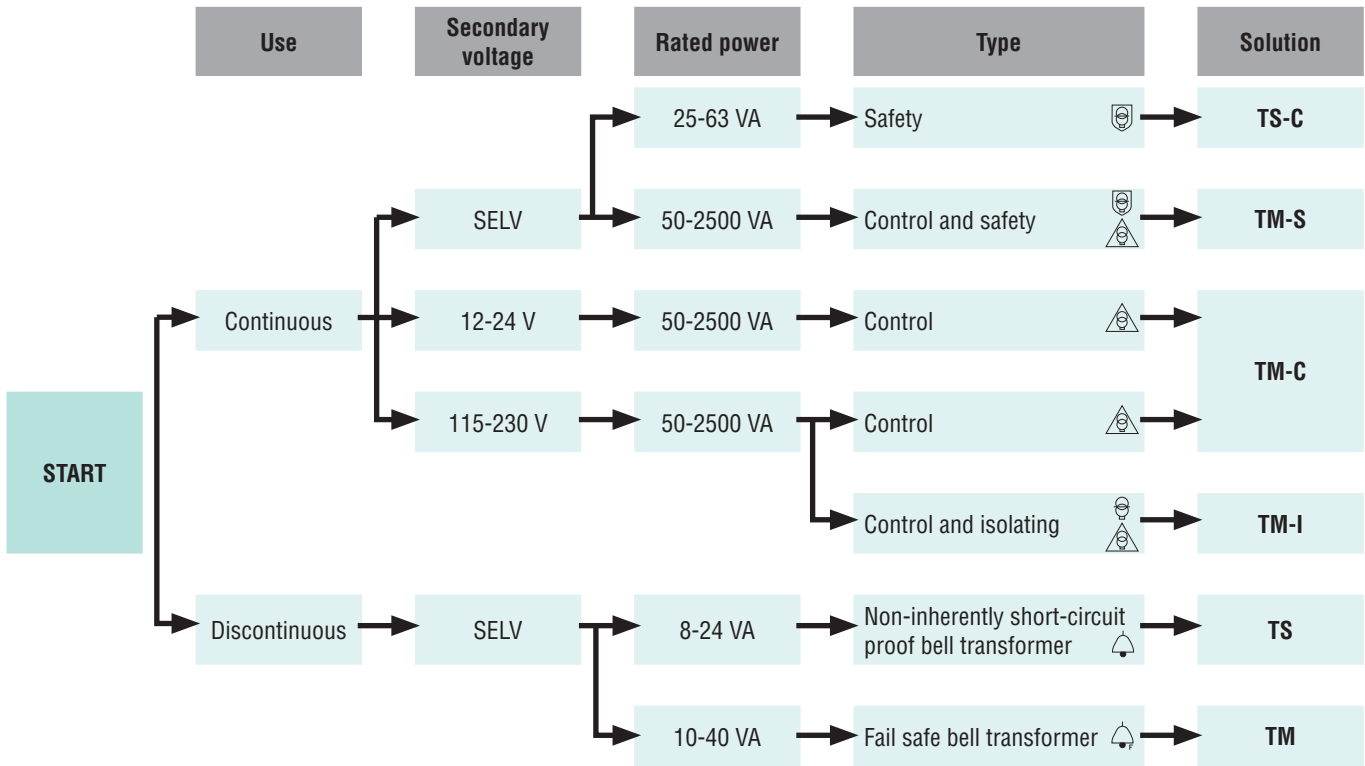


Command and signalling

Transformers selection table

		Bell transformers for discontinuous use  	
Series		TM	TS
Reference standard		IEC EN 61558-2-8	
Classification		Fail safe	Non-inherently short-circuit proof
Thermal protection integrated in secondary			
Rated power		10, 15, 30, 40 VA	8, 16, 24 VA
Operation		Discontinuous	
Primary circuit voltage ratings		230 V a.c.	230 V a.c.
Secondary circuit characteristics	Double insulation between primary and secondary windings		
	Full power on all outputs		
	SELV secondary (no-load output voltage <50 V a.c.)		
Dimensions		2 modules [10, 15 VA]	2 modules [8, 16 VA]
		3 modules [30, 40 VA]	3 modules [24 VA]

① See page 9/7 for the choice of the protections.



