320</b>	5,30	120	100	114	90	82	2x60	M 5
<b>URST 400</b>	6,00	120	106	114	90	90	2x64	M 5
<b>URST 500</b>	7,80	150	108	138	122	87	2x59	M 6
<b>URST 630</b>	10,10	150	125	138	122	101	2x66	M 6
<b>URST 800</b>	14,30	174	129	148	135	97	2x64	M 6
<b>URST 1000</b>	15,70	174	138	148	135	107	2x69	M 6
<b>URST 1600</b>	25,00	205	154	168	150	124	2x74	M 8
<b>URST 2500</b>	32,40	205	172	168	150	141	2x82	M 8

# Three-Phase Transformers



Input and output voltage  
custom-designed

EN 60076



The rectangular core stacks of our three-phase high power core transformers are made of two-layered grain-oriented low-loss strips. The windings consist of high grade insulated double-lacquered massive copper. Core and windings are vacuum-impregnated together and subsequently baked in the drying oven for several hours.

## Particular advantages of series RDST

- Dry-type core transformers comp. to EN 60076-11 / VDE 0532
- Constructed for high efficiency, temperature of the transformers remains well below the permissible heating limit specified in VDE regulations
- Solid planning guarantees an almost unlimited service life, even when overload of transformers occurs
- Connections up to 450A to series terminals, line bars or cable terminals (measurements not stated below)
- Maximum voltage (phase-phase) 2000V
- Isolation class F (average temperature value 140°C)
- Individually designed, therefore variations of stated measurements and weight possible
- Production up to protection class IP65

## Construction types

- Three-phase isolating transformers
- Three-phase autotransformer

Type	Power kVA	Weight kg	Dimensions in mm			
			a	b	c	c1 ab 63A
RDST 40	40,0	85	550	220	460	c+100
RDST 50	50,0	210	550	270	460	c+100
RDST 63	63,0	250	550	300	470	c+100
RDST 80	80,0	260	650	300	570	c+100
RDST 100	100,0	300	650	320	570	c+100
RDST 125	125,0	380	720	320	570	c+150
RDST 160	160,0	510	720	380	620	c+150
RDST 170	170,0	560	800	360	680	c+150
RDST 200	200,0	630	800	400	680	c+150
RDST 250	250,0	680	800	450	760	c+150
RDST 320	320,0	840	1060	420	900	c+150
RDST 400	400,0	1090	1060	470	900	c+150
RDST 500	500,0	1170	1060	520	900	c+150
RDST 630	630,0	1580	1060	600	900	c+150



# Compact Single-Phase Power Supplies



### RNTU-Options:

AC 230V // DC 12V

AC 230V // DC 24V

AC 400V // DC 24V

### RNTG-Option:

AC 230V // DC 24V

EN 61558-2-6



Power Supplies of the series RNTU and RNTG are assembled with a safety transformer.

### Particular advantages of series RNTU and RNTG

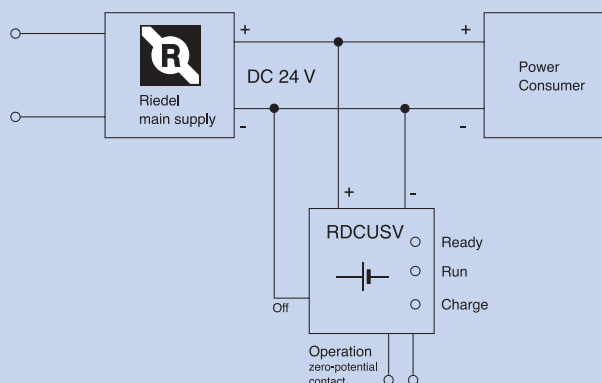
- Constructed in modern industrial design, compact and space-saving
- Comprehensive contact protection through enclosed construction, protection class IP20
- The modules can be snapped onto DIN mounting rails quickly and easily. From 5A upwards there is an additional provision for screw-fastening
- Bridging of short-term power supply breakdowns 10ms RNTU, 15ms RNTG
- Residual ripple <3% RNTU, <2mV RNTG
- Integrated fuses exclusively deliver short circuit protection  
Units are to be loaded only with rated current as indicated
- Identical units can be connected in parallel up to max. 90% load per unit

