

OVERVIEW

CONTROL TRANSFORMERS

Type	Features	Rated input voltage	Rated output voltage
STE	Cage-clamp terminals, DIN-Rail clamp included up to 250 VA	230 V, tapplings for $\pm 5\%$	24 V
		400 V, tapplings for $\pm 5\%$	24 V
		400 V, tapplings for $\pm 5\%$	230 V
STEU	Dual input voltage, cage-clamp terminals, DIN-Rail clamp included up to 250 VA	230 and 400 V, tapplings for $\pm 5\%$	2 x 12 V
			2 x 24 V
			2 x 115 V
USTE	Universal input voltages, cage-clamp terminals, DIN-Rail clamp included up to 250 VA	208, 230, 380, 400, 415, 440, 460, 480, 500, 525, 550, 575, 600 V	2 x 12 V
			2 x 115 V
ST	Screw-type terminals	230 V, tapplings for $\pm 5\%$	12 V
		230 V, tapplings for $\pm 5\%$	24 V
		230 V, tapplings for $\pm 5\%$	42 V
		230 V, tapplings for $\pm 5\%$	110 V
		230 V, tapplings for $\pm 5\%$	230 V
		400 V, tapplings for $\pm 5\%$	24 V
		400 V, tapplings for $\pm 5\%$	42 V
		400 V, tapplings for $\pm 5\%$	230 V
		440 V, tapplings for $\pm 5\%$	230 V
		500 V, tapplings for $\pm 5\%$	230 V
		690 V, tapplings for $\pm 5\%$	230 V
STU	Universal input voltages, screw-type terminals	210, 230, 250, 380, 400, 420, 440, 460, 480, 500, 520, 540 V	24 V
			2 x 115 V
STSU	Dual input voltage, low-inrush current	230 and 400 V	2 x 12 V, 2 x 24 V, 2 x 115 V
TT1	Horizontal design	219/230/241 V	24 V
		380/400/420 V	42 V
			2 x 115 V
BUST	Low height, screw-type terminals	230 V, tapplings for $\pm 5\%$	24 V
		230 V, tapplings for $\pm 5\%$	2 x 115 V
		400 V, tapplings for $\pm 5\%$	42 V
		400 V, tapplings for $\pm 5\%$	2 x 115 V
		440 V, tapplings for $\pm 5\%$	2 x 115 V
		500 V, tapplings for $\pm 5\%$	2 x 115 V

1.1

1.2

1.3

2.1

2.2

3.1

3.2

3.3

4.0

5.1

5.2

20 VA 40 VA 63 VA 100 VA 130 VA 160 VA 250 VA 320 VA 400 VA 500 VA 630 VA 800 VA 1000 VA 1600 VA 2000 VA 2500 VA 3000 VA 3200 VA 4000 VA 5000 VA 6300 VA 8000 VA 10000 VA 12500 VA 15000 VA 20000 VA 25000 VA

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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 $\pm 5\%$ tapings 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

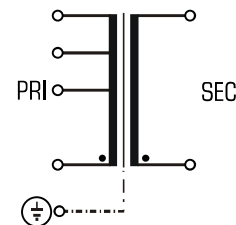
Applications

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



Control- and safety isolating- resp. isolating transformer

STE



Electrical data	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
	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



Control- and safety isolating- resp. isolating transformer

STE



Type		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	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



Control- and safety isolating- resp. isolating transformer

STE



Electrical data	Type	STE 400/23/24	STE 400/4/23	STE 500/23/24	STE 500/4/24	STE 500/4/23	STE 630/4/23
	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



Control- and safety isolating- resp. isolating transformer

STE



Electrical data	Typ	STE 800/4/23	STE 1000/4/23	STE 1600/4/23	STE 2000/4/23	STE 2500/4/23
	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



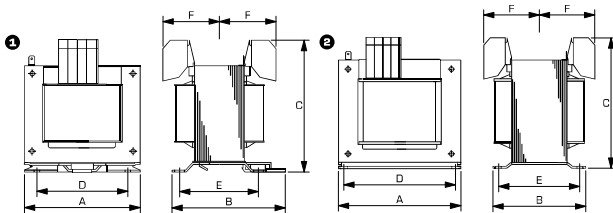
Control- and safety isolating- resp. isolating transformer

STE



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



Control- and safety isolating- resp. isolating transformer

STEU



General Data

Rated input voltage 230 and 400 Vac
Rated output voltage 24 - 230 Vac
Rated power 63 - 2500 VA
Insulation class B
Maximum ambient temperature 40 °C
Efficiency up to 94 %
Degree of protection IP 00

Advantages

Dual input voltage 230 and 400 Vac
Very good switch-on behaviour thanks to reduced starting currents
High performance for the volume thanks to compact design
Primary side ± 15 V tapings 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

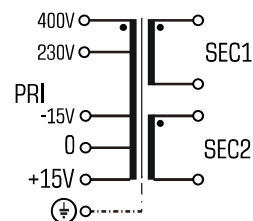
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As a control transformer for the electrical isolation of the input and output sides. The construction of the transformer to supply control systems according to VDE 0113 is designed.

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 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



Control- and safety isolating- resp. isolating transformer

STEU



Electrical data	Type	STEU 63/48	STEU 63/24	STEU 63/23	STEU 100/48	STEU 100/24	STEU 100/23
	Input						
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
	Tappings Input	±15 V	±15 V	±15 V	±15 V	±15 V	±15 V
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	2x24 Vac	2 x 12 Vac	2 x 115 Vac	2x24 Vac	2 x 12 Vac	2 x 115 Vac
	Rated power VDE (DB cos phi=1)	63 VA	63 VA	63 VA	100 VA	100 VA	100 VA
	Rated power VDE (KB cos phi=0.5)	175 VA	175 VA	175 VA	310 VA	310 VA	175 VA
	No-load voltage (app. x factor)	1.10	1.10	1.10	1.07	1.07	1.07
	Efficiency	86.0 %	86.0 %	86.0 %	86.0 %	86.0 %	86.0 %
Standards							
	Classification	Control- and safety isolating transformer	Control- and safety isolating transformer	Control- and 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 230 ±15 Vac	0.25 - 0.40 A	0.25 - 0.40 A	0.25 - 0.40 A	0.40 - 0.63 A	0.40 - 0.63 A	0.40 - 0.63 A
	Setting value 230 ±15 Vac	0.35 A	0.35 A	0.35 A	0.50 A	0.50 A	0.50 A
	Setting range 400 ±15 Vac	0.16 - 0.25 A	0.16 - 0.25 A	0.16 - 0.25 A	0.25 - 0.40 A	0.25 - 0.40 A	0.25 - 0.40 A
	Setting value 400 ±15 Vac	0.20 A	0.20 A	0.20 A	0.29 A	0.29 A	0.29 A
Order numbers							
	Order Number	STEU 63/48	STEU 63/24	STEU 63/23	STEU 100/48	STEU 100/24	STEU 100/23



Control- and safety isolating- resp. isolating transformer

STEU



Electrical data	Typ	STEU 160/48	STEU 160/24	STEU 160/23	STEU 250/48	STEU 250/24	STEU 250/23
	Input						
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
	Tappings Input	±15 V	±15 V	±15 V	±15 V	±15 V	±15 V
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	2x24 Vac	2 x 12 Vac	2 x 115 Vac	2x24 Vac	2 x 12 Vac	2 x 115 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)	490 VA	490 VA	490 VA	850 VA	850 VA	850 VA
	No-load voltage (app. x factor)	1.10	1.10	1.10	1.07	1.07	1.07
	Efficiency	86.0 %	86.0 %	86.0 %	88.0 %	88.0 %	88.0 %
	Standards						
	Classification	Control- and isolating transformer	Control- and safety isolating transformer	Control- and 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 230 ±15 Vac	0.63 - 1.00 A	0.63 - 1.00 A	0.63 - 1.00 A	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A
	Setting value 230 ±15 Vac	0.80 A	0.80 A	0.80 A	1.20 A	1.20 A	1.20 A
	Setting range 400 ±15 Vac	0.40 - 0.63 A	0.40 - 0.63 A	0.40 - 0.63 A	0.63 - 1.00 A	0.63 - 1.00 A	0.63 - 1.00 A
	Setting value 400 ±15 Vac	0.46 A	0.46 A	0.46 A	0.70 A	0.70 A	0.70 A
	Order numbers						
	Order Number	STEU 160/48	STEU 160/24	STEU 160/23	STEU 250/48	STEU 250/24	STEU 250/23



Control- and safety isolating- resp. isolating transformer

STEU



Electrical data	Type	STEU 320/48	STEU 320/24	STEU 320/23	STEU 400/24	STEU 400/23	STEU 500/48
	Input						
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
	Tappings Input	±15 V	±15 V	±15 V	±15 V	±15 V	±15 V
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	2x24 Vac	2 x 12 Vac	2 x 115 Vac	2 x 12 Vac	2 x 115 Vac	2x24 Vac
	Rated power VDE (DB cos phi=1)	320 VA	320 VA	320 VA	400 VA	400 VA	500 VA
	Rated power VDE (KB cos phi=0.5)	1.120 VA	1.120 VA	1.120 VA	1.440 VA	1.440 VA	2.000 VA
	No-load voltage (app. x factor)	1.07	1.07	1.07	1.04	1.04	1.04
	Efficiency	90.0 %	90.0 %	90.0 %	90.0 %	90.0 %	92.0 %
	Standards						
	Classification	Control- and 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	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 230 ±15 Vac	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A	1.60 - 2.50 A
	Setting value 230 ±15 Vac	1.50 A	1.50 A	1.50 A	1.90 A	1.90 A	2.40 A
	Setting range 400 ±15 Vac	0.63 - 1.00 A	0.63 - 1.00 A	0.63 - 1.00 A	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A
	Setting value 400 ±15 Vac	0.88 A	0.88 A	0.88 A	1.10 A	1.10 A	1.40 A
	Order numbers						
	Order Number	STEU 320/48	STEU 320/24	STEU 320/23	STEU 400/24	STEU 400/23	STEU 500/48



Control- and safety isolating- resp. isolating transformer

STEU



Type		STEU 500/24	STEU 500/23	STEU 630/24	STEU 630/23	STEU 800/48	STEU 800/24
Electrical data	Input						
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
	Tappings Input	±15 V	±15 V	±15 V	±15 V	±15 V	±15 V
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	2 x 12 Vac	2 x 115 Vac	2 x 12 Vac	2 x 115 Vac	2x24 Vac	2 x 12 Vac
	Rated power VDE (DB cos phi=1)	500 VA	500 VA	630 VA	630 VA	800 VA	800 VA
	Rated power VDE (KB cos phi=0.5)	2,000 VA	2,000 VA	2,350 VA	2,350 VA	3,400 VA	3,400 VA
	No-load voltage (app. x factor)	1.04	1.04	1.04	1.04	1.03	1.03
	Efficiency	92.0 %	92.0 %	92.0 %	92.0 %	94.0 %	94.0 %
	Standards						
	Classification	Control- and safety isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer
	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 230 ±15 Vac		1.60 - 2.50 A	1.60 - 2.50 A	2.50 - 4.00 A	2.50 - 4.00 A	2.50 - 4.00 A	2.50 - 4.00 A
Setting value 230 ±15 Vac		2.40 A	2.40 A	3.00 A	3.00 A	3.70 A	3.70 A
Setting range 400 ±15 Vac		1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A	1.60 - 2.50 A	1.60 - 2.50 A
Setting value 400 ±15 Vac		1.40 A	1.40 A	1.70 A	1.70 A	2.20 A	2.20 A
Order numbers							
Order Number		STEU 500/24	STEU 500/23	STEU 630/24	STEU 630/23	STEU 800/48	STEU 800/24