Safety transformers for general use	Control transformers for general use	Control and Safety transformers for general use	Control and Isolating transformers for general use
			
TS-C	TM-C	TM-S	TM-I
IEC EN 61558-2-6	CEI EN 61558-2-2	CEI EN 61558-2-2 CEI EN 61558-2-6	CEI EN 61558-2-2 CEI EN 61558-2-4
Non-inherently short-circuit proof	Non-short-circuit proof control transformer a	Non-short-circuit-proof control and safety transformer a	Non-short-circuit-proof control and isolating transformer a
■			
25, 40, 63 VA	50 to 2500 VA	50 to 2500 VA	50 to 2500 VA
Continuous	Continuous	Continuous	Continuous
230 V a.c.	230/400 V a.c.	230/400V a.c.	230/400 V a.c.
■		■	■
■	■	■	■
■		■	
4 modules [25 VA, 40 VA] 5 modules [63 VA]	See overall dimensions 13/60	See overall dimensions 13/60	See overall dimensions 13/60

	Bell transformer TM, TS Transformers for supplying extra low voltage, suitable for loads that require a discontinuous supply, in particular door-bells and chimes. The primary and secondary circuits are perfectly isolated and separated. Reference standard: IEC EN 61558-2-8
	Control transformer TM-C, TM-S*, TM-I* Transformer for supplying control circuits, for example commands, signalling, interlocks, etc. Reference standard: CEI EN 61558-2-2
	Safety transformer TS-C, TM-S* Isolation transformer for supplying safety extra low voltage circuits (<50 V on no load). Accidental contact with the secondary winding phases can be withstood without any danger. Reference standard: CEI EN 61558-2-6
	Isolating transformer TM-I* Transformer in which the primary and secondary windings are electrically separated by a double or reinforced insulation, to protect the circuit supplied by the secondary against hazards due to accidental simultaneous contact with earth and live parts, or grounded parts that may become live in the event of an insulation fault. Reference standard: CEI EN 61558-2-4

* TM-S and TM-I both comply to two standards.

