

Control- and safety isolating- resp. isolating transformer

ST



General Data

Rated input voltage 230 - 690 Vac
Rated output voltage 12 - 230 Vac
Rated power 20 - 2500 VA
Insulation class B
Maximum ambient temperature 40 °C
Efficiency up to 96 %
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 ± 5 % tapings for voltage adjustment
Very good corrosion protection and low noise thanks to BLOCKIMPEX vacuum impregnation
Contact protected screw connection terminals complying with UVV BVG A3
Simple mounting thanks to robust metal footplate with oval slots

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.

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

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

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

Certifications



ENEC 10 (VDE), UL 5085-1/-2, CSA 22.2 No.66



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Electrical data	Type	ST 20/23/12	ST 20/23/24	ST 20/23/23	ST 20/4/23	ST 63/23/12	ST 63/23/24
	Input						
	Rated input voltage	230 Vac	230 Vac	230 Vac	400 Vac	230 Vac	230 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	12 Vac	24 Vac	230 Vac	230 Vac	12 Vac	24 Vac
	Rated power VDE (DB cos phi=1)	20 VA	20 VA	20 VA	20 VA	63 VA	63 VA
	Rated power VDE (KB cos phi=0.5)	42 VA	42 VA	42 VA	42 VA	110 VA	110 VA
	No-load voltage (app. x factor)	1.10	1.10	1.10	1.10	1.10	1.10
	Efficiency	81 %	81 %	81 %	81 %	84 %	84 %
Standards							
Classification		Safety isolating transformer	Safety isolating transformer	Isolating transformer	Isolating transformer	Control- and safety isolating transformer	Control- and safety isolating transformer
Approvals							
Approvals		cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)
Environment							
Ambient temperature max.		40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Cooling method		by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling
Safety and protection							
Type		open type	open type	open type	open type	open type	open type
Class of Insulation System		VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105
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
Short circuit proof and overload proof*							
Setting range		0.10 - 0.16 A	0.10 - 0.16 A	0.10 - 0.16 A	0.10 - 0.16 A	0.25 - 0.40 A	0.25 - 0.40 A
Setting value		0.11 A	0.11 A	0.11 A	0.10 A	0.33 A	0.33 A
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set							
Order numbers							
Order Number		ST 20/23/12	ST 20/23/24	ST 20/23/23	ST 20/4/23	ST 63/23/12	ST 63/23/24

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Electrical data	Type	ST 63/23/23	ST 63/4/24	ST 63/4/42	ST 63/4/23	ST 63/44/23	ST 63/69/23
	Input						
	Rated input voltage	230 Vac	400 Vac	400 Vac	400 Vac	440 Vac	690 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	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	42 Vac	230 Vac	230 Vac	230 Vac
	Rated power VDE (DB cos phi=1)	63 VA	63 VA	63 VA	63 VA	63 VA	63 VA
	Rated power VDE (KB cos phi=0.5)	110 VA	110 VA	110 VA	110 VA	110 VA	110 VA
	No-load voltage (app. x factor)	1.10	1.10	1.10	1.10	1.10	1.10
Efficiency	84 %	84 %	84 %	84 %	84 %	84 %	
Standards							
Classification	Control- and isolating transformer	Control- and safety isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	
Approvals							
Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	-	
Environment							
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	
Cooling method	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	
Safety and protection							
Type	open type	open type	open type	open type	open type	open type	
Class of Insulation System	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	B	
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	
Short circuit proof and overload proof*							
Setting range	0.25 - 0.40 A	0.16 - 0.25 A	0.16 - 0.25 A	0.16 - 0.25 A	0.16 - 0.25 A	0.10 - 0.16 A	
Setting value	0.33 A	0.19 A	0.19 A	0.19 A	0.17 A	0.10 A	
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set							
Order numbers							
Order Number	ST 63/23/23	ST 63/4/24	ST 63/4/42	ST 63/4/23	ST 63/44/23	ST 63/69/23	



