

Control- and safety isolating- resp. isolating transformer

STE



General Data

Rated input voltage 230 - 400 Vac
Rated output voltage 24 - 230 Vac
Rated power 63 - 2500 VA
Insulation class B
Maximum ambient temperature 40 °C
Efficiency up to 95 %
Degree of protection IP 00

Advantages

Very good switch-on behaviour thanks to reduced starting currents
High performance for the volume thanks to compact design
Primary side $\pm 5\%$ tapplings for voltage adjustment
Very good corrosion protection and low noise thanks to vacuum impregnation
Quick to cable up thanks to the use of spring-clamp terminals
Contact protected screw connection terminals complying with UVV BGV A3
Simple mounting thanks to robust metal footplate with oval slots
Up to 250 VA with combination footplate for bolted and rail mounting

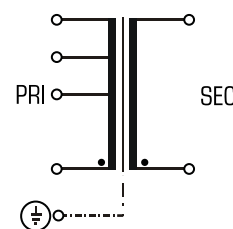
Applications

As a control transformer for the electrical isolation of the input and output sides. The construction of the transformer to supply control systems according to VDE 0113 is designed.

As an isolating transformer for the safe electrical isolation of the input and output sides. The transformer may be used to set up protective separation as a protective measure in accordance with VDE 0100.

As a safety isolating transformer for the safe electrical isolation of the input and output sides. The transformer is suitable for creating SELV and PELV circuits because of the limit on the output voltage.

Sample application



Standards



Control transformer
to: VDE 0570 Teil 2-2, DIN EN 61558-2-2, EN 61558-2-2, IEC 61558-2-2, UL 5085-1/-2, CSA 22.2 No.66

Safety isolating transformer
to: VDE 0570 Teil 2-6, DIN EN 61558-2-6, EN 61558-2-6, IEC 61558-2-6, UL 5085-1/-2, CSA 22.2 No.66

Isolating transformer
to: VDE 0570 Part 2-4, DIN EN 61558-2-4, EN 61558-2-4, IEC 61558-2-4, UL 5085-1/-2, CSA 22.2 No.66

Approvals



UL 5085-1/-2, CSA 22.2 No.66



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Typ	STE 63/23/24	STE 63/4/24	STE 63/4/23	STE 100/23/24	STE 100/4/23	STE 160/23/24
Electrical data						
Input						
Rated input voltage	230 Vac	400 Vac	400 Vac	230 Vac	400 Vac	230 Vac
Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
Rated frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Output						
Rated output voltage	24 Vac	24 Vac	230 Vac	24 Vac	230 Vac	24 Vac
Rated power VDE (DB cos phi=1)	63 VA	63 VA	63 VA	100 VA	100 VA	160 VA
Rated power VDE (KB cos phi=0.5)	175 VA	175 VA	175 VA	310 VA	310 VA	490 VA
No-load voltage (app. x factor)	1.10	1.10	1.10	1.07	1.07	1.06
Efficiency	87.0 %	87.0 %	87.0 %	87.0 %	87.0 %	90.0 %
Standards						
Classification	Control- and safety isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer
Approvals						
Approvals	cURus	cURus	cURus	cURus	cURus	cURus
Environment						
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Type of cooling	self-cooling	self-cooling	self-cooling	self-cooling	self-cooling	self-cooling
Safety and protection						
Type	Open type	Open type	Open type	Open type	Open type	Open type
Insulation class	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	I	I	I	I	I	I
Short circuit strength	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I_{rated} related to set)						
Setting range	0.25 - 0.40 A	0.16 - 0.25 A	0.16 - 0.25 A	0.40 - 0.63 A	0.25 - 0.40 A	0.63 - 1.00 A
Setting value	0.35 A	0.20 A	0.20 A	0.50 A	0.29 A	0.78 A
Order numbers						
Order Number	STE 63/23/24	STE 63/4/24	STE 63/4/23	STE 100/23/24	STE 100/4/23	STE 160/23/24

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Typ	STE 160/4/23	STE 250/23/24	STE 250/4/24	STE 250/4/23	STE 320/23/24	STE 320/4/23
Electrical data						
Input						
Rated input voltage	400 Vac	230 Vac	400 Vac	400 Vac	230 Vac	400 Vac
Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
Rated frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Output						
Rated output voltage	230 Vac	24 Vac	24 Vac	230 Vac	24 Vac	230 Vac
Rated power VDE (DB cos phi=1)	160 VA	250 VA	250 VA	250 VA	320 VA	320 VA
Rated power VDE (KB cos phi=0.5)	490 VA	850 VA	850 VA	850 VA	1.120 VA	1.120 VA
No-load voltage (app. x factor)	1.06	1.07	1.07	1.07	1.05	1.05
Efficiency	90.0 %	90.0 %	90.0 %	90.0 %	91.0 %	91.0 %
Standards						
Classification	Control- and isolating transformer	Control- and safety isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer
Approvals						
Approvals	cURus	cURus	cURus	cURus	cURus	cURus
Environment						
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Type of cooling	self-cooling	self-cooling	self-cooling	self-cooling	self-cooling	self-cooling
Safety and protection						
Type	Open type	Open type	Open type	Open type	Open type	Open type
Insulation class	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	I	I	I	I	I	I
Short circuit strength	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)						
Setting range	0.40 - 0.63 A	1.00 - 1.60 A	0.63 - 1.00 A	0.63 - 1.00 A	1.00 - 1.60 A	0.63 - 1.00 A
Setting value	0.45 A	1.20 A	0.70 A	0.70 A	1.50 A	0.88 A
Order numbers						
Order Number	STE 160/4/23	STE 250/23/24	STE 250/4/24	STE 250/4/23	STE 320/23/24	STE 320/4/23