Command and signalling

Control, isolating and safety transformers selection table

Selection table of products and secondary protections

Primary protection: see page 11/184



Power VA	Secondary voltage	TM-C Control				TM-S Control/Safety				TM-I Control/Isolating	
		12 V	24 V	115 V	230 V	12 V	24 V	24 V	48 V	115 V	230 V
50	Transformer	2CSM207113R0801		2CSM207213R0801		2CSM236893R0801		2CSM204653R0801 ②		2CSM204583R0801	
	Fuse gauge ①	4 A	2 A	0.4 A	0.2 A	4 A	2 A	2 A	1 A	0.4 A	0.2 A
	Breaker type	S202 C8	S202 C4	S202 C1	S202 C0,5	S202 C8	S202 C4	S202 C4	S202 C2	S202 C1	S202 C0,5
100	Transformer	2CSM207103R0801		2CSM236933R0801		2CSM207163R0801		2CSM204643R0801		2CSM201123R0801	
	Fuse gauge ①	8 A	4 A	0.8 A	0.4 A	8 A	4 A	4 A	2 A	0.8 A	0.4 A
	Breaker type	S202 C8	S202 C4	S202 C1	S202 C0,5	S202 C8	S202 C4	S202 C4	S202 C2	S202 C1	S202 C0,5
160	Transformer	2CSM236853R0801		2CSM207203R0801		2CSM202073R0801		2CSM204633R0801		2CSM204533R0801	
	Fuse gauge ①	12 A	6.3 A	1.25 A	0.63 A	12 A	6.3 A	6.3 A	3.15 A	1.25 A	0.63 A
	Breaker type	S202 C13	S202 C8	S202 C1.6	S202 C-	S202 C13	S202 C8	S202 C8	S202 C4	S202 C1.6	-
200	Transformer	2CSM236823R0801		2CSM236883R0801		2CSM260043R0801				2CSM204513R0801	
	Fuse gauge ①	16 A	8 A	1.6 A	0.8 A	16 A	8 A			1.6 A	0.8 A
	Breaker type	S202 C16	S202 C8	S202 C2	S202 C1	S202 C16	S202 C8			S202 C2	S202 C1
250	Transformer	2CSM207093R0801		2CSM236923R0801		2CSM260063R0801		2CSM204673R0801		2CSM204493R0801	
	Fuse gauge ①	20 A	10 A	2 A	1 A	20 A	10 A	10 A	5 A	2 A	1 A
	Breaker type	S202 C20	S202 C10	S202 C2	S202 C1	S202 C20	S202 C10	S202 C10	S202 C6	S202 C2	S202 C1
320	Transformer	2CSM236843R0801		2CSM236923R0801		2CSM260063R0801		2CSM204673R0801		2CSM204493R0801	
	Fuse gauge ①	25 A	12 A	2.5 A	1.25 A	25 A	12 A	12 A	6.3 A	2.5 A	1.25 A
	Breaker type	S202 C25	S202 C13	S202 C3	S202 C1,6	S202 C25	S202 C13	S202 C13	S202 C8	S202 C3	S202 C1,6
400	Transformer	2CSM289703R0801		2CSM207193R0801		2CSM260103R0801		2CSM204613R0801		2CSM201073R0801	
	Fuse gauge ①	32 A	16 A	3.15 A	1.6 A	32 A	16 A	16 A	8 A	3.15 A	1.6 A
	Breaker type	S202 C32	S202 C16	S202 C4	S202 C2	S202 C32	S202 C16	S202 C16	S202 C8	S202 C4	S202 C2
630	Transformer	2CSM236813R0801		2CSM207183R0801		2CSM260053R0801		2CSM204603R0801		2CSM204423R0801	
	Fuse gauge ①	50 A	25 A	5 A	2.5 A	50 A	25 A	25 A	12 A	5 A	2.5 A
	Breaker type	S202 C50	S202 C25	S202 C6	S202 C3	S202 C50	S202 C25	S202 C25	S202 C13	S202 C6	S202 C3
1000	Transformer	2CSM292873R0801		2CSM236913R0801		2CSM260093R0801				2CSM204413R0801	
	Fuse gauge ①	80 A	40 A	8 A	4 A	80 A	40 A			8 A	4 A
	Breaker type	S292 C80	S202 C40	S202 C8	S202 C4	S292 C80	S202 C40			S202 C8	S202 C4
1600	Transformer	2CSM292863R0801		2CSM201813R0801		2CSM260083R0801				2CSM204403R0801	
	Fuse gauge ①	125 A	63 A	16 A	8 A	125 A	63 A			16 A	8 A
	Breaker type	S292 C125	S202 C63	S202 C16	S202 C8	S292 C125	S202 C63			S202 C16	S202 C8
2000	Transformer	2CSM292853R0801		2CSM236903R0801		2CSM260073R0801				2CSM204383R0801	
	Fuse gauge ①	160 A	80 A	16 A	8 A	160 A	80 A			16 A	8 A
	Breaker type	-	S292 C80	S202 C20	S202 C10	-	S292 C80			S202 C20	S202 C10
2500	Transformer	2CSM236943R0801		2CSM207173R0801		2CSM204663R0801				2CSM204363R0801	
	Fuse gauge ①	200 A	100 A	20 A	10 A	200 A	100 A			20 A	10 A
	Breaker type	-	S292 C100	S202 C25	S202 C13	-	S292 C100			S202 C25	S202 C13

① FUSES

- Gauge ≤ 6.3 A use aM fuses with high breaking capacity and IEC601260-compliant
- Gauge > 6.3 A use gG fuses IEC60269-2 or IEC60269-3-compliant

② TM-S 50/24-48 P complies with IEC EN 61558-2-4 on the secondary circuit at 48 V and with IEC EN 61558-2-6 on the secondary circuit at 24 V