Control- and safety isolating- resp. isolating transformer

STEU



Electrical data	Typ	STEU 800/23	STEU 1000/48	STEU 1000/24	STEU 1000/23	STEU 1600/23	STEU 2000/23
	Input						
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
	Tappings Input	±15 V	±15 V	±15 V	±15 V	±15 V	±15 V
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	2 x 115 Vac	2x24 Vac	2 x 12 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac
	Rated power VDE (DB cos phi=1)	800 VA	1.000 VA	1.000 VA	1.000 VA	1.600 VA	2.000 VA
	Rated power VDE (KB cos phi=0.5)	3.400 VA	5.000 VA	5.000 VA	5.000 VA	7.800 VA	10.900 VA
	No-load voltage (app. x factor)	1.03	1.03	1.03	1.03	1.01	1.02
	Efficiency	94.0 %	94.0 %	94.0 %	94.0 %	94.0 %	94.0 %
	Standards						
	Classification	Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and 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 230 ±15 Vac	2.50 - 4.00 A	4.00 - 6.30 A	4.00 - 6.30 A	4.00 - 6.30 A	6.30 - 10.00 A	8.00 - 10.00 A
	Setting value 230 ±15 Vac	3.70 A	4.60 A	4.60 A	4.60 A	7.30 A	9.10 A
	Setting range 400 ±15 Vac	1.60 - 2.50 A	2.50 - 4.00 A	2.50 - 4.00 A	2.50 - 4.00 A	4.00 - 6.30 A	4.00 - 6.30 A
	Setting value 400 ±15 Vac	2.20 A	2.70 A	2.70 A	2.70 A	4.20 A	5.20 A
	Order numbers						
	Order Number	STEU 800/23	STEU 1000/48	STEU 1000/24	STEU 1000/23	STEU 1600/23	STEU 2000/23



Control- and safety isolating- resp. isolating transformer

STEU



Type		STEU 2500/23
Electrical data	Input	
	Rated input voltage	230/400 Vac
	Tappings Input	±15 V
	Frequency range	50 - 60 Hz
	Output	
	Rated output voltage	2 x 115 Vac
	Rated power VDE (DB cos phi=1)	2.500 VA
	Rated power VDE (KB cos phi=0.5)	12.400 VA
	No-load voltage (app. x factor)	1.02
	Efficiency	94.0 %
	Standards	
	Classification	Control- and isolating transformer
	Approvals	
	Approvals	cURus
	Environment	
	Ambient temperature max.	40 °C
	Type of cooling	self-cooling
	Safety and protection	
	Type	Open type
	Insulation class	VDE=B, UL=class 130
	Protection index	IP 00
	Safety class (prepared)	I
	Short circuit strength	non-short-circuit proof
	PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)	
	Setting range 230 ±15 Vac	10.00 - 16.00 A
	Setting value 230 ±15 Vac	11.20 A
	Setting range 400 ±15 Vac	6.30 - 10.00 A
	Setting value 400 ±15 Vac	6.50 A
Order numbers		
Order Number		STEU 2500/23



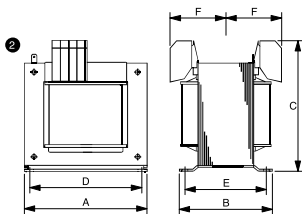
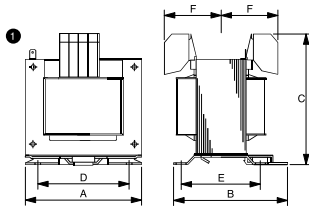
Control- and safety isolating- resp. isolating transformer

STEU



Typ	Terminals	Fixing method	Fixing screws	Weight	Dimension picture (in mm)	A	B	C	D	E	F
STEU 63/48	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	1.3 kg	1	84	85	88	64	64	46
STEU 63/24	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	1.3 kg	1	84	85	88	64	64	46
STEU 63/23	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	1.3 kg	1	84	85	88	64	64	46
STEU 100/48	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	2.1 kg	2	84	85	96	64	64	54.5
STEU 100/24	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	2.1 kg	1	84	85	96	64	64	54.5
STEU 100/23	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	2.1 kg	1	84	85	96	64	64	54.5
STEU 160/48	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	2.9 kg	1	96	102	104	84	87	56
STEU 160/24	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	2.9 kg	1	96	102	104	84	87	56
STEU 160/23	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	2.9 kg	1	96	102	104	84	87	56
STEU 250/48	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	3.6 kg	1	96	125	105	84	87	62.5
STEU 250/24	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	3.6 kg	1	96	102	104	84	87	62.5
STEU 250/23	Spring terminal, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	3.6 kg	1	96	125	105	84	87	62.5
STEU 320/48	Spring terminal, PE 6.3 x 0.8	Base plate	M5	4.3 kg	2	120	107	121	90	74	55
STEU 320/24	Spring terminal, PE 6.3 x 0.8	Base plate	M5	4.3 kg	2	120	107	121	90	74	55
STEU 320/23	Spring terminal, PE 6.3 x 0.8	Base plate	M5	4.3 kg	2	120	107	121	90	74	55
STEU 400/24	Spring terminal, PE 6.3 x 0.8	Base plate	M5	5.3 kg	2	120	104	121	90	86	60
STEU 400/23	Spring terminal, PE 6.3 x 0.8	Base plate	M5	5.3 kg	2	120	104	121	90	86	60
STEU 500/48	Spring terminal, PE 6.3 x 0.8	Base plate	M5	7.7 kg	2	120	124	121	90	106	71
STEU 500/24	Spring terminal, PE 6.3 x 0.8	Base plate	M5	7.7 kg	2	120	124	121	90	106	71
STEU 500/23	Spring terminal, PE 6.3 x 0.8	Base plate	M5	7.7 kg	2	120	124	121	90	106	71
STEU 630/24	Spring terminal, PE 6.3 x 0.8	Base plate	M6	7.9 kg	2	150	113	143	122	91	59

Dimension pictures



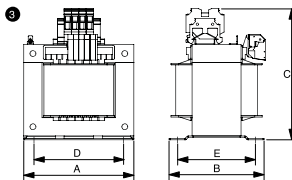
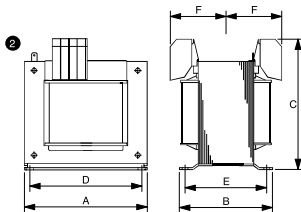


Control- and safety isolating- resp. isolating transformer **STEU**



Mechanical data	Typ	Terminals	Fixing method	Fixing screws	Weight	Dimension picture (in mm)	A	B	C	D	E	F
	STEU 630/23	Spring terminal, PE 6.3 x 0.8	Base plate	M6	7.9 kg	2	150	117	148	122	91	59
	STEU 800/48	Spring terminal, PE 6.3 x 0.8	Base plate	M6	10.3 kg	2	150	130	143	122	107.5	65
	STEU 800/24	Spring terminal, PE 6.3 x 0.8	Base plate	M6	10.3 kg	3	150	130	180	122	106	-
	STEU 800/23	Spring terminal, PE 6.3 x 0.8	Base plate	M6	10.3 kg	2	150	130	143	122	107.5	65
	STEU 1000/48	Spring terminal, PE 6.3 x 0.8	Base plate	M6	13.3 kg	2	150	156	143	122	134	82
	STEU 1000/24	Spring terminal, PE 6.3 x 0.8	Base plate	M6	13.3 kg	2	150	180	185	122	134	82
	STEU 1000/23	Spring terminal, PE 6.3 x 0.8	Base plate	M6	13.3 kg	2	150	156	143	122	134	82
	STEU 1600/23	Spring terminal, PE 6.3 x 0.8	Base plate	M8	21.0 kg	2	192	161	185	155	133	80
	STEU 2000/23	Spring terminal, PE 6.3 x 0.8	Base plate	M8	25.5 kg	2	192	183	185	156	155	91
	STEU 2500/23	Spring terminal, PE 6.3 x 0.8	Base plate	M8	27.0 kg	2	192	190	185	156	161	94

Dimension pictures



Universal control- and safety isolating- resp. isolating transformer

USTE



1.1

1.2

1.3

2.1

2.2

3.1

3.2

3.3

4.0

5.1

5.2

General Data

Rated input voltage 208 - 600 Vac
Rated output voltage 24 - 230 Vac
Rated power 100 - 3200 VA
Insulation class B
Maximum ambient temperature 40 °C
Efficiency up to 96 %
Degree of protection IP 00

Advantages

Universal input voltages 208 to 600 Vac
Very good switch-on behaviour thanks to reduced starting currents
High performance for the volume thanks to compact design
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

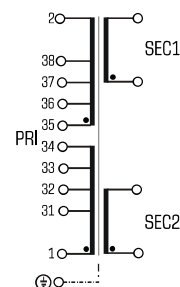
Applications

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



Approvals



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

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



Universal control- and safety isolating- resp. isolating transformer

USTE



Electrical data	Type	USTE 100/2x12	USTE 100/2x115	USTE 250/2x12	USTE 250/2x115	USTE 400/2x12	USTE 400/2x115
	Input						
	Rated input voltage	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	2x12 Vac	2x115 Vac	2x12 Vac	2x115 Vac	2x12 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	100 VA	100 VA	250 VA	250 VA	400 VA	400 VA
	Rated power VDE (KB cos phi=0.5)	310 VA	310 VA	850 VA	850 VA	1.440 VA	1.440 VA
	No-load voltage (app. x factor)	1.07	1.07	1.07	1.07	1.05	1.05
	Efficiency	87.0 %	87.0 %	90.0 %	90.0 %	92.0 %	92.0 %
Standards							
	Classification	Control- and safety 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	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 208 - 230 Vac	0.63 - 1.00 A	0.63 - 1.00 A	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A
	Setting value 208 - 230 Vac	0.63 A	0.63 A	1.30 A	1.30 A	2.10 A	2.10 A
	Setting range 380 - 415 Vac	0.25 - 0.40 A	0.25 - 0.40 A	0.63 - 1.00 A	0.63 - 1.00 A	1.00 - 1.60 A	1.00 - 1.60 A
	Setting value 380 - 415 Vac	0.34 A	0.34 A	0.71 A	0.71 A	1.10 A	1.10 A
	Setting range 440 +20 Vac	0.25 - 0.40 A	0.25 - 0.40 A	0.63 - 1.00 A	0.63 - 1.00 A	1.00 - 1.60 A	1.00 - 1.60 A
	Setting value 440 +20 Vac	0.31 A	0.31 A	0.64 A	0.64 A	1.00 A	1.00 A
	Setting range 500 -20/+25 Vac	0.25 - 0.40 A	0.25 - 0.40 A	0.40 - 0.63 A	0.40 - 0.63 A	0.63 - 1.00 A	0.63 - 1.00 A
	Setting value 500 -20/+25 Vac	0.27 A	0.27 A	0.57 A	0.57 A	0.90 A	0.90 A
	Setting range 575 ±25 Vac	0.16 - 0.25 A	0.16 - 0.25 A	0.40 - 0.63 A	0.40 - 0.63 A	0.63 - 1.00 A	0.63 - 1.00 A
	Setting value 575 ±25 Vac	0.24 A	0.24 A	0.50 A	0.81 A	0.81 A	0.81 A
Order numbers							
	Order Number	USTE 100/2x12	USTE 100/2x115	USTE 250/2x12	USTE 250/2x115	USTE 400/2x12	USTE 400/2x115



