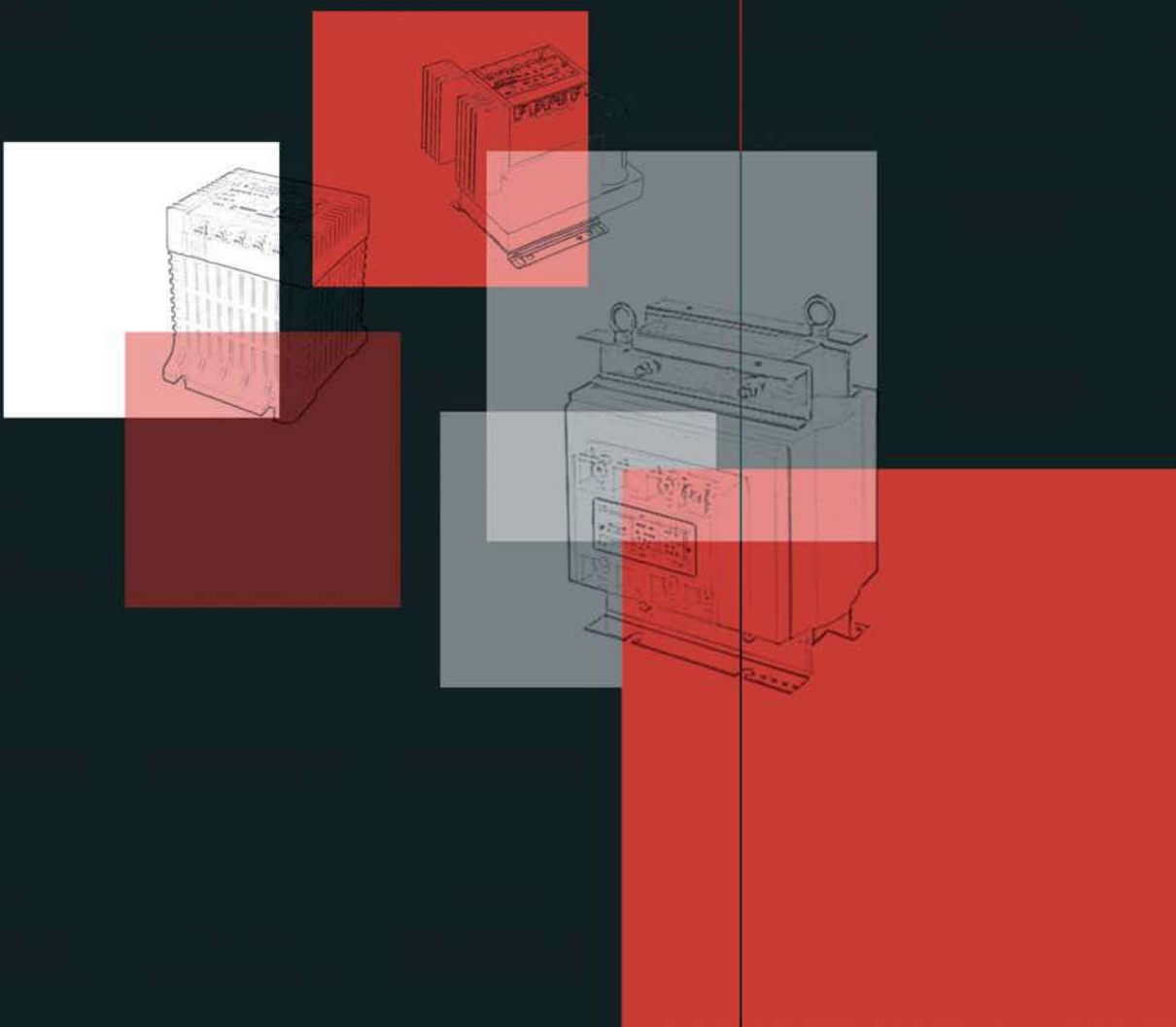


POLYLUX[®]

QUALITY AND TECHNOLOGY



CATALOGUE 2007

Cast Resin Advantages



Vibration resistant



Suitable for high humidity and corrosive atmospheres



Transient current and harmonic resistant

Symbols



Isolating transformer



Control transformer



Safety transformer



Single phase auto transformer



Three phase auto transformer



Isolating transformer for medical locations (IEC/EN 61558)



Safety class II



Protection against moisture



Protection against water from all directions



LED power indicator



User convertible from class I to class II



DIN rail mounting for the indicated values



Fuse protection for the indicated values

Series P · Single phase control transformers IP-20	4
Series PTU · Single phase ultra isolating transformers IP-20	5
Series TK · Single phase isolating transformers IP-00, IP-23 and IP-54	6
Series TT · Three phase isolating transformers IP-00, IP-23, IP-54 and oil type	7 - 8
Series TTFK · Three phase isolating transformers for networks with harmonic distortion IP-00 and IP-20	9
Series N · Single phase cast resin control transformers IP-20	10
Series TU · Single phase cast resin ultra isolating transformers IP-20	11
Series TKE · Single phase cast resin isolating transformers IP-20	12
Series TTE · Three phase cast resin isolating transformers	13
Series IP · Single phase cast resin transformers IP-54 protected	14
Series TP · Single phase cast resin portable safety transformers IP-54	15
Series PTC · Single phase transformers for medical locations IP-20	16
Series TC · Single phase cast resin transformers for medical locations IP-20	17
Series TCX · Single phase transformers for medical locations IP-00	18
Series TCT · Three phase cast resin transformers for medical locations IP-20	19
Series TCTX · Three phase transformers for medical locations IP-00	20
Series TH · Single phase cast resin transformers for medical locations IP-20 (Standard IEC61558-2-15)	21
Series TTH · Three phase cast resin transformers for medical locations IP-20 (Standard IEC61558-2-15)	21
Series PTM · Single phase measuring (potential) transformers IP-20	22
Series TM · Single phase cast resin measuring (potential) transformers IP-20	23
Series PIP · Single phase swimming pool transformers IP-20	24
Series PIN · Single phase cast resin swimming pool transformers IP-20	25
Series PIPZ · Single phase swimming pool transformers IP-54	26
Series TL · Single phase transformers for halogen lamps IP-00	27
Series PAU · Single phase reversible autotransformers IP-20, 400 V / 230 V	28
Series AUN · Single phase cast resin reversible autotransformers IP-20, 400 V / 230 V	29
Series AUKW · Single phase reversible autotransformers IP-23, 400 V / 230 V	30
Series AUR · Single phase reversible autotransformers IP-20, 220 V / 125 V	30
Series AUT · Three phase reversible autotransformers IP-00, IP-23, IP-54 and oil type, 400 V / 230 V	31 - 33
Series C · Harmonic compensators for electrical installations in office buildings and industrial facilities IP-20	34 - 39
Series PR · Single phase line inductors IP-20	40
Series R · Single phase cast resin line inductors IP-20	41
Series RTL · Three phase cast resin line inductors IP-20	42
Series RTLX · Three phase line inductors IP-00	43
Series RTFX · Three phase filtering inductors for capacitor banks IP-00	44
Series RTOX · Three phase inductors for converter output IP-00	45
Series PTR · Single phase transformer rectifier units IP-20, without capacitor filter	46
Series TR · Single phase cast resin transformer rectifier units IP-20, without capacitor filter	47
Series TRF · Single phase cast resin transformer rectifier units with filter IP-20, with capacitor filter	48
Series TRT · Three phase cast resin transformer rectifier units	49
Series FCP · Switch mode power supplies IP-20	50
Series PFA · Single phase linear stabilised power supplies IP-20	51
Series FA · Single phase cast resin linear stabilised power supplies IP-20	52
Series FAM · Single phase cast resin linear stabilised power modules IP-20	53
Series E · Single phase toroidal voltage regulating autotransformers IP-00	54
Series ET · Three phase toroidal voltage regulating autotransformers IP-00	54
Series V · Single phase automatic voltage stabilisers IP-20	55
Series VT · Three phase automatic voltage stabilisers IP-20	56
Special production units	57
General sales terms	58

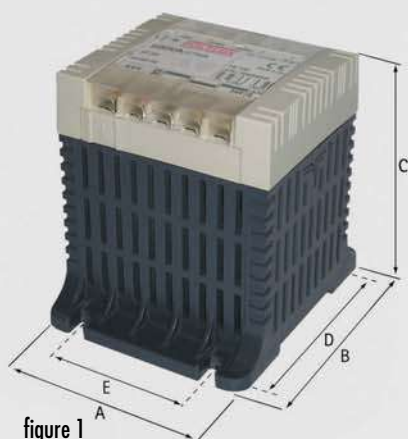


figure 1



figure 2



single phase control transformers IP - 20

Control, isolating and safety transformers



For cast resin transformers, see page 10.

REFERENCES

Rating VA	Input Voltage V	Output Voltage			
		6/12 V Ref.	12/24 V Ref.	24/48 V Ref.	115/230 V Ref.
25	230/ 400	PA 25	PB 25	PC 25	PD 25
40	" "	" 40	" 40	" 40	" 40
63	" "	" 63	" 63	" 63	" 63
100	" "	" 100	" 100	" 100	" 100
160	230/ 400/ 460	" 160	" 160	" 160	" 160
200	" "	" 200	" 200	" 200	" 200
250	" "		" 250	" 250	" 250
315	" "		" 315	" 315	" 315
400	" "		" 400	" 400	" 400
500	" "		" 500	" 500	" 500
630	" "			" 630	" 630
800	" "			" 800	" 800
1000	" "			" 1000	" 1000
1600	" "			" 1600	" 1600
2000	" "			" 2000	" 2000
2500	" "			" 2500	" 2500
3150	" "				" 3150
4000	" "				" 4000
5000	" "				" 5000

- The only transformer that can be set from Class I to Class II.
- Power 'ON' indication by Led.
- Non-flammable transformer enclosure.
- Parts with risk of electrical contact are not accessible by the user.
- Terminals with fast access and easy connection.
- Large label with all relevant data, including instantaneous power.