Command and signalling

TM-C, TM-S, TM-I control, isolating and safety transformers



TM

Technical characteristics		TM-C	TM-S	TM-I
Rated primary voltage Un	[V]	230/400 a.c.	230/400 a.c.	230/400 a.c.
Primary voltage adjustment outlets ± 15 V		No	Yes	Yes
Max ambient temperature ③	[°C]	40	40	40
Rated secondary voltage Un	[V]	12-24, 115-230 a.c.	12-24, 24-48 a.c. b	115-230 a.c.
Rated frequency	[Hz]	50/60	50/60	50/60
Isolation voltage between primary and secondary	[kV]	3.5	4.8	4.8
Rated powers	[VA]	50-2500	50-2500	50-2500
Primary cable section ($\varnothing$ max)	[mm ²]	6	6	6
Operating temperature	[°C]	①	①	①
Approvals		ENEC (Up to 1000 VA), UR, CSA	ENEC (Up to 1000 VA), UR, CSA	ENEC (Up to 1000 VA), UR, CSA
Standards		CEI EN 61558-2-2	CEI EN 61558-2-2 CEI EN 61558-2-6	CEI EN 61558-2-2 CEI EN 61558-2-6

① See technical details

② TM-S 50/24-48 P complies to CEI EN 61558-2-4 on the 48 V secondary and to CEI EN 61558-2-6 on the 24 V secondary

③ Maximum temperature without any power draw. See technical details for power draw according to temperature.

Where to find more:

Technical Details for Modular Transformers p.10/226

Worldwide Marks and Approvals of MDRCs p.11/96

Frequently asked question - FAQ:

A complete list of answers is available in the „Questions&Answer“ section of the TM Transformers brochure (code 2CSC446005B0202)



Maybe you are also interested in:

CP-D primary switch mode power supplies p.6/67

Command and signalling

TM-C, TM-S, TM-I control, isolating and safety transformers



TM-I



TM-S



TM-C



TM-C

Where to find more:

Technical Details for Modular Transformers p.10/226
Worldwide Marks and Approvals of MDRCs p.11/96

Frequently asked question - FAQ:

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Maybe you are also interested in:

CP-D primary switch mode power supplies p.6/67

TM-C control transformer

Transformer for supplying control circuits, for example commands, signalling, interlocks, etc.
Reference standard: CEI EN 61558-2-2.

TM-S safety transformer

Isolation transformer for supplying safety extra low voltage circuits (<50 V on no load). Accidental contact with the secondary winding phases can be withstood without any danger.
Reference standard: CEI EN 61558-2-6

TM-I isolating transformer

Transformer in which the primary and secondary windings are electrically separated by a double or reinforced insulation, to protect the circuit supplied by the secondary against hazards due to accidental simultaneous contact with earth and live parts, or grounded parts that may become live in the event of an insulation fault.

Reference standard: CEI EN 61558-2-4

Since TM-C, TM-S and TM-I transformers are not provided with built-in protection, they must therefore be protected according with these rules:

- Primary: line protection must reach or exceed the recommended value at page 10/293. This device guarantees line protection and service continuity but doesn't protect the transformer.
- Secondary: transformer protection must be chosen according to tables in the previous pages. This device protect the transformer.