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Electrical data	Type	ST 100/23/12	ST 100/23/24	ST 100/23/23	ST 100/4/24	ST 100/4/23	ST 100/69/23
	Input						
	Rated input voltage	230 Vac	230 Vac	230 Vac	400 Vac	400 Vac	690 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	12 Vac	24 Vac	230 Vac	24 Vac	230 Vac	230 Vac
	Rated power VDE (DB cos phi=1)	100 VA	100 VA	100 VA	100 VA	100 VA	100 VA
	Rated power VDE (KB cos phi=0.5)	225 VA	225 VA	225 VA	225 VA	225 VA	225 VA
	No-load voltage (app. x factor)	1.10	1.10	1.10	1.10	1.10	1.10
	Efficiency	86 %	86 %	86 %	86 %	86 %	86 %
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 isolating transformer	
Approvals							
Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	-
Environment							
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Cooling method	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling
Safety and protection							
Type	open type	open type	open type	open type	open type	open type	open type
Class of Insulation System	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	B
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	I	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	non-short-circuit proof
Short circuit proof and overload proof*							
Setting range	0.40 - 0.63 A	0.40 - 0.63 A	0.40 - 0.63 A	0.25 - 0.40 A	0.25 - 0.40 A	0.15 - 0.25 A	
Setting value	0.50 A	0.50 A	0.50 A	0.29 A	0.29 A	0.18 A	
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set							
Order numbers							
Order Number	ST 100/23/12	ST 100/23/24	ST 100/23/23	ST 100/4/24	ST 100/4/23	ST 100/69/23	



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Electrical data	Type	ST 130/23/24	ST 130/23/11	ST 130/4/23	ST 130/69/23	ST 160/23/24	ST 160/23/23
	Input						
	Rated input voltage	230 Vac	230 Vac	400 Vac	690 Vac	230 Vac	230 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	24 Vac	110 Vac	230 Vac	230 Vac	24 Vac	230 Vac
	Rated power VDE (DB cos phi=1)	130 VA	130 VA	130 VA	130 VA	160 VA	160 VA
	Rated power VDE (KB cos phi=0.5)	300 VA	300 VA	300 VA	300 VA	390 VA	390 VA
	No-load voltage (app. x factor)	1.10	1.10	1.10	1.10	1.10	1.09
	Efficiency	86 %	86 %	86 %	86 %	86 %	87 %
Standards							
Classification	Control- and safety isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	
Approvals							
Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	-	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	
Environment							
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	
Cooling method	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	
Safety and protection							
Type	open type	open type	open type	open type	open type	open type	
Class of Insulation System	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	B	VDE=B, UL=class 105	VDE=B, UL=class 105	
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	
Short circuit proof and overload proof*							
Setting range	0.63 - 1.00 A	0.63 - 1.00 A	0.25 - 0.40 A	0.16 - 0.25 A	0.63 - 1.00 A	0.63 - 1.00 A	
Setting value	0.64 A	0.64 A	0.37 A	0.23 A	0.78 A	0.78 A	
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set							
Order numbers							
Order Number	ST 130/23/24	ST 130/23/11	ST 130/4/23	ST 130/69/23	ST 160/23/24	ST 160/23/23	



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Electrical data	Type	ST 160/4/24	ST 160/4/23	ST 160/69/23	ST 250/23/12	ST 250/23/24	ST 250/23/42
	Input						
	Rated input voltage	400 Vac	400 Vac	690 Vac	230 Vac	230 Vac	230 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	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	230 Vac	12 Vac	24 Vac	42 Vac
	Rated power VDE (DB cos phi=1)	160 VA	160 VA	160 VA	250 VA	250 VA	250 VA
	Rated power VDE (KB cos phi=0.5)	390 VA	390 VA	390 VA	555 VA	555 VA	555 VA
	No-load voltage (app. x factor)	1.09	1.09	1.09	1.08	1.08	1.08
	Efficiency	87 %	87 %	87 %	90 %	90 %	90 %
Standards							
Classification		Control- and safety isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and safety isolating transformer	Control- and safety isolating transformer
Approvals							
Approvals		cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	-	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)
Environment							
Ambient temperature max.		40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Cooling method		by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling
Safety and protection							
Type		open type	open type	open type	open type	open type	open type
Class of Insulation System		VDE=B, UL=class 105	VDE=B, UL=class 105	B	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105
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
Short circuit proof and overload proof*							
Setting range		0.40 - 0.63 A	0.40 - 0.63 A	0.25 - 0.40 A	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A
Setting value		0.45 A	0.45 A	0.28 A	1.20 A	1.20 A	1.20 A
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set							
Order numbers							
Order Number		ST 160/4/24	ST 160/4/23	ST 160/69/23	ST 250/23/12	ST 250/23/24	ST 250/23/42