DIMENSIONS / WEIGHTS

Rating VA	dimensions mm						Weight kg	Figure
	A	B	C	D	E	Ø		
25	69	92	80	79	45	5	0,64	1
40	69	92	80	79	45	5	0,79	1
63	84	101	98	88	55	5	1,1	1
100	84	101	98	88	55	5	1,6	1
160	106	123	118	110	74	5	2,3	1
200	106	123	118	110	74	5	2,7	1
250	106	123	118	110	74	5	3,3	1
315	118	138	131	121	88	6	4,1	1
400	118	138	131	121	88	6	4,9	1
500	136	162	156	145	104	6	5,8	1
630	136	162	156	145	104	6	6,8	1
800	136	162	156	145	104	6	8,6	1
1000	136	162	180	145	104	6	10,0	1
1600	199	220	242	188	175	7	16,8	2
2000	199	220	242	188	175	7	22,0	2
2500	199	220	282	188	175	7	27,6	2
3150	199	220	282	188	175	7	32,0	2
4000	247	260	299	233	223	7	40,1	2
5000	247	260	299	233	223	7	47,0	2

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Protection	Convertible from class I to class II up to 1000 VA
Test voltage	4,6 kV (1 min, 50 Hz) between primary and secondary 3,2 kV (1 min, 50 Hz) between primary and earth 2,5 kV (1 min, 50 Hz) between secondary and earth
Mounting	By screws (all ratings) DIN Rail (for ratings up to 250 VA)
Cover	Up to 1000 VA, polymer of latest technology, non-flammable V-0 according to UL94 In metal enclosure, epoxy polyester painted as from 1600 VA
Protection degree	IP - 20
Voltage selection	By metal bridges, included
Standards	IEC/EN/UNE-EN 61558 CE
Includes	Signal led
Optional	Fuse in primary up to 2000 VA. (On request)

For transformers according to UL 506, please consult.



single phase ultra-isolating transformers IP - 20

High level of galvanic isolation and attenuation of perturbations
Input 230 V · Output 230 V



For cast resin transformers, see page 11. ■

REFERENCES	
Rating VA	Reference
200	PTU1P 200
315	" 315
500	" 500
630	" 630
1000	" 1000
1600	" 1600
2000	" 2000
2500	" 2500
3150	" 3510
4000	" 4000

REFERENCES	
Rating VA	Reference
200	PTU3P 200
315	" 315
500	" 500
630	" 630
1000	" 1000
1600	" 1600
2000	" 2000
2500	" 2500
3150	" 3510
4000	" 4000



figure 1

PTU1P		DIMENSIONS / WEIGHTS							
Rating VA	Reference	dimensions mm						Weight kg	Figure
		A	B	C	D	E	Ø		
200	PTU1P 200	106	123	118	110	74	5	2,7	1
315	" 315	118	138	131	121	88	6	4,1	1
500	" 500	136	162	156	145	104	6	5,8	1
630	" 630	136	162	156	145	104	6	6,8	1
1000	" 1000	136	162	180	145	104	6	10,0	1
1600	" 1600	199	220	242	188	175	7	16,8	2
2000	" 2000	199	220	242	188	175	7	22,0	2
2500	" 2500	199	220	282	188	175	7	27,6	2
3150	" 3150	199	220	282	188	175	7	32,0	2
4000	" 4000	247	260	299	233	223	7	40,1	2

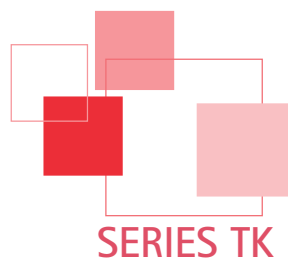


figure 2

PTU3P		DIMENSIONS / WEIGHTS							
Rating VA	Reference	dimensions mm						Weight kg	Figure
		A	B	C	D	E	Ø		
200	PTU3P 200	106	123	118	110	74	5	3,3	1
315	" 315	118	138	131	121	88	6	4,9	1
500	" 500	136	162	156	145	104	6	6,1	1
630	" 630	136	162	156	145	104	6	8,6	1
1000	" 1000	199	220	242	188	175	7	20,0	2
1600	" 1600	199	220	242	188	175	7	22,0	2
2000	" 2000	199	220	282	188	175	7	27,6	2
2500	" 2500	199	220	282	188	175	7	32,0	2
3150	" 3150	199	220	282	188	175	7	38,0	2
4000	" 4000	247	260	299	233	223	7	47,0	2

TECHNICAL CHARACTERISTICS		PTU1P	PTU3P
Frequency		50 - 60 Hz	
Insulation		Class B - 130° C	
Windings		Class HC - 200° C	
Safety class		Class I, convertible to class II up to 1000VA	
Test voltage		4 kV (1 min, 50 Hz) between primary and secondary 4 kV (1 min, 50 Hz) between primary and earth 4 kV (1 min, 50 Hz) between secondary and earth	
Mounting		By screws (all ratings) DIN Rail (for ratings up to 200 VA)	
Cover		Polymer of latest technology, non-flammable V-0 according to UL94 up to 1000VA. Metal enclosure, epoxy polyester painted as from 1600VA	
Protection degree		IP - 20	
Attenuation at 10 kHz		65 dB	80 dB
Electrostatic screen		with 1 screen	with 3 screens
Standards		IEC/EN/ UNE - EN 61558	CE
Includes		LED indicator	





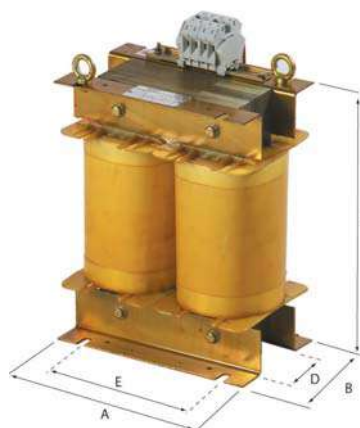
single phase isolating transformers

IP - 00, IP - 23 and IP - 54

Input 230 · Output 230 V



For cast resin transformers, see page 12.



Protection IP - 00
Reference TKX



Protection IP - 23
Reference TKW



Protection IP - 54
(For outdoor use)
Reference TKZ

REFERENCES	
Rating kVA	Reference IP - 00
6,3	TKX 6,3
8	" 8
10	" 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50

REFERENCES	
Rating kVA	Reference IP - 23
6,3	TKW 6,3
8	" 8
10	" 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50

REFERENCES	
Rating kVA	Reference IP - 54
6,3	TKZ 6,3
8	" 8
10	" 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50

TKX		DIMENSIONS / WEIGHTS						
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
6,3	TKX 6,3	280	170	419	142	210	11	52
8	" 8	280	190	469	162	210	11	68
10	" 10	348	280	590	220	174	11	70
12,5	" 12,5	383	308	625	248	192	11	86
16	" 16	383	308	645	248	192	11	97
20	" 20	426	340	705	260	213	11	118
25	" 25	426	340	745	260	213	11	146
31,5	" 31,5	472	384	765	304	236	11	171
40	" 40	472	384	810	304	236	11	198
50	" 50	540	440	885	340	270	17	220

TKW		DIMENSIONS / WEIGHTS						
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
6,3	TKW 6,3	604	395	715	355	348	11	63
8	" 8	604	395	715	355	348	11	79
10	" 10	604	395	715	355	348	11	81
12,5	" 12,5	709	370	821	330	383	11	105
16	" 16	709	370	821	330	383	11	116
20	" 20	760	430	1050	390	426	11	148
25	" 25	760	430	1050	390	426	11	176
31,5	" 31,5	860	490	1129	450	472	11	209
40	" 40	860	490	1129	450	472	11	236
50	" 50	960	570	1232	490	580	17	271

TKZ		DIMENSIONS / WEIGHTS						
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
6,3	TKZ 6,3	738	410	837	370	348	11	108
8	" 8	738	410	837	370	348	11	110
10	" 10	888	480	1102	440	426	11	151
12,5	" 12,5	888	480	1102	440	426	11	162
16	" 16	888	480	1102	440	426	11	183
20	" 20	888	480	1102	440	426	11	211
25	" 25	1112	650	1373	570	580	17	306
31,5	" 31,5	1112	650	1373	570	580	17	326
40	" 40	1112	650	1373	570	580	17	349
50	" 50	1112	650	1373	570	580	17	360

TECHNICAL CHARACTERISTICS		TKX	TKW	TKZ
Frequency	50 - 60 Hz			
Insulation	Class F-155°C up to 8 kVA, class H-180°C as from 10 kVA			Class F-155°C up to 6,3 kVA Class H-180°C as from 8 kVA
Windings	Class HC - 200° C			
Test voltage	3 kV (1 min, 50 Hz)			
Cooling	AN	ANAN		
Cover		In metal enclosure, epoxy polyester painted	In metal enclosure, resin polyester painted	
Protection degree	IP - 00	IP - 23	IP - 54	
Ambient temperature	ta = 40° C	ta = 30° C		
Standards	IEC / UNE - EN 60076, IEC / UNE / EN 60726 CE			
Includes	Lifting eyebolts as from 10 kVA	Wheels and lifting eyebolts as from 12,5 kVA	Lifting eyebolts as from 6,3 kVA Cable inlets	



three phase isolating transformers

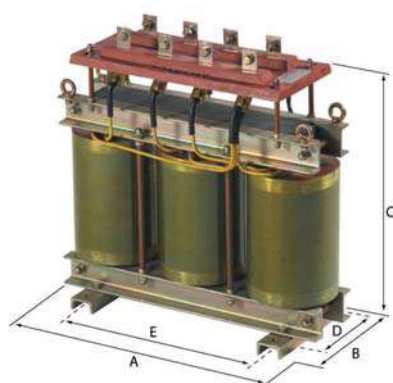
IP -00, IP - 23, IP - 54 and oil type

Input 400 V - Output 400 V



REFERENCES		
Rating kVA	Reference IP - 00	
0,63	TTX	0,63
1	"	1
2	"	2
2,5	"	2,5
3,15	"	3,15
4	"	4
5	"	5
6,3	"	6,3
8	"	8
10	"	10
12,5	"	12,5
16	"	16
20	"	20
25	"	25
31,5	"	31,5
40	"	40
50	"	50
63	"	63
80	"	80
100	"	100
125	"	125
160	"	160
200	"	200
250	"	250
315	"	315
400	"	400

REFERENCES		
Rating kVA	Reference IP - 23	
0,63	TTW	0,63
1	"	1
2	"	2
2,5	"	2,5
3,15	"	3,15
4	"	4
5	"	5
6,3	"	6,3
8	"	8
10	"	10
12,5	"	12,5
16	"	16
20	"	20
25	"	25
31,5	"	31,5
40	"	40
50	"	50
63	"	63
80	"	80
100	"	100
125	"	125
160	"	160
200	"	200
250	"	250
315	"	315
400	"	400