### Construction types

- AC 230V // DC 24V, rated current RNTU from 1 to 10A and RNTG from 0.5 to 5A
- AC 230V // DC 12V, rated current RNTU from 1 to 10A
- AC 400V // DC 24V, rated current RNTU from 1 to 10A
- Custom-designed power supplies featuring other input voltages (max. up to AC 400V) and other output voltages: RNTU from DC 10 to 60V and rated current from 1 to 10A, RNTG from DC 5 to 30V and rated current from 0.5 to 5A
- Identical construction types RNTU and RNTG with UL-CSA approval (UL 508/CSA22.2-C) and input voltage AC 230/115V 60Hz
- Custom-designed power supplies with two output voltages

Type	Weight kg	Dimensions in mm			Attachment DIN-rail
		Height	Width	Depth	
RNTU 24 S	0,9	77	63	122	TS 35x7,5
RNTU 48 S	1,2	77	63	122	TS 35x7,5
RNTU 72 S	2,3	82	90	128	TS 35x7,5
RNTU 120 S	3,9	134	125	153	TS 35x7,5
RNTU 180 S	5,2	157	175	185	TS 35x15
RNTU 240 S	6,3	157	175	185	TS 35x15
RNTG 12 S	0,9	77	63	122	TS 35x7,5
RNTG 24 S	0,95	77	63	122	TS 35x7,5
RNTG 48 S	1,9	82	90	138	TS 35x7,5
RNTG 72 S	2,6	82	90	153	TS 35x7,5
RNTG 120 S	4,3	134	125	178	TS 35x7,5

## DC – UPS – Modules



### Option:

DC 24V - USV



RDCUSV-modules are parallely connected to the direct current output of the main supply and warrant a reliable supply to important energy consumers via a battery in case of fluctuations or total failure of the line voltage.

### Particular advantages of series RDCUSV

- The patented technology of the UPS modules make switching controllers unnecessary and avoid EMC interferences
- Construction according to the requirements of the operational voltage for electronic controls DIN EN 61131-2 (DC 20.4 to 28.8V)
- Uninterrupted switching to battery operation
- Buffer time up to 30 sec. in case of full line failure
- Bridging during peak loads, e. g. starting current of motors or inrush current impulses of capacitive loads
- Automatic battery charging
- Potential free status output via screw clamps
- Modules installed in a plastic cabinet IP20, can be snapped quickly and easily onto DIN mounting rails
- Protection against short circuits, overtemperature and deep battery discharge

### Construction types

- Modules with activation threshold DC 22V, rated currents from 3 to 40A
- Modules with activation threshold DC 20.6V, rated currents from 3 to 50A
- Identical construction type RIPCUSV 5S for the supply of IPC (Industrial PC), including serial interface

### Option

Switch off of back-up time limit for longer UPS-times

Type	Weight kg	Dimensions in mm			Attachment DIN mounting rails
		Height	Width	Depth	
<b>RDCUSV 3 S</b>	0,9	82	90	120	TS 35x15
<b>RDCUSV 10 S</b>	3,5	134	125	150	TS 35x15
<b>RDCUSV 16 S</b>	3,5	134	125	150	TS 35x15
<b>RDCUSV 20 S</b>	4,4	157	175	185	TS 35x15
<b>RDCUSV 30 S</b>	4,4	157	175	185	TS 35x15
<b>RDCUSV 40 S</b>	6,5	200	180	185	TS 35x15
<b>RDCUSV 50 S</b>	6,5	200	180	185	TS 35x15





# Riedel Pri Line Primary Switched Power Supplies



**Options:**

Single-phase

AC 85-264V; AC 195 – 460V

AC 94-132 and AC 184 – 264V

AC 196 – 264V

AC 93 – 132V

Three-phase

3AC 340-575V

3AC 340-460V

EN 61558-2-17 / EN 60950-1



Primary switched power supplies RPL do not require a power transformer, are compact and of low weight.