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Electrical data	Type	ST 250/23/23	ST 250/4/23	ST 250/44/23	ST 250/69/23	ST 320/23/24	ST 320/23/23
	Input						
	Rated input voltage	230 Vac	400 Vac	440 Vac	690 Vac	230 Vac	230 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	50 - 60 Hz	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	24 Vac	230 Vac
	Rated power VDE (DB cos phi=1)	250 VA	250 VA	250 VA	250 VA	320 VA	320 VA
	Rated power VDE (KB cos phi=0.5)	555 VA	555 VA	555 VA	555 VA	810 VA	810 VA
	No-load voltage (app. x factor)	1.08	1.08	1.08	1.08	1.06	1.06
	Efficiency	90 %	90 %	90 %	90 %	91 %	91 %
Standards							
Classification	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer
Approvals							
Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	-	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)
Environment							
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Cooling method	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling
Safety and protection							
Type	open type	open type	open type	open type	open type	open type	open type
Class of Insulation System	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	B	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	I	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	non-short-circuit proof
Short circuit proof and overload proof*							
Setting range	1.00 - 1.60 A	0.63 - 1.00 A	0.63 - 1.00 A	0.40 - 0.63 A	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A
Setting value	1.20 A	0.69 A	0.63 A	0.43 A	1.50 A	1.50 A	1.50 A
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set							
Order numbers							
Order Number	ST 250/23/23	ST 250/4/23	ST 250/44/23	ST 250/69/23	ST 320/23/24	ST 320/23/23	ST 320/23/23



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Electrical data	Type	ST 320/4/23	ST 320/69/23	ST 400/23/24	ST 400/23/23	ST 400/4/24	ST 400/4/23
	Input						
	Rated input voltage	400 Vac	690 Vac	230 Vac	230 Vac	400 Vac	400 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	230 Vac	230 Vac	24 Vac	230 Vac	24 Vac	230 Vac
	Rated power VDE (DB cos phi=1)	320 VA	320 VA	400 VA	400 VA	400 VA	400 VA
	Rated power VDE (KB cos phi=0.5)	810 VA	810 VA	1020 VA	1020 VA	1020 VA	1020 VA
	No-load voltage (app. x factor)	1.06	1.06	1.06	1.06	1.06	1.06
	Efficiency	91 %	91 %	91 %	91 %	91 %	91 %
Standards							
Classification		Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer
Approvals							
Approvals		cURus, ENEC 10 (VDE)	-	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)
Environment							
Ambient temperature max.		40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Cooling method		by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling
Safety and protection							
Type		open type	open type	open type	open type	open type	open type
Class of Insulation System		VDE=B, UL=class 105	B	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105
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
Short circuit proof and overload proof*							
Setting range		0.63 - 1.00 A	0.40 - 0.63 A	1.60 - 2.50 A	1.60 - 2.50 A	1.00 - 1.60 A	1.00 - 1.60 A
Setting value		0.88 A	0.55 A	1.90 A	1.90 A	1.10 A	1.10 A
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set							
Order numbers							
Order Number		ST 320/4/23	ST 320/69/23	ST 400/23/24	ST 400/23/23	ST 400/4/24	ST 400/4/23