Protection IP - 00
Reference TTX



Protection IP - 23
Reference TTW

TTX		DIMENSIONS / WEIGHTS						
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
0,63	TTX 0,63	180	94	203	66	150	6	7,4
1	" 1	240	108	253	80	200	9	14,0
2	" 2	240	143	253	115	200	9	22,4
2,5	" 2,5	300	124	303	96	250	9	23,7
3,15	" 3,15	300	134	303	106	250	9	31,0
4	" 4	300	154	303	126	250	9	36,0
5	" 5	300	164	303	136	250	9	40,4
6,3	" 6,3	360	144	353	116	300	11	55
8	" 8	360	164	353	136	300	11	67
10	" 10	420	170	419	142	350	11	78
12,5	" 12,5	420	190	469	162	350	11	94
16	" 16	480	230	480	162	400	11	107
20	" 20	480	250	480	182	400	11	130
25	" 25	480	270	480	182	400	11	155
31,5	" 31,5	630	300	780	250	426	11	166
40	" 40	630	300	780	250	426	11	197
50	" 50	630	370	780	310	426	11	272
63	" 63	710	300	880	250	472	11	329
80	" 80	710	370	880	310	472	11	383
100	" 100	710	370	880	310	472	11	418
125	" 125	800	500	1015	450	445	17	465
160	" 160	839	513	1115	463	461	17	604
200	" 200	887	529	1115	479	493	17	661
250	" 250	902	534	1235	484	498	17	818
315	" 315	980	560	1235	510	550	17	911
400	" 400	1007	569	1365	519	552	17	1245

TTW		DIMENSIONS / WEIGHTS						
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
0,63	TTW 0,63	244	190	252	180	150	6	9,8
1	" 1	314	220	315	205	200	6	17,6
2	" 2	314	220	315	205	200	6	26,1
2,5	" 2,5	384	260	383	245	250	6	28,6
3,15	" 3,15	384	260	383	245	250	6	35,8
4	" 4	384	260	383	245	250	6	40,6
5	" 5	384	260	383	245	250	6	45,4
6,3	" 6,3	454	340	513	300	300	11	61
8	" 8	454	340	513	300	300	11	74
10	" 10	604	395	715	355	348	11	89
12,5	" 12,5	604	395	715	355	348	11	105
16	" 16	604	395	715	355	348	11	127
20	" 20	604	395	715	355	348	11	150
25	" 25	604	395	715	355	348	11	175
31,5	" 31,5	760	430	1055	390	426	11	186
40	" 40	760	430	1055	390	426	11	222
50	" 50	760	430	1055	390	426	11	313
63	" 63	860	490	1129	450	472	11	383
80	" 80	860	490	1129	450	472	11	421
100	" 100	860	490	1129	450	472	11	470
125	" 125	960	570	1232	490	580	17	516
160	" 160	1090	630	1466	550	603	17	670
200	" 200	1090	630	1466	550	603	17	727
250	" 250	1210	680	1576	600	677	17	899
315	" 315	1210	680	1576	600	677	17	992
400	" 400	1424	765	1726	685	778	17	1346

Continues on the next page.



SERIES TT

three phase isolating transformers

IP - 00, IP - 23, IP - 54 and oil type

Input 400 V - Output 400 V



IEC 60076



Continuation from the previous page.

REFERENCES

Rating kVA	Reference IP - 54	Rating kVA	Reference IP - 54
0,63	TTZ 0,63	25	TTZ 25
1	" 1	31,5	" 31,5
2	" 2	40	" 40
2,5	" 2,5	50	" 50
3,15	" 3,15	63	" 63
4	" 4	80	" 80
5	" 5	100	" 100
6,3	" 6,3	125	" 125
8	" 8	160	" 160
10	" 10	200	" 200
12,5	" 12,5	250	" 250
16	" 16	315	" 315
20	" 20	400	" 400

REFERENCES

Rating kVA	Reference (oil type)
400	TTAW 400
500	" 500
630	" 630
800	" 800
1000	" 1000



Protection IP - 54
(For outdoor use)
Reference TTZ



Protection IP - 00
(Oil type)
Reference TTAW

DIMENSIONS / WEIGHTS

Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
0,63	TTZ 0,63	356	260	422	230	200	9	25,0
1	" 1	356	260	422	230	200	9	29,7
2	" 2	556	360	632	320	300	11	53
2,5	" 2,5	556	360	632	320	300	11	59
3,15	" 3,15	556	360	632	320	300	11	64
4	" 4	556	360	632	320	300	11	80
5	" 5	556	360	632	320	300	11	87
6,3	" 6,3	556	360	632	320	300	11	128
8	" 8	738	410	837	370	348	11	138
10	" 10	738	410	837	370	348	11	143
12,5	" 12,5	738	410	837	370	348	11	175
16	" 16	738	410	837	370	348	11	227
20	" 20	738	410	837	370	348	11	196
25	" 25	888	480	1102	440	426	11	276
31,5	" 31,5	888	480	1102	440	426	11	311
40	" 40	888	480	1102	440	426	11	438
50	" 50	1112	650	1373	570	580	17	509
63	" 63	1112	650	1373	570	580	17	518
80	" 80	1112	650	1373	570	580	17	620

Continues in the next table.

DIMENSIONS / WEIGHTS

Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
100	TTZ 100	1112	650	1373	570	580	17	600
125	" 125	1382	775	1668	695	677	17	808
160	" 160	1382	775	1668	695	677	17	865
200	" 200	1382	775	1668	695	677	17	1021
250	" 250	1382	775	1668	695	677	17	1115
315	" 315	1622	870	1848	790	778	17	1535
400	" 400	1622	870	1848	790	778	17	1653

DIMENSIONS / WEIGHTS

Rating kVA	Ref.	dimensions mm			Weight kg
		A	B	C	
400	TTAW 400	1410	870	1540	1360
500	" 500	1620	870	1580	1750
630	" 630	1620	870	1650	1850
800	" 800	1755	1000	1700	2250
1000	" 1000	1900	1100	1750	2700

TECHNICAL CHARACTERISTICS

	TTX	TTW	TTZ	TTAW
Frequency	50 - 60 Hz			
Insulation	Class F - 155°C up to 12,5 kVA Class H - 180°C as from 16 kVA	Class F - 155°C up to 10 kVA Class H - 180°C as from 12,5 kVA	Class F - 155°C up to 10 kVA Class H - 180°C as from 12,5 kVA	Class B - 130°C
Windings	Class HC - 200°C			Class HC - 200°C
Connection group	Yyn0			
Test voltage	4,5 kV (1 min, 50 Hz) between windings up to 5 kVA 3 kV (1 min, 50 Hz) between windings as from 6,3 kVA 3 kV (1 min, 50 Hz) between windings and earth			3 kV (1 min, 50 Hz) between windings 3 kV (1 min, 50 Hz) between windings and earth
Cooling	AN	ANAN		ONAN
Cover	In metal enclosure, epoxy polyester painted		In metal enclosure, resin polyester painted	In metal enclosure, epoxy polyester painted
Protection degree	IP - 00	IP - 23	IP - 54	IP - 00
Ambient temperature	ta = 40°C	ta = 30°C		
Standards	IEC/ UNE - EN 60726/ 60076		CE	IEC/ EN/ UNE - EN 60076 CE
Includes	Lifting eyebolts as from 6,3 kVA	Wheels and lifting eyebolts as from 25 kVA. Cable inlets	Lifting eyebolts as from 8 kVA. Cable inlets	Wheels and lifting eyebolts
Optional	Oil level gauge			

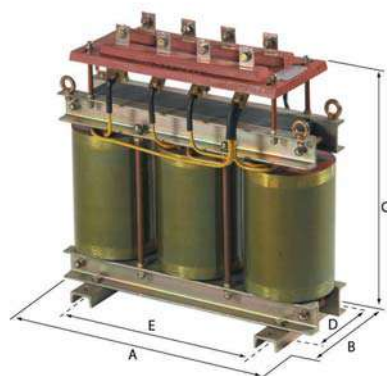


SERIES TTFK

three phase isolating transformers for networks with harmonic distortion, IP - 00 and IP - 23



Three phase factor K 13 transformer. For installations with an elevated level of harmonics
Input 400 V - Output 400 V



Protection IP - 00
Reference TTFKX

REFERENCES	
Rating kVA	Reference IP - 00
10	TTFKX 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50
63	" 63
80	" 80
100	" 100
125	" 125
160	" 160
200	" 200
250	" 250

REFERENCES	
Rating kVA	Reference IP - 23
10	TTFKW 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50
63	" 63
80	" 80
100	" 100
125	" 125
160	" 160
200	" 200
250	" 250

TTFKX		DIMENSIONS / WEIGHTS						
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
10	TTFKX 10	480	230	480	162	400	11	107
12,5	" 12,5	480	250	480	182	400	11	130
16	" 16	480	270	480	182	400	11	155
20	" 20	630	300	780	250	426	11	166
25	" 25	630	300	780	250	426	11	197
31,5	" 31,5	630	370	780	310	426	11	272
40	" 40	710	300	880	250	472	11	329
50	" 50	710	370	880	310	472	11	383
63	" 63	710	370	880	310	472	11	418
80	" 80	800	500	1015	450	445	17	511
100	" 100	839	513	1115	463	461	17	606
125	" 125	887	529	1115	479	493	17	725
160	" 160	902	534	1235	484	498	17	832
200	" 200	980	560	1235	510	550	17	1016
250	" 250	1007	569	1365	519	552	17	1230

TTFKW		DIMENSIONS / WEIGHTS						
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
10	TTFKW 10	604	395	715	355	348	11	127
12,5	" 12,5	604	395	715	355	348	11	150
16	" 16	604	395	715	355	348	11	171
20	" 20	760	430	1055	390	426	11	186
25	" 25	760	430	1055	390	426	11	222
31,5	" 31,5	760	430	1055	390	426	11	313
40	" 40	860	490	1129	450	472	11	383
50	" 50	860	490	1129	450	472	11	421
63	" 63	860	490	1129	450	472	11	470
80	" 80	960	570	1232	490	580	17	516
100	" 100	1090	630	1466	550	603	17	670
125	" 125	1090	630	1466	550	603	17	727
160	" 160	1210	680	1576	600	677	17	899
200	" 200	1210	680	1576	600	677	17	992
250	" 250	1424	765	1726	685	778	17	1346



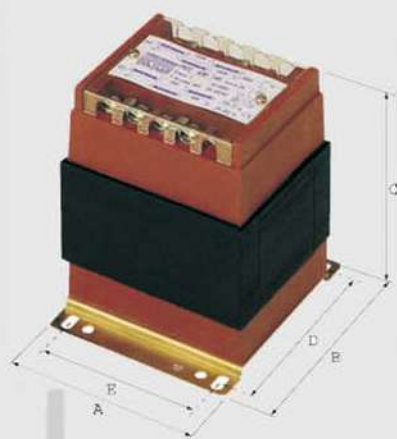
Protection IP - 23
Reference TTFKW

TECHNICAL CHARACTERISTICS	TTFKX	TTFKW
Frequency	50 - 60 Hz	
Insulation	Class H - 180°C	
Windings	Class HC - 200° C	
Connection group	Dyn11	
Test voltage	3 kV (1 min, 50 Hz) between windings. 3 kV (1min, 50 Hz) between windings and earth	
Cooling	AN	ANAN
Cover		Metal enclosure, epoxy polyester painted
Protection degree	IP - 00	IP - 23
Ambient temperature	ta = 40° C	ta = 30° C
Neutral sizing	2 x In	
THD - I maximum	60%	
Standards	IEC/EN/UNE-EN 61558 / 60726 / 60076 CE	
Includes	Lifting eyebolts (all ratings)	Wheels and lifting eyebolts as from 16 kVA Cable inlets



SERIES N

Cast Resin Transformer



single phase cast resin control transformers IP - 20

Control, isolating and safety transformers



For standard transformers, see page 4.