Universal control- and safety isolating- resp. isolating transformer

USTE



Electrical data	Type	USTE 630/2x12	USTE 630/2x115	USTE 800/2x115	USTE 1000/2x115	USTE 1200/2x115	USTE 1600/2x115
	Input						
	Rated input voltage	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	2x12 Vac	2x115 Vac	2x115 Vac	2x115 Vac	2x115 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	630 VA	630 VA	800 VA	1.000 VA	1.200 VA	1.600 VA
	Rated power VDE (KB cos phi=0.5)	2.350 VA	2.350 VA	3.400 VA	5.000 VA	5.000 VA	7.800 VA
	No-load voltage (app. x factor)	1.03	1.03	1.03	1.02	1.02	1.02
	Efficiency	93.0 %	93.0 %	93.0 %	94.0 %	94.0 %	94.0 %
Standards							
	Classification	Control- and safety 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	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 208 - 230 Vac	2.50 - 4.00 A	2.50 - 4.00 A	2.50 - 4.00 A	4.00 - 6.30 A	4.00 - 6.30 A	6.30 - 10.00 A
	Setting value 208 - 230 Vac	3.20 A	3.20 A	3.90 A	5.00 A	5.00 A	7.50 A
	Setting range 380 - 415 Vac	1.60 - 2.50 A	1.60 - 2.50 A	1.60 - 2.50 A	2.50 - 4.00 A	2.50 - 4.00 A	4.00 - 6.30 A
	Setting value 380 - 415 Vac	1.70 A	1.70 A	2.20 A	2.70 A	2.70 A	4.10 A
	Setting range 440 +20 Vac	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A	1.60 - 2.50 A	2.50 - 4.00 A
	Setting value 440 +20 Vac	1.50 A	1.50 A	1.90 A	2.40 A	2.40 A	3.70 A
	Setting range 500 -20/+25 Vac	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A	1.60 - 2.50 A	2.50 - 4.00 A
	Setting value 500 -20/+25 Vac	1.30 A	1.30 A	1.70 A	2.20 A	2.20 A	3.30 A
	Setting range 575 ±25 Vac	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A	2.50 - 4.00 A
	Setting value 575 ±25 Vac	1.20 A	1.20 A	1.50 A	1.90 A	1.90 A	2.90 A
Order numbers							
	Order Number	USTE 630/2x12	USTE 630/2x115	USTE 800/2x115	USTE 1000/2x115	USTE 1200/2x115	USTE 1600/2x115



Universal control- and safety isolating- resp. isolating transformer

USTE



Electrical data	Typ	USTE 2500/2x115	USTE 3200/2x115
	Input		
Rated input voltage		208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac	208 Vac/230 Vac/380 Vac 400 Vac/415 Vac/440 Vac 460 Vac/480 Vac/500 Vac 525 Vac/550 Vac/575 Vac 600 Vac
Frequency range		50 - 60 Hz	50 - 60 Hz
Electrical data	Output		
Rated output voltage		2x115 Vac	2x115 Vac
Rated power VDE (DB cos phi=1)		2.500 VA	3.200 VA
Rated power VDE (KB cos phi=0.5)		12.500 VA	14.400 VA
No-load voltage (app. x factor)		1.01	1.02
Efficiency		95.0 %	96.0 %
Standards			
Classification		Control- and isolating transformer	Control- and isolating transformer
Approvals			
Approvals		cURus	cURus
Environment			
Ambient temperature max.		40 °C	40 °C
Type of cooling		self-cooling	self-cooling
Safety and protection			
Type		Open type	Open type
Insulation class		VDE=B, UL=class 130	VDE=B, UL=class 130
Protection index		IP 00	IP 00
Safety class (prepared)		I	I
Short circuit strength		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 208 - 230 Vac		10.00 - 16.00 A	10.00 - 16.00 A
Setting value 208 - 230 Vac		12.50 A	15.20 A
Setting range 380 - 415 Vac		6.30 - 10.00 A	6.30-10.00 A
Setting value 380 - 415 Vac		6.90 A	8.40 A
Setting range 440 +20 Vac		4.00 - 6.30 A	6.30-10.00 A
Setting value 440 +20 Vac		6.10 A	7.50 A
Setting range 500 -20/+25 Vac		4.00 - 6.30 A	6.30-10.00 A
Setting value 500 -20/+25 Vac		5.20 A	6.50 A
Setting range 575 ±25 Vac		4.00 - 6.30 A	4.00 - 6.30 A
Setting value 575 ±25 Vac		4.70 A	5.80 A
Order numbers			
Order Number		USTE 2500/2x115	USTE 3200/2x115



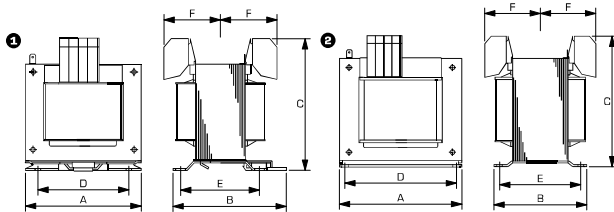
Universal control- and safety isolating- resp. isolating transformer

USTE



Mechanical data	Typ	Terminals	Fixing method	Fixing screws	Weight	Dimension picture (in mm)	A	B	C	D	E	F
30	USTE 100/2x12	Spring terminals, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	2.1 kg	1	84	85	96	64	64	54.5
	USTE 100/2x115	Spring terminals, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M4	2.1 kg	1	84	85	96	64	64	54.5
	USTE 250/2x12	Spring terminals, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	3.6 kg	1	96	102	104	84	87	62.5
	USTE 250/2x115	Spring terminals, PE 6.3 x 0.8	Dual purpose base plate also for installation on mounting rails	M5	3.6 kg	1	96	102	104	84	87	62.5
	USTE 400/2x12	Spring terminals, PE 6.3 x 0.8	Base plate	M5	5.3 kg	2	120	104	121	90	86	60
	USTE 400/2x115	Spring terminals, PE 6.3 x 0.8	Base plate	M5	5.3 kg	2	120	104	121	90	86	60
	USTE 630/2x12	Spring terminals, PE 6.3 x 0.8	Base plate	M6	7.9 kg	2	150	113	143	122	91	59
	USTE 630/2x115	Spring terminals, PE 6.3 x 0.8	Base plate	M6	7.9 kg	2	150	113	143	122	91	59
	USTE 800/2x115	Spring terminals, PE 6.3 x 0.8	Base plate	M6	10.9 kg	2	150	130	143	122	108	68
	USTE 1000/2x115	Spring terminals, PE 6.3 x 0.8	Base plate	M6	13.8 kg	2	150	156	143	122	134	82
	USTE 1200/2x115	Spring terminals, PE 6.3 x 0.8	Base plate	M6	13.8 kg	2	-	-	-	-	-	-
	USTE 1600/2x115	Spring terminals, PE 6.3 x 0.8	Base plate	M8	20.8 kg	2	192	145	180.5	156	117	72
	USTE 2500/2x115	Spring terminals, PE 6.3 x 0.8	Base plate	M8	26.3 kg	2	192	190	180.5	156	161	94
	USTE 3200/2x115	Spring terminals, PE 6.3 x 0.8	Base plate	M10	39.0 kg	2	231	220	250	180	148	92

Dimension pictures



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 $\pm 5\%$ tapings for voltage adjustment
Very good corrosion protection and low noise thanks to vacuum impregnation
Contact protected screw connection terminals complying with UVV BGV A3
Simple mounting thanks to robust metal footplate with oval slots

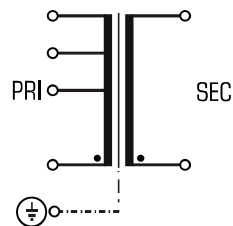
Applications

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.

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



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



Control- and safety isolating- resp. isolating transformer

ST



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	81.0 %	81.0 %	81.0 %	81.0 %	84.0 %	84.0 %
	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
	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 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
	PRI Fusing recommendation						
	by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)						
	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
	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



Control- and safety isolating- resp. isolating transformer

ST



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	84.0 %	84.0 %	84.0 %	84.0 %	84.0 %	84.0 %
	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
	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 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
	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	0.16 - 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
	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



Control- and safety isolating- resp. isolating transformer

ST



Electrical data	Typ	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	86.0 %	86.0 %	86.0 %	86.0 %	86.0 %	86.0 %
	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 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
	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 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
	PRI Fusing recommendation						
	by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)						
	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
	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



Control- and safety isolating- resp. isolating transformer

ST



Electrical data	Typ	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	86.0 %	86.0 %	86.0 %	86.0 %	86.0 %	87.0 %
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
	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 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
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)							
	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
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



Control- and safety isolating- resp. isolating transformer

ST



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	87.0 %	87.0 %	87.0 %	90.0 %	90.0 %	90.0 %
	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
	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 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
	PRI Fusing recommendation						
	by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)						
	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
	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



Control- and safety isolating- resp. isolating transformer

ST



Electrical data	Typ	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	90.0 %	90.0 %	90.0 %	90.0 %	91.0 %	91.0 %
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 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
	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 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
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)							
	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
	Setting value	1.20 A	0.69 A	0.63 A	0.43 A	1.50 A	1.50 A
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



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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	1.020 VA	1.020 VA	1.020 VA	1.020 VA
	No-load voltage (app. x factor)	1.06	1.06	1.06	1.06	1.06	1.06
	Efficiency	91.0 %	91.0 %	91.0 %	91.0 %	91.0 %	91.0 %
	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
	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 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
	PRI Fusing recommendation						
	by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)						
	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
	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	Typ	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)	1.020 VA	1.370 VA	1.370 VA	1.370 VA	1.370 VA	1.540 VA
	No-load voltage (app. x factor)	1.06	1.05	1.05	1.05	1.05	1.05
	Efficiency	91.0 %	91.0 %	91.0 %	91.0 %	91.0 %	92.0 %
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
	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	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
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)							
	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
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	Typ	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	1.000 VA
	Rated power VDE (KB cos phi=0.5)	1.540 VA	2.000 VA	2.000 VA	2.000 VA	2.000 VA	3.120 VA
	No-load voltage (app. x factor)	1.05	1.04	1.04	1.04	1.04	1.03
	Efficiency	92.0 %	92.0 %	92.0 %	92.0 %	92.0 %	94.0 %
	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
	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	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
	PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)						
	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
	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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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
Electrical data	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)	1.000 VA	1.000 VA	1.000 VA	1.000 VA	1.600 VA	1.600 VA
	Rated power VDE (KB cos phi=0.5)	3.120 VA	3.120 VA	3.120 VA	3.120 VA	7.800 VA	7.800 VA
	No-load voltage (app. x factor)	1.03	1.03	1.03	1.03	1.03	1.03
	Efficiency	94.0 %	94.0 %	94.0 %	94.0 %	94.0 %	94.0 %
	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	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
	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 105	VDE=B, UL-class 105	VDE=B, UL-class 105	B	VDE=B, UL-class 130	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
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)							
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
Setting value		2.70 A	2.40 A	2.20 A	1.60 A	4.30 A	2.50 A
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



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Electrical data	Typ	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)	2,000 VA	2,000 VA	2,500 VA	2,500 VA
	Rated power VDE (KB cos phi=0.5)	10,900 VA	10,900 VA	12,400 VA	12,400 VA
	No-load voltage (app. x factor)	1.03	1.03	1.03	1.03
	Efficiency	96.0 %	96.0 %	96.0 %	96.0 %
	Standards				
	Classification	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer
	Approvals	cURus, ENEC 10 (VDE)	-	cURus, ENEC 10 (VDE)	-
	Environment				
	Ambient temperature max.	40 °C	40 °C	40 °C	40 °C
	Type of cooling	self-cooling	self-cooling	self-cooling	self-cooling
	Safety and protection				
	Type	Open type	Open type	Open type	Open type
	Insulation class	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
	PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)				
	Setting range	4,00 - 6,30 A	2,50 - 4,00 A	6,30 - 10,00 A	4,00 - 6,30 A
	Setting value	5,30 A	3,00 A	6,50 A	4,00 A
	Order numbers				
	Order Number	ST 2000/4/23	ST 2000/69/23	ST 2500/4/23	ST 2500/69/23

1.1

1.2

1.3

2.1

2.2

3.1

3.2

3.3

4.0

5.1

5.2



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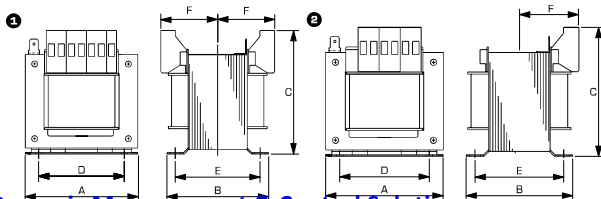