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Electrical data	Type	ST 400/69/23	ST 500/23/23	ST 500/4/23	ST 500/44/23	ST 500/69/23	ST 630/4/23
	Input						
	Rated input voltage	690 Vac	230 Vac	400 Vac	440 Vac	690 Vac	400 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	50 - 60 Hz	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	230 Vac
	Rated power VDE (DB cos phi=1)	400 VA	500 VA	500 VA	500 VA	500 VA	630 VA
	Rated power VDE (KB cos phi=0.5)	1020 VA	1370 VA	1370 VA	1370 VA	1370 VA	1540 VA
	No-load voltage (app. x factor)	1.06	1.05	1.05	1.05	1.05	1.05
	Efficiency	91 %	91 %	91 %	91 %	91 %	92 %
Standards							
Classification	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer
Approvals							
Approvals	-	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	-	cURus, ENEC 10 (VDE)	
Environment							
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Cooling method	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling
Safety and protection							
Type	open type	open type	open type	open type	open type	open type	open type
Class of Insulation System	B	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	B	VDE=B, UL=class 105	
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	I	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	non-short-circuit proof
Short circuit proof and overload proof*							
Setting range	0.63 - 1.00 A	1.60 - 2.50 A	1.00 - 1.60 A	1.00 - 1.60 A	0.63 - 1.00 A	1.60 - 2.50 A	
Setting value	0.65 A	2.40 A	1.40 A	1.20 A	0.80 A	1.70 A	
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set							
Order numbers							
Order Number	ST 400/69/23	ST 500/23/23	ST 500/4/23	ST 500/44/23	ST 500/69/23	ST 630/4/23	



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Electrical data	Type	ST 630/69/23	ST 800/23/23	ST 800/4/23	ST 800/44/23	ST 800/69/23	ST 1000/23/23
	Input						
	Rated input voltage	690 Vac	230 Vac	400 Vac	440 Vac	690 Vac	230 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	50 - 60 Hz	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	230 Vac
	Rated power VDE (DB cos phi=1)	630 VA	800 VA	800 VA	800 VA	800 VA	1000 VA
	Rated power VDE (KB cos phi=0.5)	1540 VA	2000 VA	2000 VA	2000 VA	2000 VA	3120 VA
	No-load voltage (app. x factor)	1.05	1.04	1.04	1.04	1.04	1.03
	Efficiency	92 %	92 %	92 %	92 %	92 %	94 %
Standards							
Classification		Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer
Approvals							
Approvals		-	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	-	cURus, ENEC 10 (VDE)
Environment							
Ambient temperature max.		40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Cooling method		by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling
Safety and protection							
Type		open type	open type	open type	open type	open type	open type
Class of Insulation System		B	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	B	VDE=B, UL=class 105
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
Short circuit proof and overload proof*							
Setting range		1.00 - 1.60 A	2.50 - 4.00 A	1.60 - 2.50 A	1.60 - 2.50 A	1.00 - 1.60 A	4.00 - 6.30 A
Setting value		1.00 A	3.70 A	2.10 A	2.00 A	1.24 A	4.60 A
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set							
Order numbers							
Order Number		ST 630/69/23	ST 800/23/23	ST 800/4/23	ST 800/44/23	ST 800/69/23	ST 1000/23/23

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Control- and safety isolating- resp. isolating transformer **ST**

Electrical data	Type	ST 1000/4/23	ST 1000/44/23	ST 1000/5/23	ST 1000/69/23	ST 1600/4/23	ST 1600/69/23
	Input						
	Rated input voltage	400 Vac	440 Vac	500 Vac	690 Vac	400 Vac	690 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Frequency range	50 - 60 Hz	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	230 Vac
	Rated power VDE (DB cos phi=1)	1000 VA	1000 VA	1000 VA	1000 VA	1600 VA	1600 VA
	Rated power VDE (KB cos phi=0.5)	3120 VA	3120 VA	3120 VA	3120 VA	4400 VA	4400 VA
	No-load voltage (app. x factor)	1.03	1.03	1.03	1.03	1.03	1.03
	Efficiency	94 %	94 %	94 %	94 %	94 %	94 %
Standards							
Classification	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer
Approvals							
Approvals	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	cURus, ENEC 10 (VDE)	-	cURus, ENEC 10 (VDE)	-	-
Environment							
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
Cooling method	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling	by self-cooling
Safety and protection							
Type	open type	open type	open type	open type	open type	open type	open type
Class of Insulation System	VDE=B, UL=class 105	VDE=B, UL=class 105	VDE=B, UL=class 105	B	VDE=B, UL=class 130	B	B
Protection index	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00	IP 00
Safety class (prepared)	I	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	non-short-circuit proof
Short circuit proof and overload proof*							
Setting range	2.50 - 4.00 A	1.60 - 2.50 A	1.60 - 2.50 A	1.60 - 2.50 A	4.00 - 6.30 A	1.60 - 2.50 A	1.60 - 2.50 A
Setting value	2.70 A	2.40 A	2.20 A	1.60 A	4.30 A	2.50 A	2.50 A
* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x I _{nom} related to set							
Order numbers							
Order Number	ST 1000/4/23	ST 1000/44/23	ST 1000/5/23	ST 1000/69/23	ST 1600/4/23	ST 1600/69/23	ST 1600/69/23



