

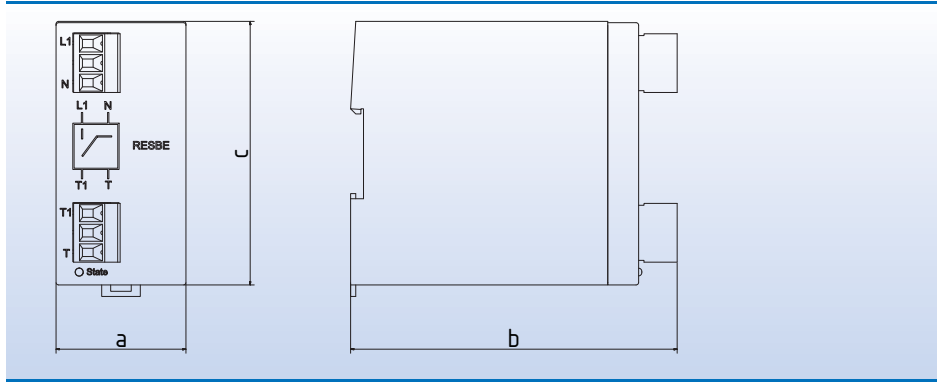
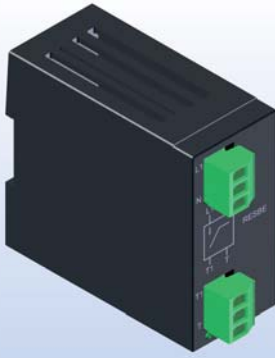


5242

ACCESSORIES

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Inrush current limiters



RESBE and RESBD single-phase and 3-phase

General information:

When energy consumers are switched on inrush current surges can arise and lead to undesired activation of fuse elements. In such cases use of inrush current limiters is useful for enabling selective fusing. Through line-side (upstream) installation of our inrush current limiters from the RESBE and RESBD series commercially available fuses and line circuit breakers can be used.

The RESBE and RESBD series has been realised through our patent application 'Inrush current limitation with time-controlled second switching element'.

To eliminate the bypass current surge the load duty cycle should be longer than the duration of the inrush current limitation. If this cannot be implemented, we recommend the 'release output' option for the loads with a release input or with a remote input/output.

ELECTRICAL SPECIFICATIONS	RESBE 230V 4A	RESBE 230V 10A	RESBE 230V 16A	RESBE 115V 16A	RESBE 400V 16A	RESBE 208V 16A	RESBD 400V 16A	RESBD 208V 16A
Nominal voltage Vnom	AC 230V			AC 115V	AC 400V	AC 208V	3AC 400V	3AC 208V
Voltage range Vmin-Vmax	AC 195-264V			AC 85-132V	AC 340-460V	AC 176-240V	3AC 340-460V	3AC 176-240V
Frequency	45-65Hz							
Overvoltage protection	Varistor						Varistors	
Continuous current Imax	4A	10A	16A					
Maximum inrush current surge, typical (@Ta=25°C/Umax)	<8A <5ms	<18A <5ms	<36A <5ms	<18A <5ms	<32A <5ms	<32A <5ms	<32A <5ms	<17A <5ms
Maximum inrush current surge, typical (@Ta=60°C/Umax)	<18A <5ms	<56A <5ms	<104A <5ms	<53A <5ms	<96A <5ms	<96A <5ms	<96A <5ms	<44A <5ms
Duration of current limitation	<1s							
Maximum switching frequency	30 1/h							
Protection class	IP 20							
Ambient temperature	0 to 60°C							
Installation position	any							
Weight	250g	240g			250g	240g	260g	
Dimensions in mm (W x H x D)	51 x 105 x 127							
Article no.	0202-00000007	0202-00000008	0202-00000009	0202-00000010	0202-00000011	0202-00000012	0202-00000013	0202-00000014
OPTIONS (at extra charge)								
Release output for connection of load	DC 3-30V							
Other voltages	yes							
Other frequencies	16 ^{2/3} - 400Hz							
Duration, adjustable on delivery	0.2 - 1s							

Fusing:

For fusing a transformer the following points should be considered.

1. Selection of the fuse media is determined by the rating data such as allowable voltage and current as well as their activation characteristic curve and breaking capacity.
It must be considered that depending on the fuse selected a back-up protection (back-up fuse) may need to be provided to cover the entire current/time spectrum.
2. For stating the fuse value normally differentiation must be made between the primary side and the secondary side of a transformer.