Mechanical data

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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	0.70 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	0.70 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	0.70 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	0.70 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	1.10 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	1.10 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	1.10 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	1.10 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	1.10 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	1.10 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	1.10 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	1.10 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	2.00 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	2.00 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	2.00 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	2.00 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	2.00 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	2.00 kg	1	84	87	91	64	63.5	53
ST 130/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.30 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	2.30 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	2.30 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	2.30 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	2.80 kg	2	96	88	103	84	73	53
ST 160/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.80 kg	2	96	88	103	84	73	53
ST 160/4/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.80 kg	2	96	88	103	84	73	53
ST 160/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.80 kg	2	96	88	103	84	73	53
ST 160/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.80 kg	2	96	88	103	84	73	53
ST 250/23/12	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	3.50 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	3.50 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	3.50 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	3.50 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	3.50 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	3.50 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	3.50 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	4.30 kg	2	105	103	114	80	83	61
ST 320/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	4.30 kg	2	105	103	114	80	83	61
ST 320/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	4.30 kg	2	105	103	114	80	83	61
ST 320/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	4.30 kg	2	105	103	114	80	83	61
ST 400/23/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.00 kg	2	120	110	123	90	85	57
ST 400/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.00 kg	2	120	110	123	90	85	57
ST 400/4/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.00 kg	2	120	110	123	90	85	57
ST 400/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.00 kg	2	120	110	123	90	85	57
ST 400/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.00 kg	2	120	102	123	90	85	57
ST 500/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	6.60 kg	2	120	122	123	90	104	68
ST 500/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	6.60 kg	2	120	122	123	90	104	68
ST 500/44/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	6.60 kg	2	120	122	123	90	104	68
ST 500/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	6.60 kg	2	120	122	123	90	104	68

Dimension pictures





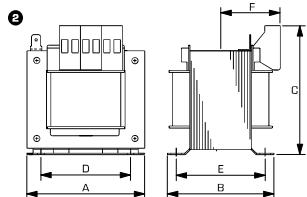
Control- and safety isolating- resp. isolating transformer

ST



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	7.70 kg		150	111	148	122	90	56
	ST 630/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	7.70 kg		150	111	148	122	90	56
	ST 800/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	9.80 kg		150	128	148	122	106	63
	ST 800/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	9.80 kg		150	128	148	122	106	63
	ST 800/44/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	9.80 kg		150	128	148	122	106	63
	ST 800/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	9.80 kg		150	128	148	122	106	63
	ST 1000/23/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.10 kg		150	154	148	122	130	77
	ST 1000/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.10 kg		150	154	148	122	130	77
	ST 1000/44/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.10 kg		150	154	148	122	130	77
	ST 1000/5/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.10 kg		150	154	148	122	130	77
	ST 1000/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.10 kg		150	154	148	122	130	77
	ST 1600/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	16.80 kg		192	146	182	156	119	65
	ST 1600/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	16.80 kg		192	146	182	156	119	65
	ST 2000/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	21.00 kg		192	162	182	156	135	73
	ST 2000/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	21.00 kg		192	162	182	156	135	73
	ST 2500/4/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	25.50 kg		192	185	185	156	157	84
	ST 2500/69/23	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	25.50 kg		192	185	185	156	157	84

Dimension pictures



Universal control- and safety isolating- resp. isolating transformer **STU**



General Data

Rated input voltage 210 - 540 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

Universal input voltages 210 to 540 Vac
Very good switch-on behaviour thanks to reduced starting currents
High performance for the volume thanks to compact design
Very good corrosion protection and low noise thanks to vacuum impregnation
Contact protected screw connection terminals complying with UVV BGV A3
Simple mounting thanks to robust metal footplate with oval slots

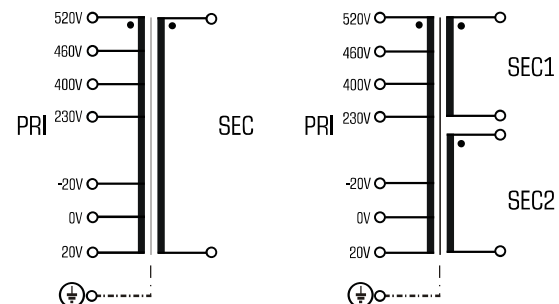
Applications

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.

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

Approvals



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



Universal control- and safety isolating- resp. isolating transformer **STU**



Electrical data	Type	STU 63/24	STU 63/2x115	STU 100/24	STU 100/2x115	STU 130/24	STU 130/2x115
	Input						
	Rated input voltage	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac
	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	2x115 Vac	24 Vac	2x115 Vac	24 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	63 VA	63 VA	100 VA	100 VA	130 VA	130 VA
	Rated power VDE (KB cos phi=0.5)	110 VA	110 VA	225 VA	225 VA	300 VA	300 VA
	No-load voltage (app. x factor)	1.10	1.10	1.10	1.10	1.10	1.10
	Efficiency	84.0 %	84.0 %	86.0 %	86.0 %	86.0 %	86.0 %
Standards							
	Classification	Control- and safety 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)	cURus, ENEC 10 (VDE)
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 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
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)							
	Setting range 230 ±20 Vac	0.25 - 0.40 A	0.25 - 0.40 A	0.40 - 0.63 A	0.40 - 0.63 A	0.63 - 1.00 A	0.63 - 1.00 A
	Setting value 230 ±20 Vac	0.30 A	0.30 A	0.53 A	0.53 A	0.66 A	0.66 A
	Setting range 400 ±20 Vac	0.16 - 0.25 A	0.16 - 0.25 A	0.25 - 0.40 A	0.25 - 0.40 A	0.40 - 0.63 A	0.25 - 0.40 A
	Setting value 400 ±20 Vac	0.20 A	0.20 A	0.31 A	0.31 A	0.38 A	0.38 A
	Setting range 460 ±20 Vac	0.16 - 0.25 A	0.16 - 0.25 A	0.25 - 0.40 A	0.25 - 0.40 A	0.25 - 0.40 A	0.25 - 0.40 A
	Setting value 460 ±20 Vac	0.17 A	0.17 A	0.27 A	0.27 A	0.33 A	0.33 A
	Setting range 520 ±20 Vac	0.10 - 0.16 A	0.10 - 0.16 A	0.16 - 0.25 A	0.16 - 0.25 A	0.25 - 0.40 A	0.25 - 0.40 A
	Setting value 520 ±20 Vac	0.15 A	0.15 A	0.24 A	0.24 A	0.30 A	0.30 A
Order numbers							
	Order Number	STU 63/24	STU 63/2x115	STU 100/24	STU 100/2x115	STU 130/24	STU 130/2x115



Universal control- and safety isolating- resp. isolating transformer **STU**



Type		STU 160/24	STU 160/2x115	STU 250/24	STU 250/2x115	STU 400/24	STU 400/2x115
Electrical data	Input						
	Rated input voltage	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac
	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	2x115 Vac	24 Vac	2x115 Vac	24 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	160 VA	160 VA	250 VA	250 VA	400 VA	400 VA
	Rated power VDE (KB cos phi=0.5)	390 VA	390 VA	555 VA	555 VA	1.020 VA	1.020 VA
	No-load voltage (app. x factor)	1.09	1.09	1.08	1.08	1.06	1.06
	Efficiency	87.0 %	87.0 %	90.0 %	90.0 %	91.0 %	91.0 %
	Standards						
Classification		Control- and safety 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		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
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 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
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set.)							
Setting range 230 ±20 Vac		0.63 - 1.00 A	0.63 - 1.00 A	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A
Setting value 230 ±20 Vac		0.80 A	0.80 A	1.20 A	1.20 A	1.90 A	1.90 A
Setting range 400 ±20 Vac		0.40 - 0.63 A	0.40 - 0.63 A	0.63 - 1.00 A	0.63 - 1.00 A	1.00 - 1.60 A	1.00 - 1.60 A
Setting value 400 ±20 Vac		0.50 A	0.50 A	0.70 A	0.70 A	1.10 A	1.10 A
Setting range 460 ±20 Vac		0.40 - 0.63 A	0.40 - 0.63 A	0.40 - 0.63 A	0.40 - 0.63 A	1.00 - 1.60 A	1.00 - 1.60 A
Setting value 460 ±20 Vac		0.40 A	0.40 A	0.60 A	0.60 A	1.00 A	1.00 A
Setting range 520 ±20 Vac		0.25 - 0.40 A	0.25 - 0.40 A	0.40 - 0.63 A	0.40 - 0.63 A	0.63 - 1.00 A	0.63 - 1.00 A
Setting value 520 ±20 Vac		0.30 A	0.30 A	0.50 A	0.50 A	0.90 A	0.90 A
Order numbers							
Order Number		STU 160/24	STU 160/2x115	STU 250/24	STU 250/2x115	STU 400/24	STU 400/2x115



Universal control- and safety isolating- resp. isolating transformer **STU**



Electrical data	Type	STU 500/24	STU 500/2x115	STU 630/24	STU 630/2x115	STU 800/24	STU 800/2x115
	Input	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac					
	Rated input voltage	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output	24 Vac 2x115 Vac					
	Rated output voltage	24 Vac	2x115 Vac	24 Vac	2x115 Vac	24 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	500 VA	500 VA	630 VA	630 VA	800 VA	800 VA
	Rated power VDE (KB cos phi=0.5)	1.370 VA	1.370 VA	1.540 VA	1.540 VA	2.000 VA	2.000 VA
	No-load voltage (app. x factor)	1.05	1.05	1.05	1.05	1.04	1.04
	Efficiency	91.0 %	91.0 %	92.0 %	92.0 %	92.0 %	92.0 %
Standards							
	Classification	Control- and safety 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	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
	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 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
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set.)							
	Setting range 230 ±20 Vac	1.60 - 2.50 A	1.60 - 2.50 A	2.50 - 4.00 A	2.50 - 4.00 A	2.50 - 4.00 A	2.50 - 4.00 A
	Setting value 230 ±20 Vac	2.30 A	2.30 A	3.00 A	3.00 A	3.70 A	3.70 A
	Setting range 400 ±20 Vac	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A	1.60 - 2.50 A	1.60 - 2.50 A
	Setting value 400 ±20 Vac	1.40 A	1.40 A	1.70 A	1.70 A	2.10 A	2.10 A
	Setting range 460 ±20 Vac	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A
	Setting value 460 ±20 Vac	1.20 A	1.20 A	1.50 A	1.50 A	1.70 A	1.70 A
	Setting range 520 ±20 Vac	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A	1.00 - 1.60 A	1.60 - 2.50 A	1.60 - 2.50 A
	Setting value 520 ±20 Vac	1.00 A	1.00 A	1.30 A	1.30 A	1.60 A	1.60 A
Order numbers							
	Order Number	STU 500/24	STU 500/2x115	STU 630/24	STU 630/2x115	STU 800/24	STU 800/2x115



Universal control- and safety isolating- resp. isolating transformer **STU**



Electrical data	Type	STU 1000/2x115	STU 1600/2x115	STU 2000/2x115	STU 2500/2x115
	Input				
Rated input voltage		210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac	210 Vac/230 Vac/250 Vac 380 Vac/400 Vac/420 Vac 440 Vac/460 Vac/480 Vac 500 Vac/520 Vac/540 Vac
Frequency range		50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Electrical data	Output				
Rated output voltage		2x115 Vac	2x115 Vac	2x115 Vac	2x115 Vac
Rated power VDE (DB cos phi=1)		1.000 VA	1.600 VA	2.000 VA	2.500 VA
Rated power VDE (KB cos phi=0.5)		3.120 VA	3.800 VA	5.770 VA	6.200 VA
No-load voltage (app. x factor)		1.03	1.03	1.02	1.02
Efficiency		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
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
Type of cooling		self-cooling	self-cooling	self-cooling	self-cooling
Safety and protection					
Type		Open type	Open type	Open type	Open type
Insulation class		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
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
PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x I _{rated} related to set)					
Setting range 230 ±20 Vac		4.00 - 6.30 A	6.30 - 10.00 A	8.00 - 12.00 A	10.00 - 16.00 A
Setting value 230 ±20 Vac		4.60 A	7.30 A	9.10 A	11.20 A
Setting range 400 ±20 Vac		2.50 - 4.00 A	4.00 - 6.30 A	4.00 - 6.30 A	6.30 - 10.00 A
Setting value 400 ±20 Vac		2.60 A	4.20 A	5.20 A	6.50 A
Setting range 460 ±20 Vac		1.60 - 2.50 A	2.50 - 4.00 A	4.00 - 6.30 A	4.00 - 6.30 A
Setting value 460 ±20 Vac		2.30 A	3.70 A	4.50 A	5.60 A
Setting range 520 ±20 Vac		1.60 - 2.50 A	2.50 - 4.00 A	4.00 - 6.30 A	4.00 - 6.30 A
Setting value 520 ±20 Vac		2.00 A	3.20 A	4.00 A	5.00 A
Order numbers					
Order Number		STU 1000/2x115	STU 1600/2x115	STU 2000/2x115	STU 2500/2x115