REFERENCES

Rating VA	Input Voltage V	Output Voltage			
		6/12 V Ref.	12/24 V Ref.	24/48 V Ref.	115/230 V Ref.
25	230/400	NA 25	NB 25	NC 25	ND 25
40	" "	" 40	" 40	" 40	" 40
63	" "	" 63	" 63	" 63	" 63
100	" "	" 100	" 100	" 100	" 100
160	" "	" 160	" 160	" 160	" 160
200	230/400/460	" 200	" 200	" 200	" 200
250	" "	" "	" 250	" 250	" 250
315	" "	" "	" 315	" 315	" 315
400	" "	" "	" 400	" 400	" 400
500	" "	" "	" 500	" 500	" 500
630	" "	" "	" "	" 630	" 630
1000	" "	" "	" "	" 1000	" 1000
1600	" "	" "	" "	" 1600	" 1600
2000	" "	" "	" "	" 2000	" 2000
2500	" "	" "	" "	" 2500	" 2500
3150	" "	" "	" "	" "	" 3150
4000	" "	" "	" "	" "	" 4000
5000	" "	" "	" "	" "	" 5000

DIMENSIONS / WEIGHT

Rating VA	dimensions mm						Weight kg
	A	B	C	D	E	Ø	
25	50	97	74	80	34	6	0,76
40	50	97	84	80	34	6	0,95
63	75	96	85	80	56	6	1,3
100	75	96	100	80	56	6	1,8
160	84	102	110	86	65	6	2,7
200	96	112	106	96	77	6	3,2
250	96	112	116	96	77	6	3,7
315	108	122	125	106	89	6	4,7
400	108	122	135	106	89	6	5,4
500	126	145	147	125	102	7	7,1
630	126	145	167	125	102	7	9,1
1000	150	165	180	145	125	7	13,3
1600	150	165	210	145	125	7	16,9
2000	195	198	228	178	173	7	25,3
2500	195	198	248	178	173	7	30,5
3150	195	198	268	178	173	7	35,8
4000	240	235	280	212	218	7	47,7
5000	240	235	300	212	218	7	55

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	4,6 kV (1 min, 50 Hz) between primary and secondary 3,2 kV (1 min, 50 Hz) between primary and earth 2,5 kV (1 min, 50 Hz) between secondary and earth
Mounting	By screws (all ratings) DIN Rail (for ratings up to 100 VA)
Cover	Cast resin
Protection degree	IP - 20
Voltage selection	By metal bridges, included
Standards	IEC/EN/UNE-EN 61558 CE

(*) For transformers according to UL 506, please consult.



single phase cast resin ultra isolating transformers IP-20

Transformers with high level of galvanic isolation and attenuation of perturbations
Input 230 V · Output 230 V

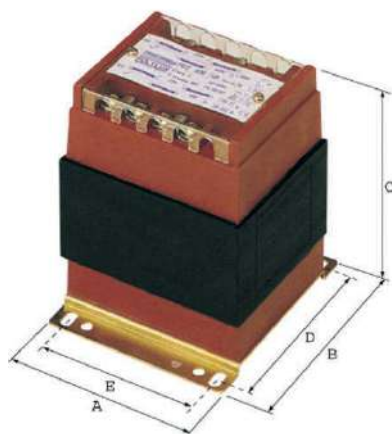


For standard transformers, see page 5.

Cast Resin Transformer



REFERENCES		REFERENCES	
Rating VA	Reference	Rating VA	Reference
200	TU1P 200	200	TU3P 200
315	" 315	315	" 315
500	" 500	500	" 500
630	" 630	630	" 630
1000	" 1000	1000	" 1000
1600	" 1600	1600	" 1600
2000	" 2000	2000	" 2000
2500	" 2500	2500	" 2500
3150	" 3150	3150	" 3150
4000	" 4000	4000	" 4000



TU1P		DIMENSIONS / WEIGHT						
Rating VA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
200	TU1P 200	96	112	106	96	77	6	3,2
315	" 315	108	122	125	106	89	6	4,7
500	" 500	126	145	147	125	102	7	7,1
630	" 630	126	145	167	125	102	7	9,1
1000	" 1000	150	165	180	145	125	7	13,3
1600	" 1600	150	165	210	145	125	7	16,9
2000	" 2000	195	198	228	178	173	7	25,3
2500	" 2500	195	198	248	178	173	7	30,5
3150	" 3150	195	198	268	178	173	7	35,8
4000	" 4000	240	235	280	212	218	7	47,7

TU3P		DIMENSIONS / WEIGHT						
Rating VA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
200	TU3P 200	96	112	116	96	77	6	3,7
315	" 315	108	122	135	106	89	6	5,4
500	" 500	126	145	167	125	102	7	9,1
630	" 630	126	145	177	125	102	7	10,3
1000	" 1000	150	165	190	145	125	7	14,8
1600	" 1600	195	198	228	178	173	7	25,3
2000	" 2000	195	198	248	178	173	7	30,5
2500	" 2500	195	198	268	178	173	7	35,8
3150	" 3150	240	235	280	212	218	7	47,7
4000	" 4000	240	235	300	212	218	7	55

TECHNICAL CHARACTERISTICS		TU1P	TU3P
Frequency		50 - 60 Hz	
Insulation		Class B - 130° C	
Windings		Class HC - 200° C	
Test voltage		4 kV (1 min, 50 Hz) between primary and secondary 4 kV (1 min, 50 Hz) between primary and earth 4 kV (1 min, 50 Hz) between secondary and earth	
Cover		Cast resin	
Protection degree		IP - 20	
Attenuation at 10 kHz		65 dB	80 dB
Remarks		With 1 electrostatic screen	With 3 electrostatic screens
Standards		IEC/EN/UNE-EN 61558 CE	



SERIES TKE

single phase cast resin isolating transformers IP-20

Single phase isolating transformers
Input 230 V · Output 230 V



For standard transformers, see page 6.

Cast Resin Transformer



REFERENCES

Rating kVA	Reference
6,3	TKE 6,3
8	" 8
10	" 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50

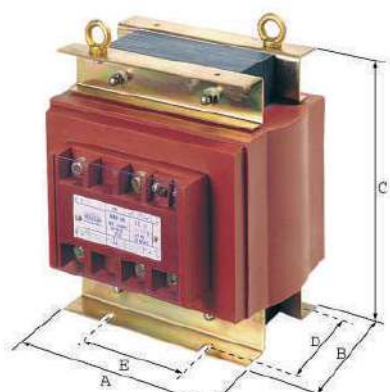


figure 1

Protection IP -20

DIMENSIONS / WEIGHTS

Rating kVA	Ref.	dimensions mm						Weight kg	Figure
		A	B	C	D	E	Ø		
6,3	TKE 6,3	340	290	355	142	310	11	71	1
8	" 8	340	310	355	162	310	11	91	1
10	" 10	418	280	527	220	209	11	95	2
12,5	" 12,5	452	308	559	248	222	11	109	2
16	" 16	452	308	581	248	231	11	121	2
20	" 20	496	340	615	260	242	11	138	2
25	" 25	496	340	659	260	254	11	159	2
31,5	" 31,5	542	384	679	304	262	11	180	2
40	" 40	542	384	679	304	262	11	186	2
50	" 50	542	384	723	304	280	11	205	2

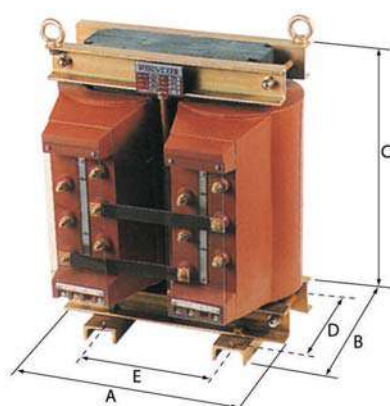


figure 2

Protection IP -00

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class F - 155° C up to 8 kVA. Class H - 180° C as from 10 kVA
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz)
Cooling	AN
Cover	Cast resin
Protection degree	IP - 20 up to 8 kVA. IP - 00 as from 10 kVA
Ambient temperature	ta = 30° C
Standards	IEC / UNE / EN 60076 - 60726 CE
Includes	Bimetal temperature sensor, signal LED Lifting eyebolts





SERIES TTE

three phase cast resin isolating transformers

Three phase isolating transformers
Input 400 V · Output 400 V



IEC 60077



For standard transformers, see pages 7 and 8.