The 'reliable activation' of a fuse in connection with a transformer can most easily be realised via the secondary side because the rated current can be selected to be close to the nominal current of the fuse. This then protects the transformer reliably against short circuit and excessive overload on the output. The overcurrent protection of a transformer, e.g., in a turn-to-turn fault, can only be realised via the primary-side fuse. However, the fuse value must usually be designed to be several times higher than the rated current of the transformer would demand due to the inrush. For this reason the fuse solely represents a short-circuit protection and less of an overload protection.

However, aids such as inrush current limiters can provide help to select the fuse value to be close to the rated current of the transformer.

There is a causal relationship between fuse value, fuse type, (large) line length, ambient temperature and allowable transformer temperature (according to standard) for achieving optimal protection and operating conditions. The recommended fuse values on the rating plates and data sheets for our transformers solely refer to protection of the transformer and must be placed immediately behind or in front of the transformer. In case of deviating nominal conditions (e.g. ambient temperature) the fuse values must be corrected. Our fuse recommendations are primarily based on equipment protection fuses (electrical fuses), circuit breakers and motor circuit breakers. Optimal protection is offered by commercially available transformer circuit breakers because they have been adapted for the switch-on characteristics of a transformer.

Note: For primary-side fusing of variable ratio ring transformers and transformers with multiple output voltages or output coils the current transformation at overload must be considered.

Fuses

If stated types are not available, alternative types.

Type	Phases	Type	Current	max. voltage
Motor circuit breaker	3	PKZM0-6,3	4...6,3A	690V
Motor circuit breaker	3	PKZM0-10	6,3...10A	690V
Motor circuit breaker	3	PKZM0-12	8...12A	690V
Motor circuit breaker	3	PKZM0-16	10...16A	690V
Motor circuit breaker	3	PKZM0-20	16...20A	690V
Motor circuit breaker	3	PKZM0-25	20...25A	690V
Motor circuit breaker	3	PKZM0-32	25...32A	690V
Motor circuit breaker	3	PKZM4-40	32...40A	690V
Motor circuit breaker	3	PKZM4-50	40...50A	690V
Motor circuit breaker	3	PKZM4-58	50...58A	690V
Motor circuit breaker	3	PKZM4-63	55...65A	690V
Motor circuit breaker	3	NZMB1-A63	50...63A	690V
Motor circuit breaker	3	NZMB1-A80	63...80A	690V
Motor circuit breaker	3	NZMB1-A100	80...100A	690V
Motor circuit breaker	3	NZMB1-A125	100...125A	690V
Motor circuit breaker	3	NZMB1-A160	125...160A	690V
Motor circuit breaker	3	NZMB2-A200	160...200A	690V
Motor circuit breaker	3	NZMB2-A250	200...250A	690V
Motor circuit breaker	3	NZMB2-A300	240...300A	690V
Load interrupter NH00	3	---	to160A	690V
Load interrupter NH1	3	---	to 250A	690V
Load interrupter NH2	3	---	to 400A	690V
Load interrupter NH3	3	---	to 630A	690V
Load interrupter NH4a	3	---	to 1600A	690V
Fuse D02	3	---	to 63A	500V
Fuse D02	1	---	to 63A	500V
Fuse 5x20mm	1	---	to 16A	230V
Fuse 6.3x32mm	1	---	to 16A	500V

Main switch:

max. voltage 600V

Type	max. current
HLT 20	20 A
HLT 25	25 A
HLT 32	32 A
HLT 40	40 A
HLT 63	63 A
HLT 80	80 A
HLT 100	100 A
HLT 125	125 A
HLT 180	180 A
HLT 250	250 A

Measuring devices:

max. voltage: 700V, current: 600A transformer incl.

Type	Dimensions
analogue - voltage	96 x 96mm
analogue - current	96 x 96mm
digital - voltage	96 x 48mm
digital - current	96 x 48mm
digital - universal (U,I,P,THD)	96 x 96mm

Fan + exit filter:

Type (Rittal)	Air volumem ³ /h
SK 3237.100	20
SK 3238.100	55
SK 3239.100	105
SK 3240.100	160
SK 3241.100	230
SK 3243.100	555
SK 3244.100	700

Cable glands:

Available in M16, M20, M25, M32, M40, M50 and M63, each in plastic or brass.