Universal control- and safety isolating- resp. isolating transformer **STU**



1.1

1.2

1.3

2.1

2.2

3.1

3.2

3.3

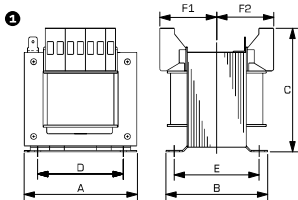
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5.1

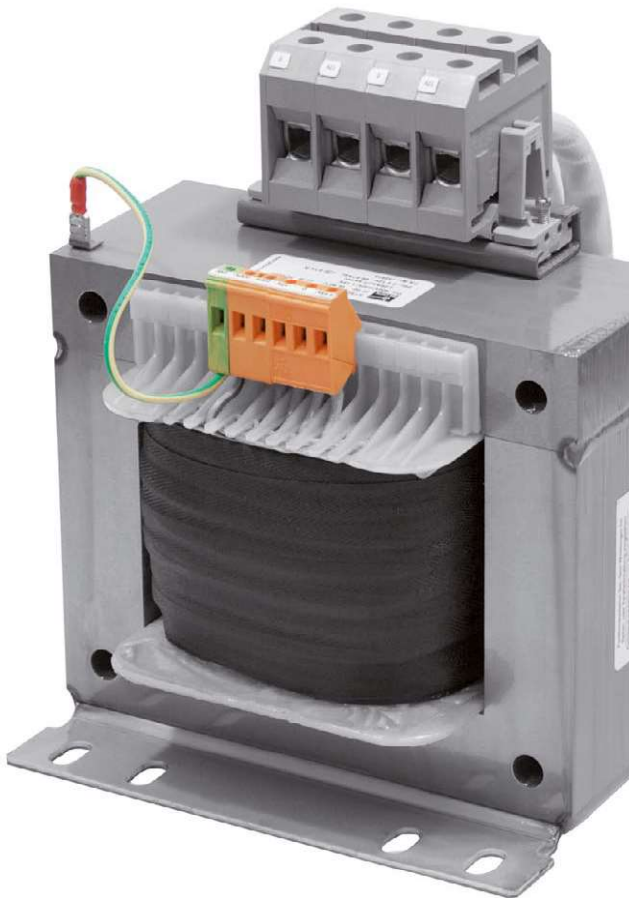
5.2

Mechanical data	Typ	Terminals	Fixing method	Fixing screws	Weight	Dimension picture (in mm)	A	B	C	D	E	F1	F2
	STU 63/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.5 kg	1	84	70	95	64	50	38	38
	STU 63/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	1.5 kg	1	84	64	94	64	50	38	38
	STU 100/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	2.0 kg	1	84	76	94	64	63.5	45	45
	STU 100/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M4	2.0 kg	1	84	76	94	64	63.5	45	45
	STU 130/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.3 kg	1	96	78	105	84	63.5	39	39
	STU 130/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.3 kg	1	96	78	105	84	63.5	39	39
	STU 160/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.8 kg	1	96	88	105	84	73	46	46
	STU 160/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	2.8 kg	1	96	88	105	84	73	46	46
	STU 250/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	4.1 kg	1	120	92	123	90	74	46	46
	STU 250/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	4.1 kg	1	120	92	123	90	74	46	46
	STU 400/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.4 kg	1	120	102	123	90	85	50	67
	STU 400/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	5.4 kg	1	120	102	123	90	85	50	58
	STU 500/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	7.0 kg	1	150	122	126	90	104	60	77
	STU 500/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M5	7.0 kg	1	120	122	123	90	104	60	68
	STU 630/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	7.9 kg	1	150	111	149	122	90	47	65
	STU 630/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	7.9 kg	1	150	111	149	122	90	47	56
	STU 800/24	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	10.3 kg	1	150	139	150	122	106	54	74
	STU 800/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	10.3 kg	1	150	128	149	122	106	54	65
	STU 1000/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M6	13.5 kg	1	150	154	149	122	130	68	77
	STU 1600/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	17.8 kg	1	192	145	182	156	120	86	66
	STU 2000/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	22.4 kg	1	192	180	182	156	150	82	83
	STU 2500/2x115	Screw-type terminals, PE 6.3 x 0.8	Base plate	M8	25.3 kg	1	192	185	182	156	160	87	88

Dimension pictures



Control- and safety isolating- resp. isolating transformer with shielding winding STSU



General Data

Rated input voltage 230 and 400 Vac
Rated output voltage 24 - 230 Vac
Rated power 40 - 2500 VA
Insulation class B
Maximum ambient temperature 40 °C
Efficiency up to 94 %
Degree of protection IP 00

Advantages

Dual input voltage 230 and 400 Vac
Shielding winding between input and output
Very good switch-on behaviour thanks to reduced starting currents
High performance for the volume thanks to compact design
Primary side ± 15 V tapings for voltage adjustment
Very good corrosion protection and low noise thanks to vacuum impregnation
Contact protected screw connection terminals complying with UVV BGV A3
Simple mounting thanks to robust metal footplate with oval slots
63 - 250 VA with combination footplate for bolted and rail mounting

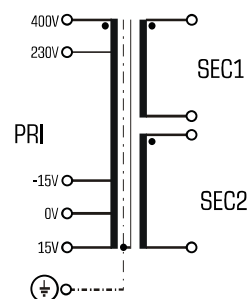
Applications

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 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

Approvals



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



Control- and safety isolating- resp. isolating transformer with shielding winding STSU



Electrical data	Type	STSU 40/23	STSU 40/24	STSU 40/48	STSU 63/23
	Input				
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Tappings Input	±15 V	±15 V	±15 V	±15 V
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
	Output				
	Rated output voltage	2x115 Vac	2x12 Vac	2x24 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	40 VA	40 VA	40 VA	63 VA
	Rated power VDE (KB cos phi=0.5)				175 VA
	No-load voltage (app. x factor)	1.10	1.10	1.10	1.10
	Secondary circuit	2	2	2	2
	Efficiency	81.6 %	81.5 %	81.6 %	85.5 %
	Standards				
	Classification	Isolating transformer	Safety isolating transformer	Control- and isolating transformer	Control- and isolating transformer
	Approvals				
	Approvals	cURus	cURus	cURus	cURus
	Environment				
	Type of cooling	self-cooling	self-cooling	self-cooling	self-cooling
	Ambient temperature max.	40 °C	40 °C	40 °C	40 °C
	Safety and protection				
	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
	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
	Order numbers				
	Order Number	STSU 40/23	STSU 40/24	STSU 40/48	STSU 63/23



Control- and safety isolating- resp. isolating transformer with shielding winding **STSU**



Electrical data	Typ	STSU 63/24	STSU 63/48	STSU 100/23	STSU 100/24
	Input				
Frequency range		50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Tappings Input		±15 V	±15 V	±15 V	±15 V
Rated input voltage		230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
Electrical data	Output				
Rated output voltage		2x12 Vac	2x24 Vac	2x115 Vac	2x12 Vac
Rated power VDE (DB cos phi=1)		63 VA	63 VA	100 VA	100 VA
Rated power VDE (KB cos phi=0.5)		175 VA	175 VA	310 VA	310 VA
No-load voltage (app. x factor)		1.10	1.10	1.09	1.08
Secondary circuit		2	2	2	2
Efficiency		82.4 %	85.2 %	85.0 %	87.0 %
Standards					
Classification		Control- and safety isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer
Approvals					
Approvals		cURus	cURus	cURus	cURus
Environment					
Type of cooling		self-cooling	self-cooling	self-cooling	self-cooling
Ambient temperature max.		40 °C	40 °C	40 °C	40 °C
Safety and protection					
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
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
Order numbers					
Order Number		STSU 63/24	STSU 63/48	STSU 100/23	STSU 100/24



Control- and safety isolating- resp. isolating transformer with shielding winding **STSU**



Electrical data	Typ	STSU 100/48	STSU 160/23	STSU 160/24	STSU 160/48
	Input				
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Tappings Input	±15 V	±15 V	±15 V	±15 V
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
	Output				
	Rated output voltage	2x24 Vac	2x115 Vac	2x12 Vac	2x24 Vac
	Rated power VDE (DB cos phi=1)	100 VA	160 VA	160 VA	160 VA
	Rated power VDE (KB cos phi=0.5)	310 VA			
	No-load voltage (app. x factor)	1.10	1.08	1.10	1.10
	Secondary circuit	2	2	2	2
	Efficiency	84.5 %	87.4 %	88.2 %	88.0 %
	Standards				
	Classification	Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer
	Approvals				
	Approvals	cURus	cURus	cURus	cURus
	Environment				
	Type of cooling	self-cooling	self-cooling	self-cooling	self-cooling
	Ambient temperature max.	40 °C	40 °C	40 °C	40 °C
	Safety and protection				
	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
	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
	Order numbers				
	Order Number	STSU 100/48	STSU 160/23	STSU 160/24	STSU 160/48



Control- and safety isolating- resp. isolating transformer with shielding winding **STSU**



Electrical data	Type	STSU 250/23	STSU 250/24	STSU 250/48	STSU 400/23
	Input				
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Tappings Input	±15 V	±15 V	±15 V	±15 V
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
	Output				
	Rated output voltage	2x115 Vac	2x12 Vac	2x24 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	250 VA	250 VA	250 VA	400 VA
	Rated power VDE (KB cos phi=0.5)	850 VA	850 VA	850 VA	1.440 VA
	No-load voltage (app. x factor)	1.07	1.07	1.07	1.04
	Secondary circuit	2	2	2	2
	Efficiency	89.4 %	88.4 %	88.7 %	91.2 %
	Standards				
	Classification	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	Control- and isolating transformer
	Approvals				
	Approvals	cURus	cURus	cURus	cURus
	Environment				
	Type of cooling	self-cooling	self-cooling	self-cooling	self-cooling
	Ambient temperature max.	40 °C	40 °C	40 °C	40 °C
	Safety and protection				
	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
	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
	Order numbers				
	Order Number	STSU 250/23	STSU 250/24	STSU 250/48	STSU 400/23



Control- and safety isolating- resp. isolating transformer with shielding winding **STSU**



Electrical data	Typ	STSU 400/24	STSU 400/48	STSU 630/23	STSU 630/24
	Input				
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Tappings Input	±15 V	±15 V	±15 V	±15 V
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
	Output				
	Rated output voltage	2x12 Vac	2x24 Vac	2x115 Vac	2x12 Vac
	Rated power VDE (DB cos phi=1)	400 VA	400 VA	630 VA	630 VA
	Rated power VDE (KB cos phi=0.5)	1.440 VA	1.440 VA	2.350 VA	2.350 VA
	No-load voltage (app. x factor)	1.04	1.04	1.04	1.04
	Secondary circuit	2	2	2	2
	Efficiency	91.0 %	91.4 %	92.4 %	92.4 %
	Standards				
	Classification	Control- and safety isolating transformer	Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer
	Approvals	cURus	cURus	cURus	cURus
	Environment				
	Type of cooling	self-cooling	self-cooling	self-cooling	self-cooling
	Ambient temperature max.	40 °C	40 °C	40 °C	40 °C
	Safety and protection				
	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
	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
	Order numbers				
	Order Number	STSU 400/24	STSU 400/48	STSU 630/23	STSU 630/24

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Control- and safety isolating- resp. isolating transformer with shielding winding **STSU**