Control- and safety isolating- resp. isolating transformer

ST

Electrical data	Type	ST 2000/4/23	ST 2000/69/23	ST 2500/4/23	ST 2500/69/23		
	Input						
	Rated input voltage	400 Vac	690 Vac	400 Vac	690 Vac		
	Tappings Input	±5 %	±5 %	±5 %	±5 %		
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz		
	Output						
	Rated output voltage	230 Vac	230 Vac	230 Vac	230 Vac		
	Rated power VDE (DB cos phi=1)	2000 VA	2000 VA	2500 VA	2500 VA		
	Rated power VDE (KB cos phi=0.5)	10900 VA	10900 VA	12400 VA	12400 VA		
	No-load voltage (app. x factor)	1.03	1.03	1.03	1.03		
	Efficiency	96 %	96 %	96 %	96 %		
Standards							
Classification	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer			
Approvals							
Approvals	cURus, ENEC 10 (VDE)	-	cURus, ENEC 10 (VDE)	-			
Environment							
Ambient temperature max.	40 °C	40 °C	40 °C	40 °C			
Cooling method	by self-cooling	by self-cooling	by self-cooling	by self-cooling			
Safety and protection							
Type	open type	open type	open type	open type			
Class of Insulation System	VDE=B, UL=class 130	B	VDE=B, UL=class 130	B			
Protection index	IP 00	IP 00	IP 00	IP 00			
Safety class (prepared)	I	I	I	I			
Short circuit strength	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof			
Short circuit proof and overload proof*							
Setting range	4.00 - 6.30 A	2.50 - 4.00 A	6.30 - 10.00 A	2.50 - 4.00 A			
Setting value	5.30 A	3.00 A	6.50 A	3.80 A			
	* Fusing recommendation for the primary circuit by circuit breaker with tripping characteristic type 20 x Inom related to set						
Order numbers							
Order Number	ST 2000/4/23	ST 2000/69/23	ST 2500/4/23	ST 2500/69/23			

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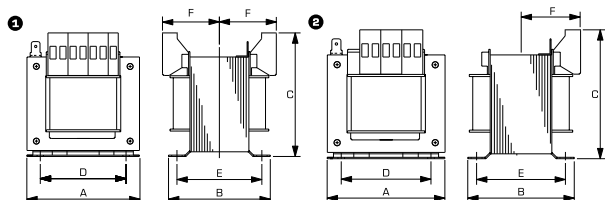
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Control- and safety isolating- resp. isolating transformer **ST**