Cast Resin Transformer

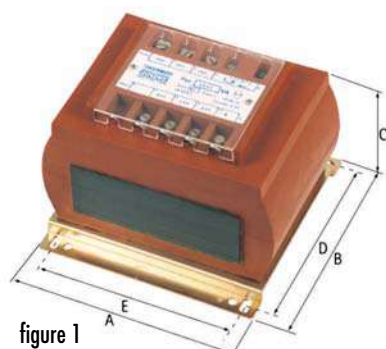


figure 1

Protection IP - 20

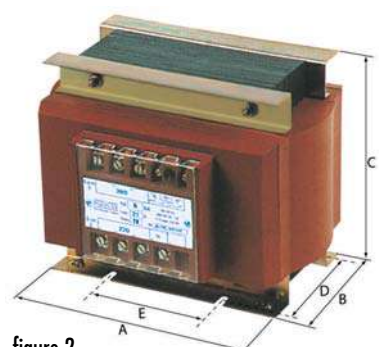


figure 2

Protection IP - 20

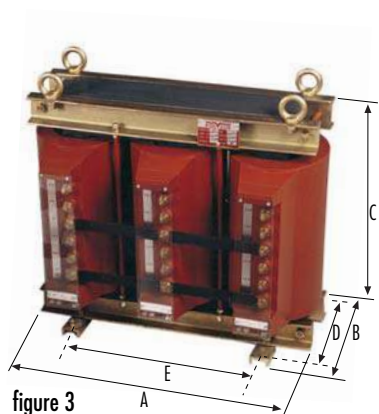


figure 3

Protection IP - 00



REFERENCES			
Rating kVA	Reference	Rating kVA	Reference
0,40	TTE 0,40	20	TTE 20
0,63	" 0,63	25	" 25
1	" 1	31,5	" 31,5
1,6	" 1,6	40	" 40
2	" 2	50	" 50
2,5	" 2,5	63	" 63
3,15	" 3,15	80	" 80
4	" 4	100	" 100
5	" 5	125	" 125
6,3	" 6,3	160	" 160
8	" 8	200	" 200
10	" 10	250	" 250
12,5	" 12,5	315	" 315
16	" 16	400	" 400

DIMENSIONS / WEIGHTS									
Rating kVA	Ref.	dimensions mm						Weight kg	Figure
		A	B	C	D	E	Ø		
0,4	TTE 0,4	210	198	185	178	173	7	14,0	1
0,63	" 0,63	210	198	185	178	173	7	15,3	1
1	" 1	280	158	205	80	250	9	26,9	2
1,6	" 1,6	280	158	205	100	250	9	29,2	2
2	" 2	280	158	205	115	250	9	32,8	2
2,5	" 2,5	340	160	255	96	310	9	39,6	2
3,15	" 3,15	340	160	255	106	310	9	47,6	2
4	" 4	340	200	255	126	310	9	51	2
5	" 5	340	205	255	136	310	9	69	2
6,3	" 6,3	410	195	305	116	380	11	85	2
8	" 8	410	240	305	136	380	11	112	2
10	" 10	490	280	355	142	460	11	130	2
12,5	" 12,5	490	305	355	162	460	11	152	2
16	" 16	627	280	527	220	418	11	180	3
20	" 20	680	308	559	248	444	11	211	3
25	" 25	680	308	581	248	462	11	221	3
31,5	" 31,5	744	340	615	260	484	11	257	3
40	" 40	813	384	679	304	524	11	332	3
50	" 50	813	384	723	304	560	11	415	3
63	" 63	945	440	777	340	616	17	457	3
80	" 80	945	440	816	340	644	17	530	3
100	" 100	1055	500	865	400	684	17	571	3
125	" 125	1055	500	912	400	722	17	639	3
160	" 160	1166	558	987	458	768	17	773	3
200	" 200	1166	558	1009	458	786	17	925	3
250	" 250	1362	650	1107	550	884	17	1091	3
315	" 315	1166	558	1009	458	786	17	1274	3
400	" 400	1362	650	1107	550	884	17	1631	3

TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Insulation	Class F - 155° C up to 12,5 kVA. Class H - 180° C as from 16 kVA
Connection group	Yyn0
Windings	Class HC - 200° C
Test voltage	4,5 kV (1 min, 50 Hz) between windings up to 5 kVA 3 kV (1 min, 50 Hz) between windings as from 6,3 kVA 3 kV (1 min, 50 Hz) between windings and earth
Cooling	AN
Cover	Cast resin
Protection degree	IP - 20 up to 12,5 kVA. IP - 00 as from 16 kVA
Ambient temperature	ta = 30° C
Standards	IEC/EN/UNE-EN 61558 / 60726 / 60076 CE
Includes	Bimetal thermal protection. Lifting eyebolts as from 6,3 kVA Signal LED



SERIES IP

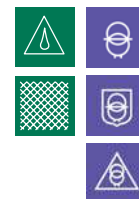
Cast Resin Transformer



single phase cast resin transformers

IP-54 protected

For application in locations with risk of direct contact with water or other liquids
Protection IP-54

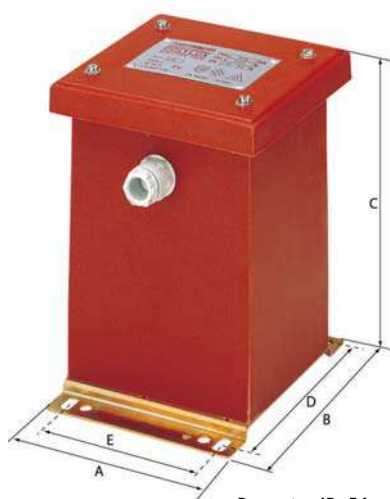


REFERENCES

Rating VA	Reference	Input Voltage V	Output Voltage V
100	IPB 100	230/ 400	12/ 24
200	" 200	230/ 400/ 460	"
315	" 315	" " "	"
500	" 500	" " "	"
630	" 630	" " "	"
1000	" 1000	" " "	"
1600	" 1600	" " "	"
2000	" 2000	" " "	"

REFERENCES

Rating VA	Reference	Input Voltage V	Output Voltage V
100	IPD 100	230/ 400	115/ 230
200	" 200	230/ 400/ 460	"
315	" 315	" " "	"
500	" 500	" " "	"
630	" 630	" " "	"
1000	" 1000	" " "	"
1600	" 1600	" " "	"
2000	" 2000	" " "	"



Protection IP -54

IPB DIMENSIONS / WEIGHTS

Rating VA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
100	IPB 100	126	145	170	125	102	7	5,6
200	" 200	150	165	190	145	125	7	7,3
315	" 315	150	165	210	145	125	7	9,2
500	" 500	195	198	220	178	173	7	11,9
630	" 630	195	198	260	178	173	7	19,1
1000	" 1000	240	235	260	212	218	7	30,0
1600	" 1600	260	272	310	250	238	7	47,3
2000	" 2000	260	272	330	250	238	7	53

IPD DIMENSIONS / WEIGHTS

Rating VA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
100	IPD 100	126	145	170	125	102	7	5,6
200	" 200	150	165	190	145	125	7	7,3
315	" 315	150	165	210	145	125	7	9,2
500	" 500	195	198	220	178	173	7	11,9
630	" 630	195	198	260	178	173	7	19,1
1000	" 1000	240	235	260	212	218	7	30,0
1600	" 1600	240	235	290	212	218	7	41,9
2000	" 2000	260	272	330	250	238	7	49,2

TECHNICAL CHARACTERISTICS

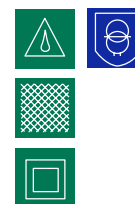
Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	4,6 kV (1 min, 50 Hz) between primary and secondary 3,2 kV (1 min, 50 Hz) between primary and earth 2,5 kV (1 min, 50 Hz) between secondary and earth
Cover	Cast resin
Protection degree	IP - 54
Voltage selection	By metal bridges, included
Standards	IEC/EN/UNE-EN 61558 CE



SERIES TP

single phase cast resin portable safety transformers IP - 54

Input 230 V · Single output 12 V or 24 V



Cast Resin Transformer



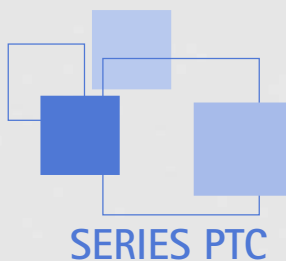
REFERENCES				
Rating VA	Output Voltages		Outlets	
	12 V Ref.	24 V Ref.		
160	TPA 160	TPB 160	1	
250	" 250	" 250	2	
400	" 400	" 400	4	
630	" 630	" 630	4	

TPA DIMENSIONS / WEIGHTS						
Rating VA	Ref.	dimensions mm			Weight kg	
		A	B	C		
160	TPA 160	210	170	160	6,8	
250	" 250	215	200	180	10,0	
400	" 400	245	265	235	16,1	
630	" 630	245	265	235	20,5	

TPB DIMENSIONS / WEIGHTS						
Rating VA	Ref.	dimensions mm			Weight kg	
		A	B	C		
160	TPB 160	210	170	160	6,8	
250	" 250	215	200	180	10,0	
400	" 400	245	265	235	16,1	
630	" 630	245	265	235	20,5	



TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3,5 kV (1 min, 50 Hz) between primary and secondary
Safety class	II
Cover	Cast resin
Protection degree	IP - 54
Ambient temperature	ta = 25° C
Standards	IEC/EN/UNE-EN 61558 CE
Includes	Temporised fuse in primary, signal light, supply cable, output plugs



single phase transformers for medical locations IP - 20

According to UNE 20615
Input 230 V · Output 230 V



For cast resin transformers, see page 17.

REFERENCES

Rating VA	Reference
1000	PTC 1000
1600	" 1600
2500	" 2500
3500	" 3500
5000	" 5000
6000	" 6000
7000	" 7000
7500	" 7500

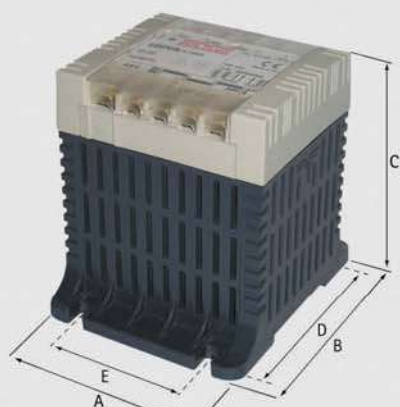


figure 1

Protection IP -20



figure 2

Protection IP -20



figure 3

Protection IP -23

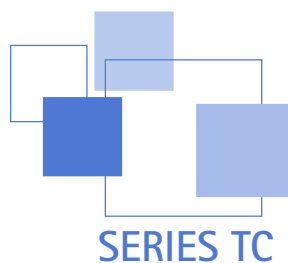


DIMENSIONS / WEIGHT

Rating VA	Ref.	dimensions mm						Weight kg	Figure
		A	B	C	D	E	Ø		
1000	PTC 1000	136	162	180	145	104	6	10,0	1
1600	" 1600	199	220	242	188	175	7	16,8	2
2500	" 2500	199	220	282	188	175	7	27,6	2
3500	" 3500	247	260	299	233	223	7	40,1	2
5000	" 5000	247	260	299	233	223	7	47,0	2
6000	" 6000	454	340	508	300	300	12	54	3
7000	" 7000	454	340	508	300	300	12	62	3
7500	" 7500	454	340	508	300	300	12	67	3

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C up to 5000 VA. Class F - 155° C as from 6000 VA
Windings	Class HC - 200° C
Test voltage	5 kV (1 min, 50 Hz) between windings, primary and earth 2,5 kV (1 min, 50 Hz) between secondary and earth
Electrostatic screen	Between primary and secondary
Leakage current	< 0,5 mA secondary - earth
Cover	Polymer of latest technology, non-flammable V-0 according to UL94 up to 1000VA Metal enclosure, epoxy polyester painted as from 1600 VA
Mounting	By screws (all ratings)
Protection degree	IP - 20 up to 5000 VA. IP - 23 as from 6000 VA
Standards	UNE 20615 CE
Includes	Bimetal thermal protection. Signal LED up to 5000 VA



single phase cast resin transformers for medical locations IP - 20

With certification UNE 20615
Input 230 V · Output 230 V



For standard transformers, see pages 16 and 18.