Electrical data	Typ	STSU 630/48	STSU 1000/23	STSU 1000/24	STSU 1000/48
	Input				
Frequency range		50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Tappings Input		±15 V	±15 V	±15 V	±15 V
Rated input voltage		230/400 Vac	230/400 Vac	230/400 Vac	230/400 Vac
Electrical data	Output				
Rated output voltage		2x24 Vac	2x115 Vac	2x12 Vac	2x24 Vac
Rated power VDE (DB cos phi=1)		630 VA	1.000 VA	1.000 VA	1.000 VA
Rated power VDE (KB cos phi=0.5)		2.350 VA	5.000 VA	5.000 VA	5.000 VA
No-load voltage (app. x factor)		1.04	1.03	1.03	1.02
Secondary circuit		2	2	2	2
Efficiency		92.4 %	93.6 %	93.5 %	93.5 %
Standards					
Classification		Control- and isolating transformer	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer
Approvals					
Approvals		cURus	cURus	cURus	cURus
Environment					
Type of cooling		self-cooling	self-cooling	self-cooling	self-cooling
Ambient temperature max.		40 °C	40 °C	40 °C	40 °C
Safety and protection					
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
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
Order numbers					
Order Number		STSU 630/48	STSU 1000/23	STSU 1000/24	STSU 1000/48



Control- and safety isolating- resp. isolating transformer with shielding winding STSU



Electrical data	Type	STSU 1600/23	STSU 2000/23	STSU 2500/23
	Input			
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Tappings Input	±15 V	±15 V	±15 V
	Rated input voltage	230/400 Vac	230/400 Vac	230/400 Vac
	Output			
	Rated output voltage	2x115 Vac	2x115 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	1.600 VA	2.000 VA	2.500 VA
	Rated power VDE (KB cos phi=0.5)	7.800 VA	10.900 VA	12.400 VA
	No-load voltage (app. x factor)	1.02	1.02	1.02
	Secondary circuit	2	2	2
	Efficiency	94.5 %	95.0 %	96.4 %
	Standards			
	Classification	Control- and isolating transformer	Control- and isolating transformer	Control- and isolating transformer
	Approvals			
	Approvals	cURus	cURus	cURus
	Environment			
	Type of cooling	self-cooling	self-cooling	self-cooling
	Ambient temperature max.	40 °C	40 °C	40 °C
	Safety and protection			
	Type	Open type	Open type	Open type
	Insulation class	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130
	Protection index	IP 00	IP 00	IP 00
	Safety class (prepared)	I	I	I
	Short circuit strength	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof
	Order numbers			
	Order Number	STSU 1600/23	STSU 2000/23	STSU 2500/23



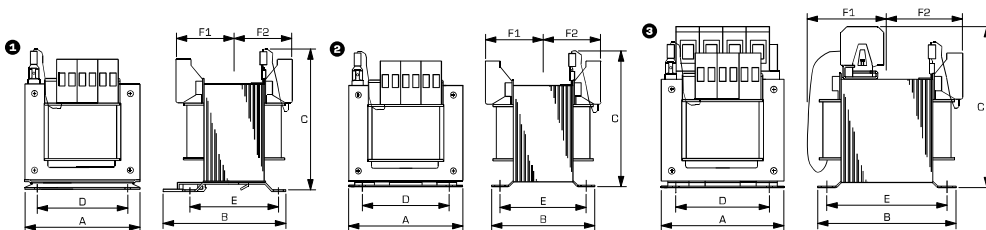
Control- and safety isolating- resp. isolating transformer with shielding winding

STSU



Mechanical data	Typ	Terminals	Fixing method	Fixing screws	Weight	Dimension picture (in mm)	A	B	C	D	E	F1	F2	F	G
30	STSU 40/23	Screw-type terminals	Base plate	M4	1.00 kg	2	66	82	78	50	55	41	41	41	41
	STSU 40/24	Screw-type terminals	Base plate	M4	1.00 kg	2	66	82	78	50	55	41	41	41	41
	STSU 40/48	Screw-type terminals	Base plate	M4	1.00 kg	2	66	82	78	50	55	41	41	41	41
	STSU 63/23	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M4	1.30 kg	1	84	89	88	64	64	37	52	37	37
	STSU 63/24	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M4	1.30 kg	1	84	89	88	64	64	37	52	37	37
	STSU 63/48	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M4	1.30 kg	1	84	89	88	64	64	37	52	37	37
	STSU 100/23	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M4	2.10 kg	1	84	97	96	64	64	46	51	46	46
	STSU 100/24	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M4	2.10 kg	1	84	97	96	64	64	46	51	46	46
	STSU 100/48	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M4	2.10 kg	1	84	97	96	64	64	46	51	46	46
	STSU 160/23	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M5	2.80 kg	1	96	102	104	84	87	51	51	51	51
	STSU 160/24	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M5	2.90 kg	1	96	102	104	84	87	51	51	51	51
	STSU 160/48	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M5	2.90 kg	1	96	102	104	84	87	51	51	51	51
	STSU 250/23	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M5	3.60 kg	1	96	102	104	84	87	53	53	53	53
	STSU 250/24	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M5	3.60 kg	1	96	102	104	84	87	53	53	53	53
	STSU 250/48	Screw-type terminals	Dual purpose foot plate also for installation on mounting rails	M5	3.60 kg	1	96	102	104	84	87	53	53	53	53
	STSU 400/23	Screw-type terminals	Base plate	M5	5.30 kg	2	120	110	123	90	85	50	57	50	57
	STSU 400/24	Screw-type terminals	Base plate	M5	5.30 kg	2	120	110	123	90	85	50	57	50	57
	STSU 400/48	Screw-type terminals	Base plate	M5	5.30 kg	2	120	110	123	90	85	50	57	50	57
	STSU 630/23	Screw-type terminals	Base plate	M6	8.00 kg	2	150	112	150	122	90	49	56	49	56
	STSU 630/24	Screw-type terminals	Base plate	M6	8.00 kg	3	150	122	153	122	90	49	66	49	66
	STSU 630/48	Screw-type terminals	Base plate	M6	8.00 kg	2	150	112	150	122	90	49	56	49	56
	STSU 1000/23	Screw-type terminals	Base plate	M6	13.60 kg	2	150	156	150	122	134	71	71	71	71
	STSU 1000/24	Screw-type terminals	Base plate	M6	13.60 kg	3	150	174	190	122	134	71	70	71	70
	STSU 1000/48	Screw-type terminals	Base plate	M6	13.60 kg	2	150	156	150	122	134	71	78	71	78
	STSU 1600/23	Screw-type terminals	Base plate	M8	21.00 kg	2	192	161	185	156	133	65	65	65	65
	STSU 2000/23	Screw-type terminals	Base plate	M8	26.00 kg	2	192	183	185	156	155	76	76	76	76
	STSU 2500/23	Screw-type terminals	Base plate	M8	26.30 kg	2	192	189	185	156	161	79	79	79	79

Dimension pictures



Control transformer **BUST**



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General Data

Rated input voltage 230 - 500 Vac

Rated output voltage 24 - 230 Vac

Rated power 1000 - 10000 VA

Insulation class B

Maximum ambient temperature 40 °C

Efficiency up to 96,8 %

Degree of protection IP 00

Advantages

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 vacuum impregnation

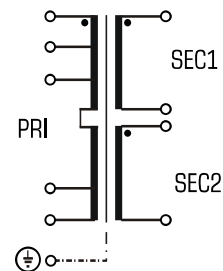
Contact protected screw connection terminals complying with UVV BGV A3

Low height

Applications

Control transformer for the electrical isolation of the input and output sides. The design of the transformer makes it suitable for the supply of control systems complying with VDE 0113.

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

Approvals



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



Control transformer

BUST



Electrical data	Type	BUST 1000/23/24	BUST 1000/4/23	BUST 1600/23/24	BUST 1600/4/42	BUST 1600/4/23	BUST 2000/23/23
	Input						
	Rated input voltage	230 Vac	400 Vac	230 Vac	400 Vac	400 Vac	230 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Low-inrush current	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times
	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	2x115 Vac	24 Vac	42 Vac	2x115 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	1.000 VA	1.000 VA	1.600 VA	1.600 VA	1.600 VA	2.000 VA
	Rated power VDE (KB cos phi=0.5)	2.500 VA	2.500 VA	4.300 VA	4.300 VA	4.300 VA	5.300 VA
Efficiency	92.6 %	92.5 %	93.5 %	93.3 %	93.2 %	93.7 %	
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	4.00 - 6.30 A	2.50 - 4.00 A	6.30 - 10.00 A	4.00 - 6.30 A	4.00 - 6.30 A	8.00 - 12.00 A	
Setting value	4.70 A	2.70 A	7.40 A	4.30 A	4.30 A	9.30 A	
Order numbers							
Order Number	BUST 1000/23/24	BUST 1000/4/23	BUST 1600/23/24	BUST 1600/4/42	BUST 1600/4/23	BUST 2000/23/23	



Control transformer BUST



Electrical data	Typ	BUST 2000/4/23	BUST 2500/4/23	BUST 3000/4/23	BUST 3000/44/23	BUST 3000/5/23	BUST 4000/23/23
	Input						
	Rated input voltage	400 Vac	400 Vac	400 Vac	440 Vac	500 Vac	230 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Low-inrush current	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	2x115 Vac	2x115 Vac	2x115 Vac	2x115 Vac	2x115 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	2.000 VA	2.500 VA	3.000 VA	3.000 VA	3.000 VA	4.000 VA
	Rated power VDE (KB cos phi=0.5)	5.300 VA	6.900 VA	8.900 VA	8.900 VA	8.900 VA	11.000 VA
	Efficiency	93.9 %	94.8 %	95.3 %	95.4 %	95.3 %	95.4 %
	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	4.00 - 6.30 A	6.30 - 10.00 A	6.30 - 10.00 A	6.30 - 10.00 A	6.30 - 10.00 A	16.00 - 20.00 A
	Setting value	5.30 A	6.50 A	7.80 A	7.10 A	6.30 A	18.10 A
	Order numbers						
	Order Number	BUST 2000/4/23	BUST 2500/4/23	BUST 3000/4/23	BUST 3000/44/23	BUST 3000/5/23	BUST 4000/23/23



Control transformer BUST



Electrical data	Type	BUST 4000/4/23	BUST 4000/44/23	BUST 5000/23/23	BUST 5000/4/23	BUST 6300/4/23	BUST 6300/44/23
	Input						
	Rated input voltage	400 Vac	440 Vac	230 Vac	400 Vac	400 Vac	440 Vac
	Tappings Input	±5 %	±5 %	±5 %	±5 %	±5 %	±5 %
	Low-inrush current	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output voltage	2x115 Vac	2x115 Vac	2x115 Vac	2x115 Vac	2x115 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	4.000 VA	4.000 VA	5.000 VA	5.000 VA	6.300 VA	6.300 VA
	Rated power VDE (KB cos phi=0.5)	11.000 VA	11.000 VA	15.700 VA	15.700 VA	16.000 VA	16.000 VA
	Efficiency	95.4 %	95.4 %	95.8 %	95.7 %	96.2 %	96.4 %
	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 Irated related to set)						
	Setting range	8.00 - 12.00 A	6.30 - 10.00 A	20.00 - 25.00 A	10.00 - 16.00 A	16.00 - 20.00 A	10.00 - 16.00 A
	Setting value	10.40 A	9.00 A	22.00 A	12.90 A	16.20 A	14.80 A
	Order numbers						
	Order Number	BUST 4000/4/23	BUST 4000/44/23	BUST 5000/23/23	BUST 5000/4/23	BUST 6300/4/23	BUST 6300/44/23