**Particular advantages of series RPL**

- Wide input voltage range (AC or DC)
- Adjustable output voltage via potentiometer
- Connection in parallel or series
- 25% power boost and 4s bonus time for occurring peak loads
- Protection against overload, short circuit, overvoltage and overtemperature
- Easy fitting onto DIN mounting rail via snap-on
- Tricoloured status-LED
- Interference output (potential free changer)
- Usable as battery charger
- Input NTC-resistor 10kΩ for temperature controlled charging
- Input “external switch on/off” only RPL 125W, 250W, 960W 250WD

**Construction types**

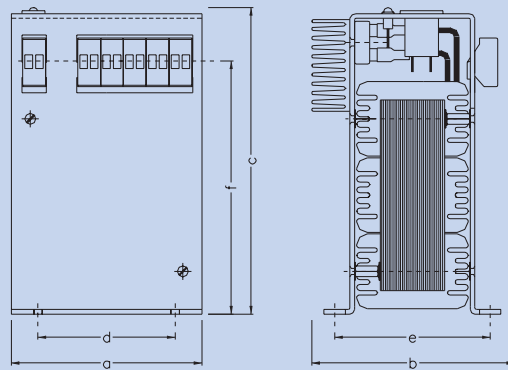
- On stock 30W to 960W single-phase, 250W to 960W three-phase
- On stock with output voltages DC 12V, 24V or 48V
- Other custom-designed input or output voltages deliverable on short notice
- Including active (RPL 250W and RPL 960W) or passive PFC (RPL 250WD - RPL 960WD, RPL 250PFC and RPL 480PFC). Other models without PFC

**Options**

- Series diode on output for redundancy- and UPS-systems (decoupling diode)
- Analog input DC 0 to 10V to regulate output voltage from 0 to U nominal
- Electronic output fuse: saving disconnection of power supply at overload

Type	Weight kg	Height	Dimensions in mm		Attachment DIN mounting rails
			Width	Depth	
RPL 30 W	0,14	80	40	85	TS 35x7,5
RPL 60 W	0,40	106	50	87	TS 35x7,5
RPL 125 W	0,60	137	63	114	TS 35x7,5
RPL 250 W	1,13	153	67	141	TS 35x7,5
RPL 480 W	2,40	138	245	100	TS 35x7,5
RPL 960 W	3,40	174	285	110	TS 35x7,5
RPL 250 WD	1,00	157	67	141	TS 35x7,5
RPL 480 WD	2,20	138	245	100	TS 35x7,5
RPL 960 WD	3,30	174	285	110	TS 35x7,5

# Three-Phase Compact Rectifier



## Options:

3AC 380/400/420V // DC 24V

Residual ripple: Without capacitor < 5%  
With capacitor < 2%

EN 61558-2-6



Series RDRKS in modern industrial design are assembled with a three-phase safety transformer and a three-phase bridge rectifier.

## Particular advantages of series RDRKS

- Voltage adaptation via +5% taps
- Optimal layout reduces surface area
- Simple mounting via open-ended slot
- Compact construction at low weight
- High reliability and long service life
- Good value for reasonable price
- Low total losses