Cast Resin Transformer



REFERENCES

Rating VA	Reference
1000	TC 1000
1600	" 1600
2500	" 2500
3500	" 3500
5000	" 5000
6000	" 6000
7000	" 7000
7500	" 7500

DIMENSIONS / WEIGHTS

Rating VA	Ref.	dimensions mm						Weight kg	Figure
		A	B	C	D	E	Ø		
1000	TC 1000	150	165	180	145	125	7	13,3	1
1600	" 1600	150	165	210	145	125	7	16,9	1
2500	" 2500	195	198	248	178	173	7	30,5	1
3500	" 3500	240	235	280	212	218	7	47,7	1
5000	" 5000	240	235	300	212	218	7	55	1
6000	" 6000	290	230	305	116	260	11	59	2
7000	" 7000	290	240	305	136	260	11	67	2
7500	" 7500	290	240	305	136	260	11	69	2

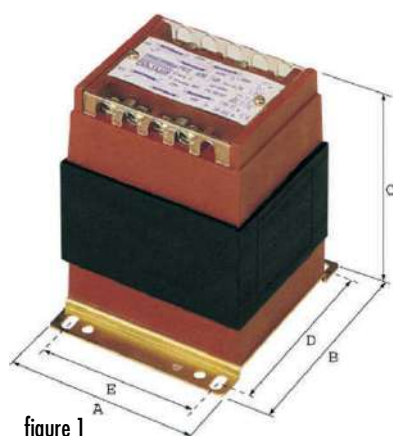


figure 1

Protection IP - 20

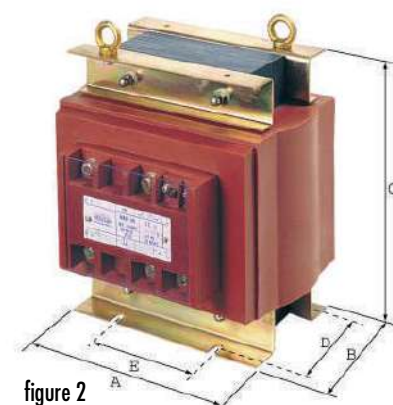


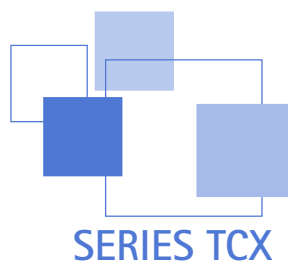
figure 2

Protection IP - 20

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130 °C up to 5000 VA. Class F- 155 °C as from 6000 VA
Windings	Class HC - 200° C
Test voltage	5 kV (1 min, 50 Hz) between windings, and primary and earth 2,5 kV (1 min, 50 Hz) between secondary and earth
Electrostatic screen	Between primary and secondary
Leakage current	< 0,5 mA secondary - earth
Cover	Cast resin
Protection degree	IP - 20
Standards	UNE 20615 CE
Includes	Bimetal thermal protection. Signal LED





single phase transformers for medical locations IP - 00

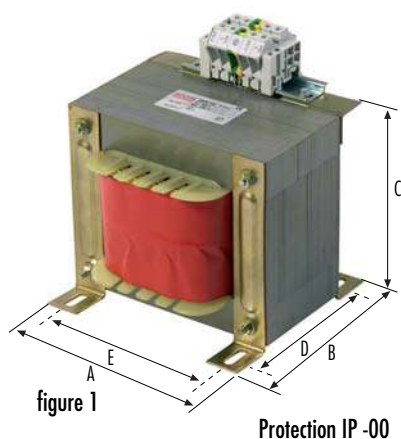
According to UNE 20615
Input 230 V · Output 230 V



For standard transformers, see page 17.

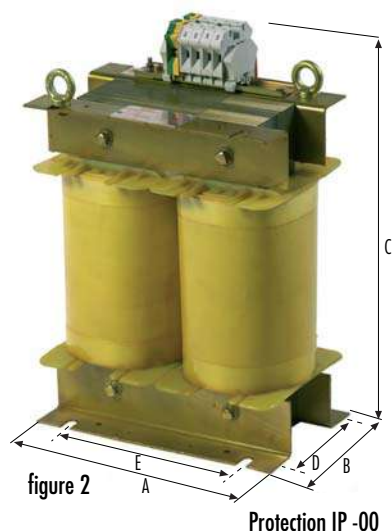
REFERENCES

Rating VA	Reference
1000	TCX 1000
1600	" 1600
2500	" 2500
3500	" 3500
5000	" 5000
6000	" 6000
7000	" 7000
7500	" 7500



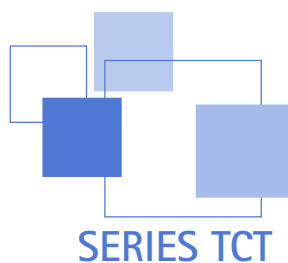
DIMENSIONS / WEIGHTS

Rating VA	Ref.	dimensions mm						Weight kg	Figure
		A	B	C	D	E	Ø		
1000	TCX 1000	150	135	170	102	125	8	10,0	1
1600	" 1600	150	165	170	132	125	8	16,8	1
2500	" 2500	195	180	210	140	166	8	27,6	1
3500	" 3500	240	178	241	134	202	8	40,1	1
5000	" 5000	240	198	241	202	154	8	47,0	1
6000	" 6000	240	144	393	116	180	11	47,5	2
7000	" 7000	240	164	393	136	180	11	55	2
7500	" 7500	240	164	696	136	180	11	60	2



TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C up to 5000 VA. Class F - 155° C as from 6000 VA
Windings	Class HC - 200° C
Test voltage	5 kV (1 min, 50 Hz) between windings, primary and earth 2,5 kV (1 min, 50 Hz) between secondary and earth
Electrostatic screen	Between primary and secondary
Leakage current	< 0,5 mA secondary - earth
Protection degree	IP - 00
Standards	UNE 20615 CE
Includes	Bimetal thermal protection



three phase cast resin transformers for medical locations IP - 20

With certification UNE 20615
Input 400 V - Output 230 V

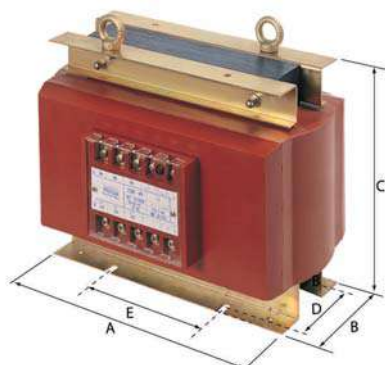


For standard transformers, see page 20.

Cast Resin Transformer



REFERENCES	
Rating kVA	Reference
1	TCT 1
1,6	" 1,6
2,5	" 2,5
3,5	" 3,5
5	" 5
6	" 6
7	" 7
7,5	" 7,5

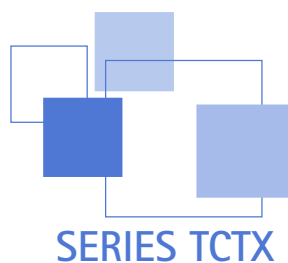


Protection IP - 20

DIMENSIONS / WEIGHTS								
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
1	TCT 1	210	198	185	178	173	7	16,1
1,6	" 1,6	280	158	205	80	250	9	24,4
2,5	" 2,5	280	158	205	100	250	9	31,1
3,5	" 3,5	340	160	255	96	310	9	40,5
5	" 5	340	160	255	106	310	9	48,1
6	" 6	340	200	255	126	310	9	59
7	" 7	340	205	255	136	310	9	65
7,5	" 7,5	340	205	255	136	310	9	67

TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Insulation	Class F- 155 °C
Connection group	Yd 5
Windings	Class HC - 200° C
Test voltage	5 kV (1 min, 50 Hz) between windings, and primary and earth 2,5 kV (1 min, 50 Hz) between secondary and earth
Electrostatic screen	Between primary and secondary
Leakage current	< 0,5 mA secondary - earth
Cover	Cast resin
Protection degree	IP - 20
Standards	UNE 20615 CE
Includes	Bimetal thermal protection. Signal LED





three phase transformers for medical locations IP - 00

According to UNE 20615
Input 400 V · Output 230 V



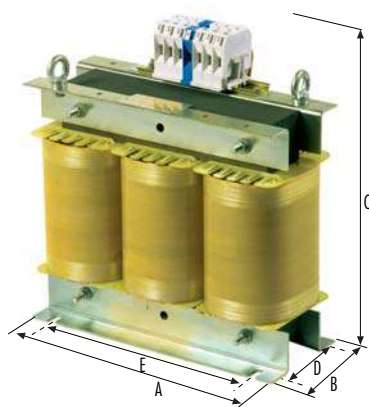
For cast resin transformers, see page 19.

REFERENCES

Rating kVA	Reference
1	TCTX 1
1,6	" 1,6
2,5	" 2,5
3,5	" 3,5
5	" 5
6	" 6
7	" 7
7,5	" 7,5

DIMENSIONS / WEIGHTS

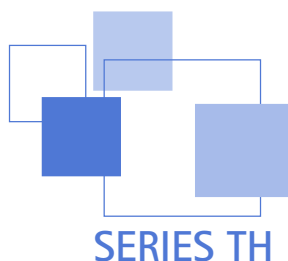
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
1	TCTX 1	180	94	203	66	150	6	9,5
1,6	" 1,6	240	108	253	80	200	9	18,2
2,5	" 2,5	240	128	253	100	200	9	23,9
3,5	" 3,5	240	143	253	115	200	9	27,4
5	" 5	300	134	303	106	250	9	39,5
6	" 6	300	154	303	126	250	9	47,3
7	" 7	300	164	303	136	250	9	51
7,5	" 7,5	300	164	303	136	250	9	54



Protection IP -00

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class F - 155° C
Connection group	Yd 5
Windings	Class HC - 200° C
Test voltage	5 kV (1 min, 50 Hz) between windings, primary and earth 2,5 kV (1 min, 50 Hz) between secondary and earth
Electrostatic screen	Between primary and secondary
Leakage current	< 0,5 mA secondary - earth
Protection degree	IP - 00
Standards	UNE 20615 CE
Includes	Bimetal thermal protection