Control transformer

BUST



Electrical data	Typ	BUST 6300/5/23	BUST 8000/4/23	BUST 10000/4/23
	Input			
	Rated input voltage	500 Vac	400 Vac	400 Vac
	Tappings Input	±5 %	±5 %	±5 %
	Low-inrush current	typ. rated current up to 12 times	typ. rated current up to 12 times	typ. rated current up to 12 times
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output			
	Rated output voltage	2x115 Vac	2x115 Vac	2x115 Vac
	Rated power VDE (DB cos phi=1)	6.300 VA	8.000 VA	10.000 VA
	Rated power VDE (KB cos phi=0.5)	16.000 VA	26.500 VA	27.000 VA
	Efficiency	96.3%	96.5 %	96.8 %
	Approvals			
	Approvals	cURus	cURus	cURus
	Environment			
	Ambient temperature max.	40 °C	40 °C	40 °C
	Type of cooling	self-cooling	self-cooling	self-cooling
	Safety and protection			
	Type	Open type	Open type	Open type
	Insulation class	VDE=B, UL=class 130	VDE=B, UL=class 130	VDE=B, UL=class 130
	Protection index	IP 00	IP 00	IP 00
	Safety class (prepared)	I	I	I
	Short circuit strength	non-short-circuit proof	non-short-circuit proof	non-short-circuit proof
	PRI Fusing recommendation by circuit breaker with tripping characteristic type 20 x Irated related to set)			
	Setting range	10.00 - 16.00 A	20.00 - 25.00 A	20.00 - 25.00 A
	Setting value	13.00 A	21.00 A	25.00 A
	Order numbers			
	Order Number	BUST 6300/5/23	BUST 8000/4/23	BUST 10000/4/23



Control transformer BUST

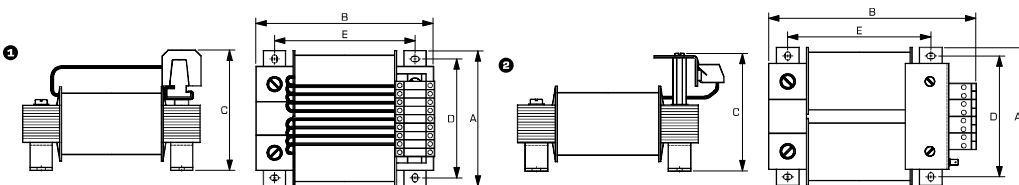


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Mechanical data

Type	Terminals	Fixing method	Fixing screws	Weight	Dimension picture (in mm)	A	B	C	D	E
BUST 1000/23/24	Screw-type terminals	Foot brackets	M5	10.00 kg		150	220	130	126	152
BUST 1000/4/23	Screw-type terminals	Foot brackets	M5	10.00 kg		150	220	130	126	152
BUST 1600/23/24	Screw-type terminals	Foot brackets	M6	16.00 kg		180	245	156	146	176
BUST 1600/4/42	Screw-type terminals	Foot brackets	M6	16.00 kg		180	245	156	146	176
BUST 1600/4/23	Screw-type terminals	Foot brackets	M6	16.00 kg		180	245	156	146	176
BUST 2000/23/23	Screw-type terminals	Foot brackets	M6	19.00 kg		200	275	175	174	200
BUST 2000/4/23	Screw-type terminals	Foot brackets	M6	19.00 kg		200	275	175	174	200
BUST 2500/4/23	Screw-type terminals	Foot brackets	M6	25.00 kg		200	275	175	174	200
BUST 3000/4/23	Screw-type terminals	Foot brackets	M6	28.00 kg		200	255	215	174	200
BUST 3000/44/23	Screw-type terminals	Foot brackets	M6	28.00 kg		200	255	215	174	200
BUST 3000/5/23	Screw-type terminals	Foot brackets	M6	28.00 kg		200	255	215	174	200
BUST 4000/23/23	Screw-type terminals	Foot brackets	M8	37.00 kg		240	325	175	204	240
BUST 4000/4/23	Screw-type terminals	Foot brackets	M8	37.00 kg		240	325	175	204	240
BUST 4000/44/23	Screw-type terminals	Foot brackets	M8	37.00 kg		240	325	175	204	240
BUST 5000/23/23	Screw-type terminals	Foot brackets	M8	41.00 kg		240	325	190	204	240
BUST 5000/4/23	Screw-type terminals	Foot brackets	M8	41.00 kg		240	325	190	204	240
BUST 6300/4/23	Screw-type terminals	Foot brackets	M8	58.00 kg		280	350	220	234	280
BUST 6300/44/23	Screw-type terminals	Foot brackets	M8	58.00 kg		280	350	220	234	280
BUST 6300/5/23	Screw-type terminals	Foot brackets	M8	58.00 kg		280	350	220	234	280
BUST 8000/4/23	Screw-type terminals	Foot brackets	M8	72.00 kg		280	350	250	234	280
BUST 10000/4/23	Screw-type terminals	Foot brackets	M10	86.00 kg		320	400	245	264	320

Dimension pictures



Control- and safety isolating- resp. isolating transformer

TT1



General Data

Rated input voltage 219 Vac - 525 Vac
Rated output voltage 24, 42, 2 x 115 Vac
Rated power 1000 - 25000 VA
Insulation class F
Maximum ambient temperature 40 °C
Efficiency up to 98 %
Degree of protection IP 00, IPXXB on request
Optionally adapted package for higher degrees of protection

Advantages

Safe galvanic isolation
Patented assembly technology
Very good corrosion protection and low noise thanks to vacuum impregnation
Primary side ± 5 % tapings for voltage adjustment
Fixed, contact protected screw connection terminals complying with UVV BGV A3
Multifunctional fixing rail with 8 oval slots
Space saving, thanks to horizontal design
Integrated crane eyes
Non-slip terminals

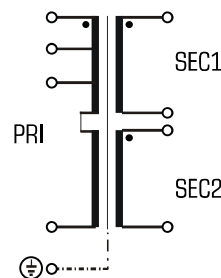
Applications

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 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 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

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, UL 1561, CSA 22.2 (E 103521)

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5.2



Control- and safety isolating- resp. isolating transformer

TT1



Electrical data	Typ	TT1 1-4-23	TT1 1-23-24	TT1 1,6-4-23	TT1 1,6-4-42	TT1 1,6-23-24	TT1 2-4-23
	Input						
	Rated input current	2,9 A / 2,7 A / 2,6 Aac	4,9 A / 4,7 A / 4,5 Aac	4,5 A / 4,3 A / 4,1 Aac	4,5 A / 4,3 A / 4,1 Aac	7,8 A / 7,4 A / 7,1 A	5,6 A / 5,3 A / 5,1 Aac
	Rated input voltage	380/400/420 Vac	219/230/241 Vac	380/400/420 Vac	380/400/420 Vac	219/230/241 Vac	380/400/420 Vac
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
Electrical data	Output						
	Rated output current	4,3 Aac	41,7 Aac	7 Aac	38,1 Aac	67 Aac	8,7 Aac
	Rated output voltage	2 x 115 Vac	24 Vac	2 x 115 Vac	42 Vac	24 Vac	2 x 115 Vac
	Rated power VDE (DB cos phi=1)	1.000 VA	1.000 VA	1.600 VA	1.600 VA	1.600 VA	2.000 VA
	Rated power VDE (KB cos phi=0,5)	2.270 VA	2.300 VA	4.080 VA	4.000 VA	4.260 VA	5.480 VA
	Short circuit voltage uK	ca. 7,2%	ca. 7,3%	ca. 5,6%	ca. 5,6%	ca. 5,4%	ca. 5,0%
	Vector group	Ii0	Ii0	Ii0	Ii0	Ii0	Ii0
	Efficiency	92%	92%	93 %	93 %	93 %	94%
Standards							
	Classification	Control- and isolating transformer	Control- and safety isolating transformer	Control- and isolating transformer	Control- and safety 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	AN	AN	AN	AN	AN	AN
Safety and protection							
	Type	Open type	Open type	Open type	Open type	Open type	Open type
	Insulation class	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155
	Protection index	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request
	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
Order numbers							
	Order Number	TT1 1-4-23	TT1 1-23-24	TT1 1,6-4-23	TT1 1,6-4-42	TT1 1,6-23-24	TT1 2-4-23



Control- and safety isolating- resp. isolating transformer

TT1



Electrical data	Typ	TT1 2-23-24	TT1 2,5-4-23	TT1 2,5-4-42	TT1 2,5-23-24	TT1 3-4-23	TT1 3-5-23
	Input						
	Rated input current	9,6 A / 9,2 A / 8,8 Aac	7,0 A / 6,6A / 6,3 Aac	6,9 A / 6,6A / 6,3 Aac	12,0 A / 11,5 A / 10,9 Aac	8,3 A / 7,9 A / 7,5 Aac	6,7 A / 6,3 A / 6,0 Aac
	Rated input voltage	219/230/241 Vac	380/400/420 Vac	380/400/420 Vac	219/230/241 Vac	380/400/420 Vac	475/500/525 Vac
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output current	83 Aac	10,9 Aac	59,5 Aac	104 Aac	13,1 Aac	13,1 Aac
	Rated output voltage	24 Vac	2 x 115 Vac	42 Vac	24 Vac	2 x 115 Vac	2 x 115 Vac
	Rated power VDE (DB cos phi=1)	2.000 VA	2.500 VA	2.500 VA	2.500 VA	3.000 VA	3.000 VA
	Rated power VDE (KB cos phi=0,5)	5.430 VA	6.560 VA	6.470 VA	6.470 VA	8.500 VA	8.500 VA
	Short circuit voltage uK	ca. 5,0%	ca. 4,8 %	ca. 4,8 %	ca. 4,8 %	ca. 4,2 %	ca. 4,0%
	Vector group	Ii0	Ii0	Ii0	Ii0	Ii0	Ii0
	Efficiency	94 %	94 %	94 %	94 %	95 %	95 %
	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	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	AN	AN	AN	AN	AN	AN
	Safety and protection						
	Type	Open type	Open type	Open type	Open type	Open type	Open type
	Insulation class	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155
	Protection index	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request
	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
	Order numbers						
	Order Number	TT1 2-23-24	TT1 2,5-4-23	TT1 2,5-4-42	TT1 2,5-23-24	TT1 3-4-23	TT1 3-5-23



Control- and safety isolating- resp. isolating transformer

TT1



Electrical data	Type	TT1 3-4-23	TT1 4-4-23	TT1 4-5-23	TT1 4-4-23	TT1 5-4-23	TT1 5-5-23
	Input						
	Rated input current	7,6 A / 7,2 A / 6,9 Aac	11,1 A / 10,6 A / 10,0 Aac	8,9 A / 8,4 A / 8,0 Aac	10,1 A / 9,6 A / 9,1 Aac	13,7 A / 13,0 A / 12,4 Aac	11,0 A / 10,5 A / 10,0 Aac
	Rated input voltage	418/440/462 Vac	380/400/420 Vac	475/500/525 Vac	418/440/462 Vac	380/400/420 Vac	475/500/525 Vac
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output current	13,1 Aac	17,4 Aac	17,4 Aac	17,4 Aac	21,7 Aac	21,7 Aac
	Rated output voltage	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac
	Rated power VDE (DB cos phi=1)	3.000 VA	4.000 VA	4.000 VA	4.000 VA	5.000 VA	5.000 VA
	Rated power VDE (KB cos phi=0,5)	8.500 VA	12.450 VA	12.450 VA	12.450 VA	16.400 VA	16.400 VA
	Short circuit voltage uK	ca. 4,2%	ca. 4,0%	ca. 4,1%	ca. 4,0 %	ca. 3,3%	ca. 3,2%
	Vector group	Ii0	Ii0	Ii0	Ii0	Ii0	Ii0
	Efficiency	95 %	95 %	95 %	95 %	95 %	95 %
	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	cURus	cURus	cURus	cURus	cURus
	Environment						
	Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
	Type of cooling	AN	AN	AN	AN	AN	AN
	Safety and protection						
	Type	Open type	Open type	Open type	Open type	Open type	Open type
	Insulation class	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155
	Protection index	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request
	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
	Order numbers						
	Order Number	TT1 3-4-23	TT1 4-4-23	TT1 4-5-23	TT1 4-4-23	TT1 5-4-23	TT1 5-5-23