TM-C single phase control transformers, primary 230-400 V

Rated power	Secondary voltage	Bbn 8012542	Order details		Price 1 piece	Weight 1 piece	Pack unit
VA	V a.c.	EAN	Type code	Order code		kg	pc.
50	12-24	071136	TM-C 50/12-24	2CSM207113R0801		1.1	1
100	12-24	071037	TM-C 100/12-24	2CSM207103R0801		2	1
160	12-24	368533	TM-C 160/12-24	2CSM236853R0801		3	1
200	12-24	368236	TM-C 200/12-24	2CSM236823R0801		3.2	1
250	12-24	070931	TM-C 250/12-24	2CSM207093R0801		3.6	1
320	12-24	368434	TM-C 320/12-24	2CSM236843R0801		4.4	1
400	12-24	897033	TM-C 400/12-24	2CSM289703R0801		5.5	1
630	12-24	368137	TM-C 630/12-24	2CSM236813R0801		7.8	1
1000	12-24	928737	TM-C 1000/12-24	2CSM292873R0801		13.2	1
1600	12-24	928638	TM-C 1600/12-24	2CSM292863R0801		21.2	1
2000	12-24	928539	TM-C 2000/12-24	2CSM292853R0801		25.5	1
2500	12-24	369431	TM-C 2500/12-24	2CSM236943R0801		26.8	1
50	115-230	072133	TM-C 50/115-230	2CSM207213R0801		1.1	1
100	115-230	369332	TM-C 100/115-230	2CSM236933R0801		2	1
160	115-230	072034	TM-C 160/115-230	2CSM207203R0801		3	1
200	115-230	368830	TM-C 200/115-230	2CSM236883R0801		3.2	1
250	115-230	071532	TM-C 250/115-230	2CSM207153R0801		3.6	1
320	115-230	369233	TM-C 320/115-230	2CSM236923R0801		4.4	1
400	115-230	071938	TM-C 400/115-230	2CSM207193R0801		5.5	1
630	115-230	071839	TM-C 630/115-230	2CSM207183R0801		7.8	1
1000	115-230	369134	TM-C 1000/115-230	2CSM236913R0801		13.2	1
1600	115-230	018131	TM-C 1600/115-230	2CSM201813R0801		21.2	1
2000	115-230	369035	TM-C 2000/115-230	2CSM236903R0801		25.5	1
2500	115-230	071730	TM-C 2500/115-230	2CSM207173R0801		26.8	1

TM-S single phase control and safety transformers, primary 230-400 V ±15

Rated power	Secondary voltage	Bbn 8012542	Order details		Price 1 piece	Weight 1 piece	Pack unit
VA	V a.c.	EAN	Type code	Order code		kg	pc.
50	12-24	368939	TM-S 50/12-24 P	2CSM236893R0801		1.1	1
100	12-24	071631	TM-S 100/12-24 P	2CSM207163R0801		2	1
160	12-24	020738	TM-S 160/12-24 P	2CSM202073R0801		3	1
200	12-24	600435	TM-S 200/12-24 P	2CSM260043R0801		3.2	1
250	12-24	601135	TM-S 250/12-24 P	2CSM260113R0801		3.6	1
320	12-24	600633	TM-S 320/12-24 P	2CSM260063R0801		4.4	1
400	12-24	601036	TM-S 400/12-24 P	2CSM260103R0801		5.5	1
630	12-24	600534	TM-S 630/12-24 P	2CSM260053R0801		7.8	1
1000	12-24	600930	TM-S 1000/12-24 P	2CSM260093R0801		13.2	1
1600	12-24	600831	TM-S 1600/12-24 P	2CSM260083R0801		21.2	1
2000	12-24	600732	TM-S 2000/12-24 P	2CSM260073R0801		25.5	1
2500	12-24	046639	TM-S 2500/12-24 P	2CSM204663R0801		26.8	1
50	24-48	046530	TM-S 50/24-48 P	2CSM204653R0801		1.1	1
100	24-48	046431	TM-S 100/24-48 P	2CSM204643R0801		2	1
160	24-48	046332	TM-S 160/24-48 P	2CSM204633R0801		3	1
250	24-48	046837	TM-S 250/24-48 P	2CSM204683R0801		3.2	1
320	24-48	046738	TM-S 320/24-48 P	2CSM204673R0801		3.6	1
400	24-48	046134	TM-S 400/24-48 P	2CSM204613R0801		4.4	1
630	24-48	046035	TM-S 630/24-48 P	2CSM204603R0801		5.5	1