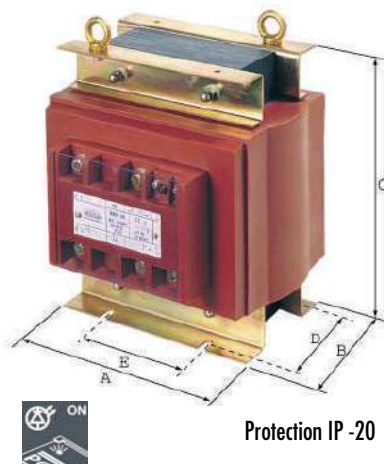


single phase cast resin transformers for medical locations IP - 20

With certification IEC/ EN/ UNE - EN 61558 - 2 - 15
Input 230 V · Output 230 V



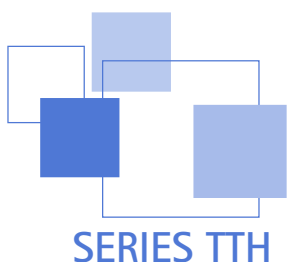
Cast Resin Transformer



REFERENCES		
Rating VA	Reference	
1000	TH	1000
2000	"	2000
3150	"	3150
4000	"	4000
5000	"	5000
6300	"	6300
8000	"	8000
10000	"	10000

DIMENSIONS / WEIGHTS								
Rating VA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
1000	TH 1000	190	180	205	115	160	9	21,7
2000	" 2000	240	180	255	106	210	9	31,8
3150	" 3150	240	230	255	126	210	9	40,2
4000	" 4000	240	235	255	136	210	9	43,6
5000	" 5000	290	230	305	116	260	11	56
6300	" 6300	290	240	305	136	260	11	65
8000	" 8000	340	290	355	142	310	11	85
10000	" 10000	340	310	355	162	310	11	99

TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Insulation	Class F- 155 °C
Windings	Class HC - 200° C
Safety class	Class I
Test voltage	3,5 kV (1 min, 50 Hz) between windings, earth and screen
Electrostatic screen	Between primary and secondary
Leakage current	< 0,5 mA secondary – earth < 3,5 mA cover – earth
Inrush current	< 12 · I _n
Cover	Cast resin
Protection degree	IP - 20
Standards	IEC/ EN/ UNE - EN 61558-1 / 61558-2-15 CE
Includes	Bimetal thermal protection. Signal LED



three phase cast resin transformers for medical locations IP - 20

Standard IEC/ EN/ UNE - EN 61558 - 2 - 15
Input 400 V · Output 230 V



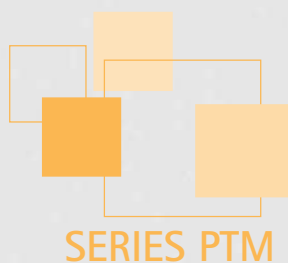
Cast Resin Transformer



REFERENCES	
Rating kVA	Reference
1	TTH 1
2	" 2
3,15	" 3,15
4	" 4
5	" 5
6,3	" 6,3
8	" 8
10	" 10

DIMENSIONS / WEIGHTS								
Rating kVA	Ref.	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
1	TTH 1	280	158	205	80	250	9	24,4
2	" 2	280	158	205	100	250	9	31,1
3,15	" 3,15	340	160	255	96	310	9	42,3
4	" 4	340	160	255	106	310	9	46,8
5	" 5	340	200	255	126	310	9	59
6,3	" 6,3	340	205	255	136	310	9	65
8	" 8	410	195	305	116	380	11	81
10	" 10	410	240	305	136	380	11	99

TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Insulation	Class F- 155 °C
Connection group	YNyn0
Windings	Class HC - 200° C
Safety class	Class I
Test voltage	4,5 kV (1 min, 50 Hz) between windings, earth and screen
Electrostatic screen	Between primary and secondary
Leakage current	< 0,5 mA secondary – earth < 3,5 mA cover – earth
Inrush current	< 12 · I _n
Cover	Cast resin
Protection degree	IP - 20
Standards	IEC/ EN/ UNE - EN 61558-1 / 61558-2-15 CE
Includes	Bimetal thermal protection. Signal LED



SERIES PTM

single phase measuring (potential) transformers IP-20

Transformer for voltage measurement to be used with measuring instruments, energy counters, protection relays, etc.

Single input: 100 V up to 500 V
100 V/√3 up to 500 V/√3

Single output: 100 V or 110 V
100 V/√3 or 110 V/√3



For cast resin transformers, see page 23.

REFERENCES

Rating VA class 0,5	Rating VA class 1	Reference
5	7,5	PTM 50
10	15	" 51
15	25	" 52
30	50	" 53
50	75	" 55
75	100	" 57
100	150	" 510
150	200	" 515
200	300	" 520

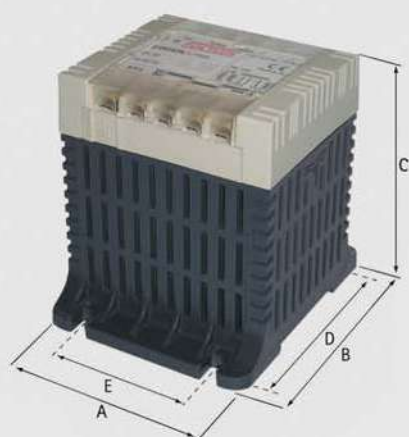


figure 1

Protection IP -20

DIMENSIONS / WEIGHTS

Rating VA class 0,5	Rating VA class 1	Reference	dimensions mm						Weight kg	Figure
			A	B	C	D	E	Ø		
5	7,5	PTM 50	106	123	118	110	74	5	3,3	1
10	15	" 51	118	138	131	121	88	6	4,1	1
15	25	" 52	118	138	131	121	88	6	4,9	1
30	50	" 53	136	162	156	145	104	6	5,8	1
50	75	" 55	136	162	156	145	104	6	6,8	1
75	100	" 57	136	162	156	145	104	6	8,6	1
100	150	" 510	136	162	180	145	104	6	10,0	1
150	200	" 515	199	220	242	188	175	7	22,0	2
200	300	" 520	199	220	282	188	175	7	27,6	2



figure 2

Protection IP -20



PTM510

PTM50

OPTIONAL

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between windings 3 kV (1 min, 50 Hz) between windings and earth
Cover	Polymer of latest technology, non-flammable V-0 according to UL94 up to 100VA (class 0,5) or 150VA (class 1) Metal enclosure, epoxy polyester painted for higher ratings
Mounting	By screws (all ratings) DIN Rail (for ratings up to 7,5 VA)
Protection degree	IP - 20
Continuous over voltage	1,2 Un
Continuous thermal power	6 times nominal rated power
Accuracy class	0,5 and 1, according to rating
Remarks	Grain oriented core M6-35 (0,7 W/kg)
Ambient temperature	ta = 50° C
Standards	UNE 21088, IEC / EN / UNE - EN 60044-2 CE
Options	Input voltage up to 6 kV (please consult) Transformer for protection class 3P or 6P (please consult)



single phase cast resin measuring (potential) transformers IP-20



Transformer for voltage measurement to be used with measuring instruments, energy counters, protection relays, etc.

Single input: 100 V up to 500 V
100 V/ $\sqrt{3}$ up to 500 V/ $\sqrt{3}$

Single output: 100 V or 110 V
100 V/ $\sqrt{3}$ or 110 V/ $\sqrt{3}$

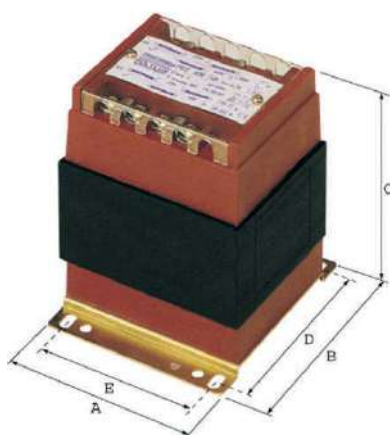
For standard transformers, see page 22.

Cast Resin Transformer



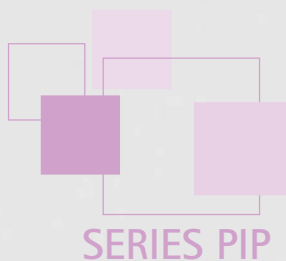
REFERENCES		
Rating VA class 0,5	Rating VA class 1	Reference
5	7,5	TM 50
10	15	" 51
15	25	" 52
30	50	" 53
50	75	" 55
75	100	" 57
100	150	" 510
150	200	" 515
200	300	" 520

DIMENSIONS / WEIGHTS									
Rating VA class 0,5	Rating VA class 1	Reference	dimensions mm						Weight kg
			A	B	C	D	E	Ø	
5	7,5	TM 50	96	112	116	96	77	6	3,7
10	15	" 51	108	122	125	106	89	6	4,7
15	25	" 52	108	122	135	106	89	6	5,4
30	50	" 53	126	145	147	125	102	7	7,1
50	75	" 55	126	145	167	125	102	7	9,1
75	100	" 57	126	145	177	125	102	7	10,3
100	150	" 510	150	165	180	145	125	7	13,3
150	200	" 515	150	165	190	145	125	7	14,8
200	300	" 520	150	165	210	145	125	7	16,9



Protection IP -20

TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between windings 3 kV (1 min, 50 Hz) between windings and earth
Cover	Cast resin
Protection degree	IP - 20
Continuous over voltage	1,2 Un
Continuous thermal power	6 times nominal rated power
Accuracy class	0,5 and 1, according to rating
Remarks	Grain oriented core M6-35 (0,7 W/kg)
Ambient temperature	ta = 50° C
Standards	UNE 21088, IEC / EN / UNE - EN 60044-2 CE
Options	Input voltage up to 6 kV (please consult) Transformer for protection class 3P or 6P (please consult)



single phase swimming pool transformers IP-20

For swimming pool and garden spotlights, illuminated fountains



For cast resin transformers, see page 25.

REFERENCES

Rating VA	Reference	Input voltage V	Output voltage according to distance (*)		
			40m	25m	10m
100	PIP 100	230	13,5 V	13 V	12,5 V
300	" 300	"	"	"	"
600	" 600	"	"	"	"

(*) For 100 VA taps for 10, 20 and 30 m.

- The only transformer that can be set from Class I to Class II.
- Power 'ON' indication by Led.
- Non-flammable transformer enclosure.
- Parts with risk of electrical contact are not accessible by the user.
- Terminals with fast access and easy connection.
- Large label with all relevant data.

DIMENSIONS / WEIGHTS

Rating VA	Reference	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
100	PIP 100	84	101	98	88	55	5	1,6
300	" 300	106	123	118	110	74	5	3,7
600	" 600	136	162	156	145	104	6	6,8

TECHNICAL CHARACTERISTICS

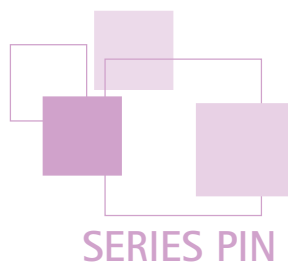
Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between primary and secondary 3 kV (1 min, 50 Hz) between primary and earth 3 kV (1 min, 50 Hz) between secondary and earth
Cover	Polymer of latest technology, non-flammable V-0 according to UL94
Mounting	By screws (all ratings) DIN Rail (for ratings up to 300 VA)
Protection degree	IP - 20
Includes	Electrostatic screen and taps on primary according to distance between transformer and spotlight
Standards	IEC/EN/UNE-EN 61558 CE



Protection IP -20



≤ 300VA OPTIONAL



single phase cast resin swimming pool transformers IP-20

For swimming pool and garden spotlights, illuminated fountains



For cast resin transformers, see page 24.