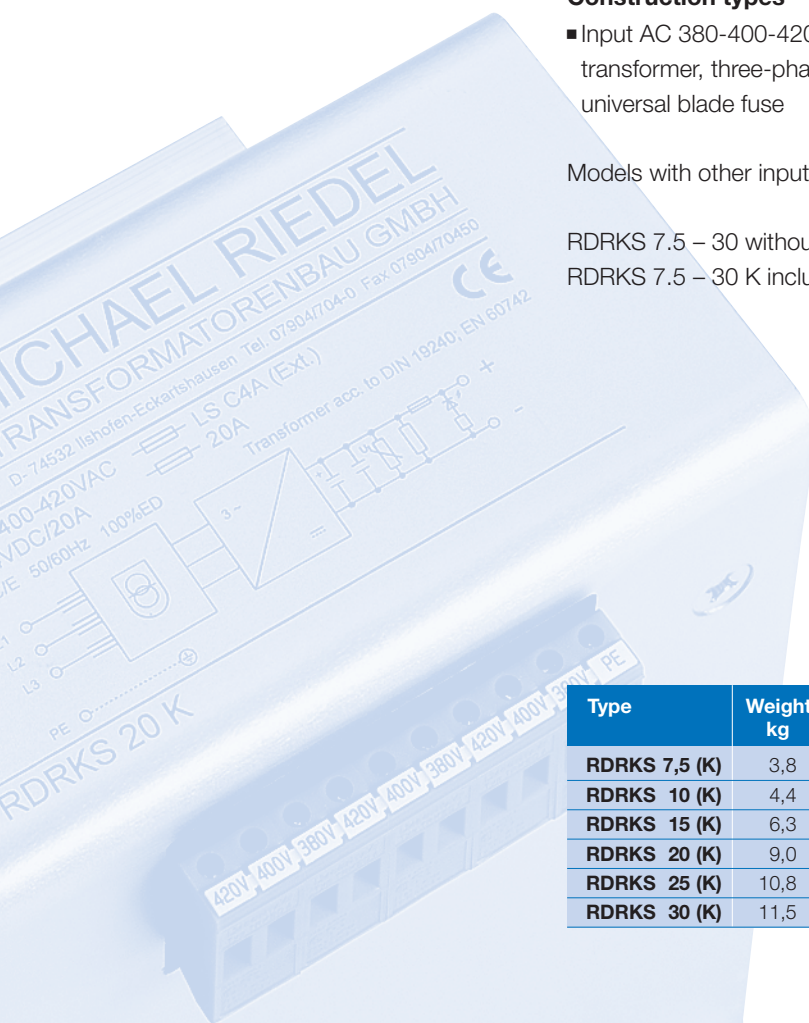
## Construction types

- Input AC 380-400-420V // Output DC 24V, rated currents from 7.5 to 30A, transformer, three-phase bridge rectifier, varistor, resistor, LED, universal blade fuse

Models with other input or output voltages available on request

RDRKS 7.5 – 30 without smoothing capacitor, residual ripple < 5%

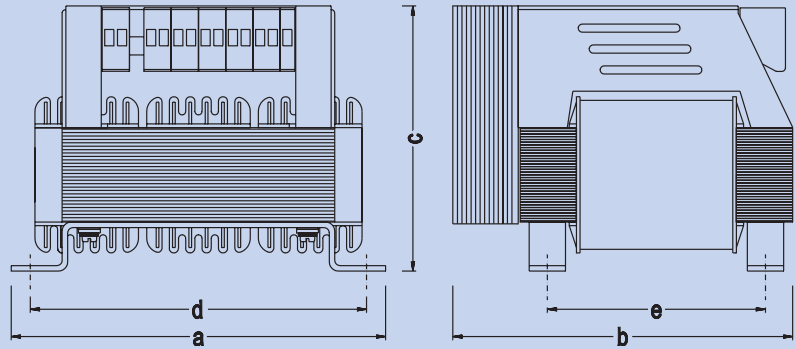
RDRKS 7.5 – 30 K including electrolyte capacitor, residual ripple < 2%



Type	Weight kg	Dimensions in mm						Attachment
		a	b	c	d	e	f	
RDRKS 7,5 (K)	3,8	125	105	200	90	90	165	M 5
RDRKS 10 (K)	4,4	125	105	200	90	90	165	M 5
RDRKS 15 (K)	6,3	125	130	200	90	115	165	M 5
RDRKS 20 (K)	9,0	190	130	200	150	115	165	M 6
RDRKS 25 (K)	10,8	190	165	200	150	135	165	M 6
RDRKS 30 (K)	11,5	190	165	200	150	135	165	M 6



## Three-Phase Compact Rectifier



### Options:

3AC 380/400/420V // DC 24V

Residual ripple: Without capacitor < 5%  
With capacitor < 2%

EN 61558-2-6



Series RDRKN are assembled with a three-phase safety transformer and a three-phase bridge rectifier.