TM-I single phase control and isolating transformers, primary 230-400 V ±15

Rated power	Secondary voltage	Bbn 8012542	Order details		Price 1 piece	Weight 1 piece	Pack unit
VA	V a.c.	EAN	Type code	Order code		kg	pc.
50	115-230	045830	TM-I 50/115-230 P	2CSM204583R0801		1.1	1
100	115-230	011231	TM-I 100/115-230 P	2CSM201123R0801		2	1
160	115-230	045335	TM-I 160/115-230 P	2CSM204533R0801		3	1
200	115-230	045137	TM-I 200/115-230 P	2CSM204513R0801		3.2	1
250	115-230	045038	TM-I 250/115-230 P	2CSM204503R0801		3.6	1
320	115-230	044932	TM-I 320/115-230 P	2CSM204493R0801		4.4	1
400	115-230	010739	TM-I 400/115-230 P	2CSM201073R0801		5.5	1
630	115-230	044239	TM-I 630/115-230 P	2CSM204423R0801		7.8	1
1000	115-230	044130	TM-I 1000/115-230 P	2CSM204413R0801		13.2	1
1600	115-230	044031	TM-I 1600/115-230 P	2CSM204403R0801		21.2	1
2000	115-230	043836	TM-I 2000/115-230 P	2CSM204383R0801		25.5	1
2500	115-230	043638	TM-I 2500/115-230 P	2CSM204363R0801		26.8	1

Accessories

	Bbn 8012542	Order details		Price 1 piece	Weight 1 piece	Pack unit
	EAN	Type code	Order code		kg	pc.
Mounting bracket for DIN rail (up to 160 VA)	010333	TM-C-DIN	2CSM201033R0801		0.10	10

Command and signalling

TS-C safety isolating transformers for general use



TS 25 C



TS 63 C

Technical features				
		TS 25 C	TS 40 C	TS 63 C
Primary rated voltage Un	[V]	230 a.c.	230 a.c.	230 a.c.
Secondary rated voltage Un	[V]	12 - 24 V a.c.	12 - 24 V a.c.	12 - 24 V a.c.
Rated frequency	[Hz]	50/60	50/60	50/60
Rated power (continuous use)	[VA]	25	40	63
Power loss	[W]	5	10	16,7
Modules	[No.]	4	4	5
Standards		IEC/EN 61558-2-6		
Approvals		IMQ, VDE, GOST		

TS-C safety isolating transformers for general use

These transformers are non-inherently short-circuit proof. In fact they are equipped with a thermal protective device which automatically restores the power when the transformer is sufficiently cooled down. So even during an overload or a short-circuit they maintain their temperature below the specified limits and they continue functioning after the fault's removal. They are ideal for supplying permanent power to meters, auxiliary electronic devices (e.g. measurement, video-entry phone systems, BUS communication) and circuits with safety extremely-low voltage (SELV) for bathrooms and showers, lighting, fountains, electro-medical devices and suchlike. One important feature of these new devices is that they take up very little space in the 4-module size for the 25 and 40 VA versions and the 5-module size for the 63 VA version.

Rated power (continuous)	Secondary rated voltage	Bbn 8012542	Order details		Price 1 piece	Weight 1 piece	Pack unit
VA	V	EAN	Type code	Order code		kg	pc.
25	12-24	928508	TS 25/12-24 C	2CSM251043R0811		0.920	1
40	12-24	928607	TS 40/12-24 C	2CSM401043R0811		1.100	1
63	12-24	928706	TS 63/12-24 C	2CSM631043R0811		1.150	1

Where to find more:

Technical Details for Modular Transformers p.10/225
Worldwide Marks and Approvals of MDRCs p.11/96

Maybe you are also interested in:

CP-D primary switch mode power supplies p.6/67

Command and signalling

TM bell transformers



TM 15/12

2CSC400594F0201



TM 40/12

2CSC400595F0201

Technical characteristics

Rated primary voltage Un	[V]	230 a.c.
Rated secondary voltage Un	[V]	4, 8, 12, 24
Rated frequency	[Hz]	50/60
Rated power (discontinuous)	[VA]	10, 15, 30, 40
Power loss	[W]	1..4
Modules	[No.]	2 (TM10,TM15), 3(TM30,TM40)
Cable section (Ø min/max)	[mm²]	1.5 / 10
Tightening torque	[Nm]	1
Protection degree		IP 20
Reference standards		IEC/EN 61558-2-8
Approvals		GOST, IMQ (TM10, TM15, TM30)

TM fail safe bell transformers

These transformers, with safety extremely-low voltage secondary (SELV), are suitable for loads that require a discontinuous supply, and in particular doorbells and chimes.