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Typ	STE 400/23/24	STE 400/4/23	STE 500/23/24	STE 500/4/24	STE 500/4/23	STE 630/4/23
Electrical data						
Input						
Rated input voltage	230 Vac	400 Vac	230 Vac	400 Vac	400 Vac	400 Vac
Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
Rated frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Output						
Rated output voltage	24 Vac	230 Vac	24 Vac	24 Vac	230 Vac	230 Vac
Rated power VDE (DB cos phi=1)	400 VA	400 VA	500 VA	500 VA	500 VA	630 VA
Rated power VDE (KB cos phi=0.5)	1.440 VA	1.440 VA	2.000 VA	2.000 VA	2.000 VA	2.350 VA
No-load voltage (app. x factor)	1.05	1.05	1.05	1.05	1.05	1.03
Efficiency	92.0 %	92.0 %	93.0 %	93.0 %	93.0 %	93.0 %
Standards						
Classification	Control- and safety isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	Control- and isolating transformer
Approvals						
Approvals	cURus	cURus	cURus	cURus	cURus	cURus
Environment						
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Type of cooling	self-cooling	self-cooling	self-cooling	self-cooling	self-cooling	self-cooling
Safety and protection						
Type	Open type	Open type	Open type	Open type	Open type	Open type
Insulation class	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	I	I	I	I	I	I
Short circuit strength	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)						
Setting range	1.60 - 2.50 A	1.00 - 1.60 A	1.60 - 2.50 A	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A
Setting value	1.90 A	1.10 A	2.40 A	1.40 A	1.40 A	1.70 A
Order numbers						
Order Number	STE 400/23/24	STE 400/4/23	STE 500/23/24	STE 500/4/24	STE 500/4/23	STE 630/4/23

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Typ		STE 800/4/23	STE 1000/4/23	STE 1600/4/23	STE 2000/4/23	STE 2500/4/23
Electrical data	Input					
	Rated input voltage	400 Vac	400 Vac	400 Vac	400 Vac	400 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %
	Rated frequency	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output					
	Rated output voltage	230 Vac	230 Vac	230 Vac	230 Vac	230 Vac
	Rated power VDE (DB cos phi=1)	800 VA	1.000 VA	1.600 VA	2.000 VA	2.500 VA
	Rated power VDE (KB cos phi=0.5)	3.400 VA	5.000 VA	7.800 VA	10.900 VA	12.500 VA
	No-load voltage (app. x factor)	1.03	1.02	1.02	1.02	1.01
	Efficiency	93.0 %	94.0 %	94.0 %	95.0 %	95.0 %
	Standards					
	Classification	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer
	Approvals					
	Approvals	cURus	cURus	cURus	cURus	cURus
	Environment					
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	
Type of cooling	self-cooling	self-cooling	self-cooling	self-cooling	self-cooling	
Safety and protection						
Type	Open type	Open type	Open type	Open type	Open type	
Insulation class	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130	
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	
Safety class (prepared)	I	I	I	I	I	
Short circuit strength	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)						
Setting range	1.60 - 2.50 A	2.50 - 4.00 A	4.00 - 6.30 A	4.00 - 6.30 A	6.30 - 10.00 A	
Setting value	2.10 A	2.60 A	4.20 A	5.20 A	6.40 A	
Order numbers						
Order Number	STE 800/4/23	STE 1000/4/23	STE 1600/4/23	STE 2000/4/23	STE 2500/4/23	



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Typ	Terminals	Fixing method	Fixing screws	Weight	Dimension picture (in mm)						
						A	B	C	D	E	F
STE 63/23/24	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	1.20 kg	1	78	85	88	64	64	46
STE 63/4/24	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	1.20 kg	1	78	85	88	64	64	46
STE 63/4/23	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	1.20 kg	1	78	85	88	64	64	46
STE 100/23/24	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	2.00 kg	1	84	85	96	64	64	54.5
STE 100/4/23	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	2.00 kg	1	84	85	96	64	64	54.5
STE 160/23/24	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose foot plate also for installation on mounting rails	M5	2.90 kg	1	96	102	104	84	87	56
STE 160/4/23	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	2.90 kg	1	96	102	104	84	87	56
STE 250/23/24	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	3.50 kg	1	96	102	104	84	87	62.5
STE 250/4/24	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	3.50 kg	1	96	102	104	84	87	62.5
STE 250/4/23	Spring clamp terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	3.50 kg	1	96	102	104	84	87	62.5
STE 320/23/24	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M5	4.30 kg	2	105	103	110	81	86	63
STE 320/4/23	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M5	4.30 kg	2	105	103	110	81	86	63
STE 400/23/24	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M5	5.00 kg	2	120	104	121	90	86	60
STE 400/4/23	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M5	5.00 kg	2	120	104	121	90	86	60
STE 500/23/24	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M5	6.50 kg	2	120	124	121	90	106	71
STE 500/4/24	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M5	6.50 kg	2	120	124	121	90	106	71
STE 500/4/23	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M5	6.50 kg	2	120	124	121	90	106	71
STE 630/4/23	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M6	7.80 kg	2	150	113	143	122	91	59
STE 800/4/23	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M6	9.90 kg	2	150	130	143	122	107.5	65
STE 1000/4/23	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M6	13.10 kg	2	150	156	143	122	134	82
STE 1600/4/23	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M8	18.00 kg	2	192	145	180.5	156	117	72
STE 2000/4/23	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M8	21.80 kg	2	192	161	180.5	156	136	80
STE 2500/4/23	Spring clamp terminal, PE 6.3 x 0.8	Base plate	M8	25.50 kg	2	192	179	180.5	156	151	91

Dimension pictures