### Particular advantages of series RDRKN

- Voltage adaptation via +5% taps
- Compact construction at low weight
- High reliability and long service life
- Low total losses, thus high efficiency
- Over-average high performance at short time operation (S3)
- Temperature reserves, even at  $t_a$  60°C/B full load capacity possible
- High output voltage stability

### Construction types

- Input AC 380-400-420V // Output DC 24V, rated current from 10 to 60A

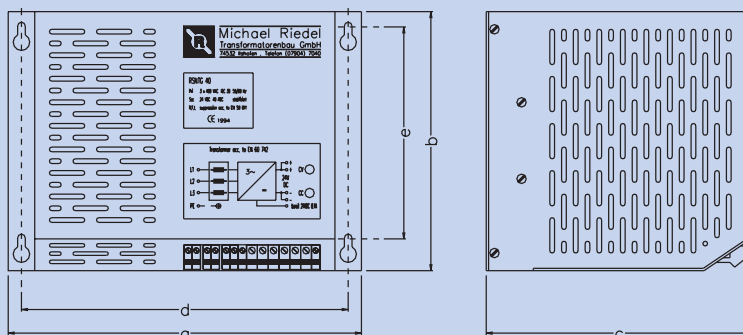
Models with other input or output voltages available on request.

RDRKN 10 – 60 without smoothing capacitor, residual ripple < 5%

RDRKN 10 – 60 K including electrolyte capacitor, residual ripple < 2%

Type	Weight kg	Dimensions in mm					Attachment
		a	b	c	d	e	
RDRKN 10 (K)	4,9	156	165	110	140	100	M5
RDRKN 16 (K)	6,5	156	165	125	140	100	M5
RDRKN 20 (K)	9,8	206	190	140	184	120	M6
RDRKN 25 (K)	10,7	206	190	150	184	120	M6
RDRKN 30 (K)	11,5	206	190	150	184	120	M6
RDRKN 40 (K)	17,0	254	235	155	228	152	M6
RDRKN 60 (K)	22,0	254	235	180	228	152	M6

# Secondary Switched Power Supplies



## Options:

Single-phase

AC 230V // DC 24V

AC 400V // DC 24V

Three-phase

3AC 400V // DC 24V

Residual ripple < 30mV eff.

EN 61558-2-6



Series RSNT are assembled with a single- or three-phase isolating transformer and a subsequent switching controller.

## Particular advantages of series RSNT

- Riedel patents enable usage well below permissible interference level comp. to EN 55011 class B
- Adjustable output voltage from DC 0 to 30V via potentiometer
- Adjustable current limit from 0 to rated current via potentiometer
- Usable as battery charger
- Connection in parallel or series
- Protection against overload, short circuit, overvoltage and overtemperature
- Cabinets of protection class IP20 with G- and S-types
- Robust units of high quality for heavy duty application
- Insensitive to interference voltages
- Status display via 2 LEDs: green for constant voltage operation and yellow for constant current operation

## Construction types

- On stock with output DC 24V, 5 to 15A single-phase and 20 to 60A three-phase
- Other custom-designs with input voltages up to AC 690V RSNT or up to AC 400V RSNT...G and RSNT...S available on request
- Other custom-designs with output voltages up to DC 60V available on request

## Options

- Analog input DC 0 to 10V or 4 to 20mA to regulate voltage and current at output
- Input „remote switch on/off“
- Potential free change-over contact (overtemperature, undervoltage, overload)

Type	Weight kg	Dimensions in mm					Attachment
		a	b	c	d	e	
RSNT 5	5,5	125	132	150	84	71	M5
RSNT 10	6,5	170	170	175	90	84	M5
RSNT 15	7,5	190	180	190	104	97	M5
RSNT 10 S	5,0	134	125	180	87	120	M4
RSNT 15 S	9,2	157	175	197	130	154/154	M4
RSNT 20 G	13,0	250	202	200	228	161	M6
RSNT 30 G	21,0	250	202	200	228	161	M6
RSNT 40 G	22,5	300	220	222	278	179	M6
RSNT 50 G	25,0	330	250	237	308	209	M6
RSNT 60 G	26,5	330	250	237	308	209	M6

## PRODUCT OVERVIEW

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- Single- and three-phase transformers up to 630kVA
- Chokes and filter choke systems
- High voltage supplies and coils
- Thyristor controller
- Magnetic and subsequent controlled voltage stabiliser
- Single- and three-phase power supplies stabilized and unstabilized
- Battery charger
- DC-UPS-Modules and systems
- Primary and secondary switched power supplies
- Ratio ring transformers
- Inrush current limiters for transformers and power supplies
- Defrost- und soldering devices
- Customized developments

Handed over by:

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# Michael Riedel

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