Fail safe operation and excellent safety are assured thanks to the perfect isolation and separation between the primary and secondary circuits.

Maximum rated power a (discontinuous) VA	Secondary voltage rating V c.a.	Bbn 8012542 EAN	Order details		Price 1 piece	Weight 1 piece kg	Pack unit pc.
			Type code	Order code			
10	4-8-12	367109	TM10/12	2CSM101021R0801		0.300	6
10	12-24	367208	TM10/24	2CSM101041R0801		0.300	6
15	4-8-12	367307	TM15/12	2CSM151021R0801		0.300	6
15	12-24	367406	TM15/24	2CSM151041R0801		0.300	6
30	4-8-12	367505	TM30/12	2CSM301021R0801		0.450	4
30	12-24	367604	TM30/24	2CSM301041R0801		0.450	4
40	4-8-12	367703	TM40/12	2CSM401021R0801		0.450	4
40	12-24	367802	TM40/24	2CSM401041R0801		0.450	4

① See diagrams below for the RMS power on each secondary output

Where to find more:

Technical Details for Modular Transformers p.10/225
Worldwide Marks and Approvals of MDRCs p.11/96

Maybe you are also interested in:

CP-D primary switch mode power supplies p.6/67

Command and signalling TS bell transformers



TS 8/8

2CSC400597R0201



TS 8/12 SW

2CSC400598R0201



TS 24/8-12-24

2CSC400599R0201

Technical characteristics

Rated voltage Un primary	[V]	230 a.c.
Rated voltage Un secondary	[V]	4, 8, 12, 24
Rated frequency	[Hz]	50/60
Rated power (discontinuous)	[VA]	10, 15, 30, 40
Power loss	[W]	1..4
Modules	[No.]	2 (TS8,TS16), 3(TS24)
Cable section (Ø min/max)	[mm²]	1.5 / 10
Tightening torque	[Nm]	1
Protection degree		IP 20
Reference standards		IEC/EN 61558-2-8
Approvals		VDE, GOST

TS non-inherently short-circuit proof bell transformers

These transformers, with safety extremely-low voltage secondary (SELV), are suitable for driving loads that call for a discontinuous supply, and in particular doorbells and chimes. In addition to perfect isolation and separation between the primary and secondary circuits, the TS transformers have a thermal protection device integrated into the secondary that makes them resistant to short circuit currents (non-inherently short-circuit proof).

In addition, the TS8/SW series is equipped with a switch for controlling loads connected to the secondary.

Maximum rated power a (discont.) VA	Secondary voltage rating V c.a.	Switch 0-1	Bbn 8012542 EAN	Order details	Price 1 piece	Weight 1 piece kg	Pack unit pc.
				Type code	Order code		
8	8		368007	TS8/8	2CSM081301R0811	0.355	6
8	12		368106	TS8/12	2CSM081401R0811	0.355	6
8	24		368205	TS8/24	2CSM081501R0811	0.355	6
8	8	■	368304	TS8/8 SW	2CSM081302R0811	0.277	6
8	12	■	368403	TS8/12 SW	2CSM081402R0811	0.277	6
8	4-6-8	■	368601	TS8/4-6-8 SW	2CSM081012R0811	0.280	6
8	4-8-12	■	368700	TS8/4-8-12 SW	2CSM081022R0811	0.280	6
16	8		368809	TS16/8	2CSM161301R0811	0.355	6
16	12		368908	TS16/12	2CSM161401R0811	0.355	6
16	24		369004	TS16/24	2CSM161501R0811	0.330	6
16	4-6-8		369103	TS16/4-6-8	2CSM161011R0811	0.333	6
16	4-8-12		369202	TS16/4-8-12	2CSM161021R0811	0.333	6
24	4-8-12		369301	TS24/4-8-12	2CSM241021R0811	0.465	4
24	8-12-24		369400	TS24/8-12-24	2CSM241031R0811	0.465	4

① See diagrams below for the RMS power on each secondary output

Where to find more:

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Worldwide Marks and Approvals of MDRCs p.11/96

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