Control- and safety isolating- resp. isolating transformer

TT1



Electrical data	Typ	TT1 5-44-23	TT1 6,3-4-23	TT1 6,3-5-23	TT1 6,3-44-23	TT1 8-4-23	TT1 8-5-23
	Input						
	Rated input current	12,5 A / 11,9 A / 11,3 Aac	17,1 A / 16,3 A / 15,5 Aac	13,8 A / 13,1 A / 12,5 Aac	15,7 A / 14,9 A / 14,2 Aac	21,8 A / 20,7 A / 19,7 Aac	17,5 A / 16,6 A / 15,9 Aac
	Rated input voltage	418/440/462 Vac	380/400/420 Vac	475/500/525 Vac	418/440/462 Vac	380/400/420 Vac	475/500/525 Vac
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output current	21,7 Aac	27,4 Aac	27,4 Aac	27,4 Aac	34,8 Aac	34,8 Aac
	Rated output voltage	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac
	Rated power VDE (DB cos phi=1)	5.000 VA	6.300 VA	6.300 VA	6.300 VA	8.000 VA	8.000 VA
	Rated power VDE (KB cos phi=0,5)	16.400 VA	21.500 VA	21.500 VA	21.500 VA	28.000 VA	28.000 VA
	Short circuit voltage uK	ca. 3,3%	ca. 2,8%	ca. 2,8%	ca. 2,8%	ca. 2,7%	ca. 2,7%
	Vector group	Ii0	Ii0	Ii0	Ii0	Ii0	Ii0
	Efficiency	95 %	96 %	96 %	96 %	96 %	96 %
	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	cURus	cURus	cURus	cURus	cURus
	Environment						
	Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
	Type of cooling	AN	AN	AN	AN	AN	AN
	Safety and protection						
	Type	Open type	Open type	Open type	Open type	Open type	Open type
	Insulation class	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155
	Protection index	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request
	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
	Order numbers						
	Order Number	TT1 5-44-23	TT1 6,3-4-23	TT1 6,3-5-23	TT1 6,3-44-23	TT1 8-4-23	TT1 8-5-23



Control- and safety isolating- resp. isolating transformer

TT1



Electrical data	Typ	TT1 8-44-23	TT1 10-4-23	TT1 10-5-23	TT1 10-44-23	TT1 12,5-4-23	TT1 15-4-23
	Input						
	Rated input current	19,9 A / 18,9 A / 18,0 Aac	27,2 A / 25,7 A / 24,4 Aac	21,6 A / 20,5 A / 19,6 Aac	24,2 A / 23,2 A / 22,2 Aac	33,4 A / 31,9 A / 30,6 Aac	40,2 A / 37,7 A / 35,5 Aac
	Rated input voltage	418/440/462 Vac	380/400/420 Vac	475/500/525 Vac	418/440/462 Vac	380/400/420 Vac	380/400/420 Vac
	Frequency range	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz	50 - 60 Hz
	Output						
	Rated output current	34,8 Aac	43,5 Aac	43,5 Aac	43,5 Aac	54,4 Aac	65,2 Aac
	Rated output voltage	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac	2 x 115 Vac
	Rated power VDE (DB cos phi=1)	8.000 VA	10.000 VA	10.000 VA	10.000 VA	12.500 VA	15.000 VA
	Rated power VDE (KB cos phi=0,5)	28.000 VA	34.300 VA	34.300 VA	34.300 VA	41.800 VA	59.000 VA
	Short circuit voltage uK	ca. 2,7%	ca. 1,5%	ca. 1,5%	ca. 1,5%	ca. 1,3%	ca. 1,1%
	Vector group	Ii0	Ii0	Ii0	Ii0	Ii0	Ii0
	Efficiency	96%	97 %	97 %	97 %	95,5 %	ca. 98 %
	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	cURus	cURus	cURus	cURus	cURus
	Environment						
	Ambient temperature max.	40 °C	40 °C	40 °C	40 °C	40 °C	40 °C
	Type of cooling	AN	AN	AN	AN	AN	AN
	Safety and protection						
	Type	Open type	Open type	Open type	Open type	Open type	Open type
	Insulation class	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155	VDE=F, UL=class 155
	Protection index	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request	IP 00 IPXXB on request
	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
	Order numbers						
	Order Number	TT1 8-44-23	TT1 10-4-23	TT1 10-5-23	TT1 10-44-23	TT1 12,5-4-23	TT1 15-4-23



Control- and safety isolating- resp. isolating transformer

TT1



Electrical data	Type	TT1 20-4-23	TT1 25-4-23
	Input		
	Rated input current	53,6 A / 50,6 A / 48 Aac	65,7 A / 63,2 A / 60,9 Aac
	Rated input voltage	380/400/420 Vac	380/400/420 Vac
	Frequency range	50 - 60 Hz	50 - 60 Hz
	Output		
	Rated output current	87 Aac	109 Aac
	Rated output voltage	2 x 115 Vac	2 x 115 Vac
	Rated power VDE (DB cos phi=1)	20.000 VA	25.000 VA
	Rated power VDE (KB cos phi=0,5)	85.800 VA	133.000 VA
	Short circuit voltage uK	ca. 1%	ca. 0,9%
	Vector group	Ii0	Ii0
	Efficiency	ca. 98 %	
	Standards		
	Classification	Control- and isolating transformer	Control- and isolating transformer
	Approvals	cURus	cURus
	Environment		
	Ambient temperature max.	40 °C	40 °C
	Type of cooling	AN	AN
	Safety and protection		
	Type	Open type	Open type
	Insulation class	VDE=F, UL=class 155	VDE=F, UL=class 155
	Protection index	IP 00 IPXXB on request	IP 00 IPXXB on request
	Safety class (prepared)	I	I
	Short circuit strength	non-short-circuit proof	non-short-circuit proof
	Order numbers		
	Order Number	TT1 20-4-23	TT1 25-4-23

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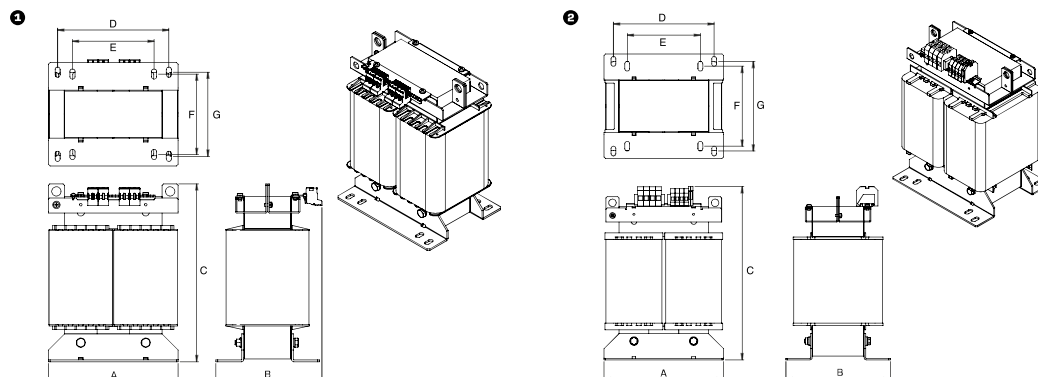
Control- and safety isolating- resp. isolating transformer

TT1



Typ	Terminals	Fixing method	Fixing screws	Core type	Weight	Dimension picture (in mm)	A	B	C	D	E	F	G
TT1 1-4-23	Screw-type terminal	Fixing rail	M6	UI 114/40	9.1 kg	1	150	125	220	104	100	71	98
TT1 1-23-24	Screw-type terminal	Fixing rail	M6	UI 114/40	9.1 kg	1	150	140	220	104	100	71	98
TT1 1,6-4-23	Screw-type terminal	Fixing rail	M6	UI 120/61	13.8 kg	1	160	145	230	110	100	89	115
TT1 1,6-4-42	Screw-type terminal	Fixing rail	M6	3UI 132/72	13.8 kg	2	160	145	260	110	100	89	115
TT1 1,6-23-24	Screw-type terminal	Fixing rail	M6	UI 120/61	13.5 kg	2	160	145	265	110	100	89	115
TT1 2-4-23	Screw-type terminal	Fixing rail	M10	UI 132/60	17.0 kg	1	175	140	245	128	112	90	114
TT1 2-23-24	Screw-type terminal	Fixing rail	M10	UI 132/60	17.0 kg	2	175	140	285	128	112	90	114
TT1 2,5-4-23	Screw-type terminal	Fixing rail	M12	3UI 180/78	18.5 kg	1	200	155	275	140	112	94	120
TT1 2,5-4-42	Screw-type terminal	Fixing rail	M10	3UI 180/78	0.0 kg	2	200	155	310	140	112	94	120
TT1 2,5-23-24	Screw-type terminal	Fixing rail	M12	3UI 180/78	20.0 kg	2	200	155	315	140	112	94	120
TT1 3-4-23	Screw-type terminal	Fixing rail	M10	UI 150/65	24.0 kg	1	200	165	275	140	112	107	133
TT1 3-5-23	Screw-type terminal	Fixing rail	M10	UI 150/65	24.0 kg	1	200	165	275	140	112	107	133
TT1 3-4-23	Screw-type terminal	Fixing rail	M10	UI 150/65	24.0 kg	1	200	165	275	140	112	107	133
TT1 4-4-23	Screw-type terminal	Fixing rail	M10	UI 180/63	31.0 kg	1	240	165	335	200	144	125	125
TT1 4-5-23	Screw-type terminal	Fixing rail	M10	UI 180/63	31.0 kg	1	240	165	335	200	144	125	125
TT1 4-4-23	Screw-type terminal	Fixing rail	M10	UI 180/63	31.0 kg	1	240	165	335	200	144	125	-
TT1 5-4-23	Screw-type terminal	Fixing rail	M10	UI 180/63	39.0 kg	1	240	195	335	200	144	140	140
TT1 5-5-23	Screw-type terminal	Fixing rail	M10	UI 180/78	39.0 kg	1	240	195	335	200	144	140	140
TT1 5-4-23	Screw-type terminal	Fixing rail	M10	UI 180/78	39.0 kg	1	240	195	335	200	144	140	140
TT1 6,3-4-23	Screw-type terminal	Fixing rail	M10	3UI 240/140	48.0 kg	1	240	210	335	200	144	155	155
TT1 6,3-5-23	Screw-type terminal	Fixing rail	M10	UI 180/93	48.0 kg	1	240	210	335	200	144	155	155
TT1 6,3-4-23	Screw-type terminal	Fixing rail	M10	UI 180/93	48.0 kg	1	240	210	335	200	144	155	155
TT1 8-4-23	Screw-type terminal	Fixing rail	M10	UI 210/88	60.0 kg	1	280	215	385	240	176	158	166
TT1 8-5-23	Screw-type terminal	Fixing rail	M10	UI 210/88	60.0 kg	1	280	215	385	240	176	158	166
TT1 8-4-23	Screw-type terminal	Fixing rail	M10	UI 210/88	60.0 kg	1	280	215	385	240	176	158	166
TT1 10-4-23	Screw-type terminal	Fixing rail	M10	UI 210/103	75.0 kg	1	280	230	385	240	176	173	181
TT1 10-5-23	Screw-type terminal	Fixing rail	M10	UI 210/103	75.0 kg	1	280	230	385	240	176	173	181
TT1 10-4-23	Screw-type terminal	Fixing rail	M10	UI 210/103	75.0 kg	1	280	230	385	240	176	173	181
TT1 12,5-4-23	Screw-type terminal	Fixing rail	M12	3UI 180/63	105.0 kg	2	320	250	460	270	196	184	210
TT1 15-4-23	Screw-type terminal	Fixing rail	M12	UI 240/110	98.0 kg	2	320	250	470	270	196	184	210
TT1 20-4-23	Screw-type terminal	Fixing rail	M12	UI 240/140	133.0 kg	2	320	280	470	270	196	214	240
TT1 25-4-23	Screw-type terminal	Fixing rail	M12	UI 240/170	153.0 kg	2	320	310	490	270	196	244	270

Dimension pictures





1.1

1.2

1.3

2.1

2.2

3.1

3.2

3.3

4.0

5.1

5.2