Typ	Terminals	Fixing method	Fixing screws	Weight	Dimension picture (in mm)	A	B	C	D	E	F
ST 20/23/12	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	0.90 kg	1	66	56	81	50	44.5	42
ST 20/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	0.90 kg	1	66	56	81	50	44.5	42
ST 20/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	0.90 kg	1	66	56	81	50	44.5	42
ST 20/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	0.90 kg	1	66	56	81	50	44.5	42
ST 63/23/12	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.30 kg	1	78	60	89	56	48.5	44
ST 63/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.30 kg	1	78	60	89	56	48.5	44
ST 63/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.30 kg	1	78	60	89	56	48.5	44
ST 63/4/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.30 kg	1	78	60	89	56	48.5	44
ST 63/4/42	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.30 kg	1	78	60	89	56	48.5	44
ST 63/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.30 kg	1	78	60	89	56	48.5	44
ST 63/44/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.30 kg	1	78	60	89	56	48.5	44
ST 63/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.30 kg	1	78	60	89	56	48.5	44
ST 100/23/12	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	2.20 kg	2	84	76	95	64	63.5	53
ST 100/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	2.20 kg	2	84	76	95	64	63.5	53
ST 100/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	2.20 kg	2	84	76	95	64	63.5	53
ST 100/4/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	2.20 kg	2	84	76	95	64	63.5	53
ST 100/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	2.20 kg	2	84	76	95	64	63.5	53
ST 100/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	2.20 kg	2	84	76	95	64	63.5	53
ST 130/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.40 kg	2	96	78	105	84	63.5	48
ST 130/23/11	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.40 kg	2	96	78	105	84	63.5	48
ST 130/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.40 kg	2	96	78	105	84	63.5	48
ST 130/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.40 kg	2	96	78	105	84	63.5	48
ST 160/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.40 kg	2	96	88	105	84	73	53
ST 160/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.90 kg	2	96	88	105	84	73	53
ST 160/4/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.90 kg	2	96	88	105	84	73	53
ST 160/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.90 kg	2	96	88	105	84	73	53
ST 160/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.90 kg	2	96	88	105	84	73	53
ST 250/23/12	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	3.90 kg	2	96	103	105	84	86.5	61
ST 250/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	3.90 kg	2	96	103	105	84	86.5	61
ST 250/23/42	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	3.90 kg	2	96	103	105	84	86.5	61
ST 250/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	3.90 kg	2	96	103	105	84	86.5	61
ST 250/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	3.90 kg	2	96	103	105	84	86.5	61
ST 250/44/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	3.90 kg	2	96	103	105	84	86.5	61
ST 250/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	3.90 kg	2	96	103	105	84	86.5	61
ST 320/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	4.60 kg	2	105	103	114	80	83	61
ST 320/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	4.60 kg	2	105	103	114	80	83	61
ST 320/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	4.60 kg	2	105	103	114	80	83	61
ST 320/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	4.60 kg	2	105	103	114	80	83	61
ST 400/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.50 kg	2	120	102	123	90	85	57
ST 400/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.50 kg	2	120	102	123	90	85	57
ST 400/4/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.50 kg	2	120	102	123	90	85	57
ST 400/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.50 kg	2	120	102	123	90	85	57
ST 400/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.50 kg	2	120	102	123	90	85	57
ST 500/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	7.20 kg	2	120	122	123	90	104	68
ST 500/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	7.20 kg	2	120	122	123	90	104	68
ST 500/44/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	7.20 kg	2	120	122	123	90	104	68
ST 500/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	7.20 kg	2	120	122	123	90	104	68

Dimension pictures





Control- and safety isolating- resp. isolating transformer
ST

30 Mechanical data	Type	Terminals	Fixing method	Fixing screws	Weight	Dimension picture (in mm)						
							A	B	C	D	E	F
	ST 630/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	8.00 kg		150	111	148	122	90	56
	ST 630/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	8.00 kg		150	111	148	122	90	56
	ST 800/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	9.60 kg		150	128	148	122	106	63
	ST 800/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	9.60 kg		150	128	148	122	106	63
	ST 800/44/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	9.60 kg		150	128	148	122	106	63
	ST 800/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	9.60 kg		150	128	148	122	106	63
	ST 1000/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.50 kg		150	154	148	122	130	77
	ST 1000/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.50 kg		150	154	148	122	130	77
	ST 1000/44/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.50 kg		150	154	148	122	130	77
	ST 1000/5/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.50 kg		150	154	148	122	130	77
	ST 1000/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.50 kg		150	154	148	122	130	77
	ST 1600/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	17.50 kg		192	146	182	156	119	65
	ST 1600/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	17.50 kg		192	146	182	156	119	65
	ST 2000/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	22.00 kg		192	162	182	156	135	73
	ST 2000/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	22.00 kg		192	162	182	156	135	73
	ST 2500/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	24.80 kg		192	184	182	156	157	84
	ST 2500/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	24.80 kg		192	184	182	156	157	84

Dimension pictures