Cast Resin Transformer



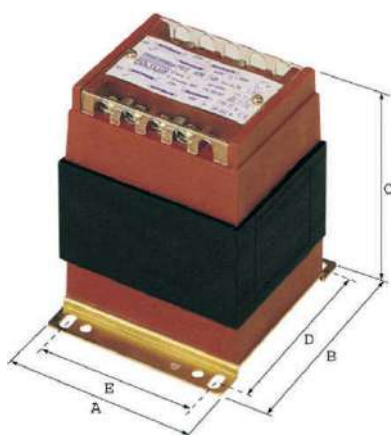
REFERENCES

Rating VA	Reference	Input Voltage V	Output voltage according to distance (*)		
			40m	25m	10m
100	PIN 100	230	13,5 V	13 V	12,5 V
300	" 300	"	"	"	"
600	" 600	"	"	"	"

(*) For 100 VA taps for 10, 20 and 30 m

DIMENSIONS / WEIGHTS

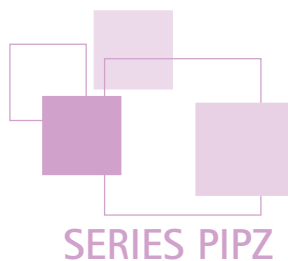
Rating VA	Reference	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
100	PIN 100	75	96	100	80	56	6	1,8
300	" 300	108	122	125	106	89	6	4,5
600	" 600	126	145	167	125	102	7	9,0



Protection IP -20

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between primary and secondary 3 kV (1 min, 50 Hz) between primary and earth 3 kV (1 min, 50 Hz) between secondary and earth
Cover	Cast resin
Protection degree	IP - 20
Includes	Electrostatic screen and taps on primary according to distance between transformer and spotlight
Standards	IEC/EN/UNE-EN 61558 CE



single phase swimming pool transformers IP-54



For swimming pool and garden spotlights, illuminated fountains



REFERENCES

Rating VA	Reference	Input Voltage V	Output voltage according to distance (*)		
			40m	25m	10m
100	PIPZ 100	230	13,5 V	13 V	12,5 V
300	" 300	"	"	"	"
600	" 600	"	"	"	"

(*) For 100 VA taps for 10, 20 and 30 m



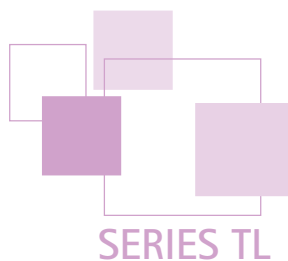
Protection IP -54
(hermetically closed, for outdoor use)

DIMENSIONS / WEIGHTS

Rating VA	Reference	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
100	PIPZ 100	140	95	165	123	120	6	3,9
300	" 300	140	95	165	123	120	6	6,0
600	" 600	190	120	215	174	160	6	11,9

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between primary and secondary 3 kV (1 min, 50 Hz) between primary and earth 3 kV (1 min, 50 Hz) between secondary and earth
Cover	Metal enclosure, epoxy polyester painted. Resin filled
Protection degree	IP - 54
Includes	Electrostatic screen and taps on primary according to distance between transformer and spotlight
Standards	IEC/EN/UNE-EN 61558 CE



single phase transformers for halogen lamps IP-00

Input voltage 230 V · Output voltage 12 V



REFERENCES

Rating VA	Reference
50	TL 50
100	" 100
160	" 160
200	" 200
250	" 250
300	" 300
400	" 400
500	" 500

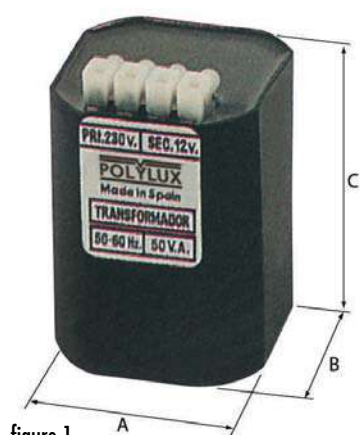


figure 1

Protection IP -00
Resin filled

DIMENSIONS / WEIGHTS

Rating VA	Reference	dimensions mm						Weight kg	Figure
		A	B	C	D	E	Ø		
50	TL 50	55	55	80	-	-	-	0,81	1
100	" 100	75	74	75	60	62,5	7	1,6	2
160	" 160	84	102	78	72	70	7	2,4	2
200	" 200	96	91	86	64	80	7	2,8	2
250	" 250	96	101	86	74	80	7	3,2	2
300	" 300	108	105	96	74	90	7	4,0	2
400	" 400	108	115	96	84	90	7	4,8	2
500	" 500	126	110	122	80	105	7	5,4	2

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3,5 kV (1 min, 50 Hz) between windings 2,5 kV (1 min, 50 Hz) between primary and earth 2,5 kV (1 min, 50 Hz) between secondary and earth
Protection degree	IP - 00
Ambient temperature	ta = 25° C
Standards	IEC/EN/UNE-EN 61558 CE

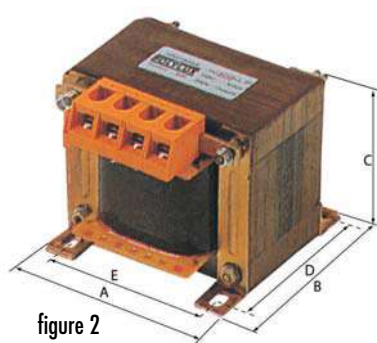
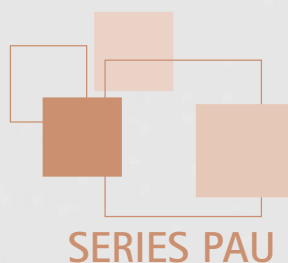


figure 2

Protection IP -00



single phase reversible autotransformers IP-20

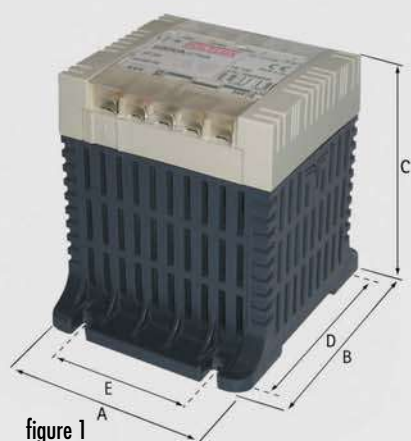
Reversible for voltage adaptation 400 / 230 V



For cast resin autotransformers, see page 29.

REFERENCES

Rating VA	Reference
100	PAU 100
200	" 200
315	" 315
400	" 400
500	" 500
630	" 630
1000	" 1000
2000	" 2000
2500	" 2500
3150	" 3150
4000	" 4000
5000	" 5000
6300	" 6300
8000	" 8000
10000	" 10000
12500	" 12500



DIMENSIONS / WEIGHTS

Rating VA	Reference	dimensions mm						Weight kg	Figure
		A	B	C	D	E	Ø		
100	PAU 100	69	92	80	79	45	5	0,79	1
200	" 200	84	101	98	88	55	5	1,1	1
315	" 315	106	123	118	110	74	5	2,3	1
400	" 400	106	123	118	110	74	5	2,3	1
500	" 500	106	123	118	110	74	5	2,7	1
630	" 630	106	123	118	110	74	5	3,3	1
1000	" 1000	118	138	131	121	88	6	4,9	1
2000	" 2000	136	162	156	145	104	6	8,6	1
2500	" 2500	136	162	180	145	104	6	10,0	1
3150	" 3150	199	220	242	188	175	7	16,8	2
4000	" 4000	199	220	242	188	175	7	22,0	2
5000	" 5000	199	220	242	188	175	7	22,0	2
6300	" 6300	199	220	282	188	175	7	27,6	2
8000	" 8000	199	220	282	188	175	7	32,0	2
10000	" 10000	247	260	299	233	223	7	40,1	2
12500	" 12500	247	260	299	233	223	7	47,0	2



TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Safety class	Class I, convertible to class II up to 2500 VA
Test voltage	3 kV (1 min, 50 Hz) between windings and earth
Mounting	By screws (all ratings) DIN Rail (for ratings up to 630 VA)
Cover	Polymer of latest technology, non-flammable V-0 according to UL94 up to 2500VA Metal enclosure, epoxy polyester painted as from 3150VA
Protection degree	IP - 20
Standards	IEC/EN/UNE-EN 61558 IEC/EN/UNE-EN 60726 CE





SERIES AUN

Cast Resin
Autotransformer



single phase cast resin reversible autotransformers IP-20

Single phase reversible autotransformer for voltage adaptation 400 / 230 V



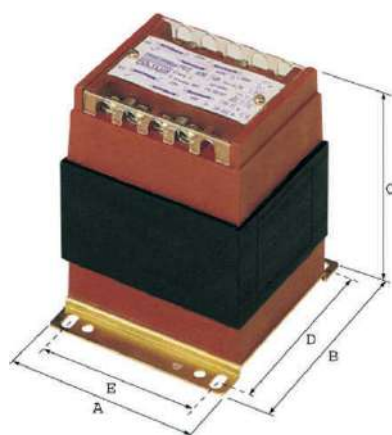
For standard autotransformers,
see page 28.

REFERENCES

Rating VA	Reference
100	AUN 100
200	" 200
315	" 315
400	" 400
500	" 500
630	" 630
1000	" 1000
2000	" 2000
2500	" 2500
3150	" 3150
4000	" 4000
5000	" 5000
6300	" 6300
8000	" 8000
10000	" 10000
12500	" 12500

DIMENSIONS / WEIGHTS

Rating VA	Reference	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
100	AUN 100	50	97	84	80	34	6	0,95
200	" 200	75	96	85	80	56	6	1,3
315	" 315	84	102	110	86	65	6	2,7
400	" 400	84	102	110	86	65	6	2,7
500	" 500	96	112	106	96	77	6	3,2
630	" 630	96	112	116	96	77	6	3,7
1000	" 1000	108	122	135	106	89	6	5,4
2000	" 2000	126	145	177	125	102	7	10,1
2500	" 2500	150	165	180	145	125	7	13,3
3150	" 3150	150	165	190	145	125	7	14,4
4000	" 4000	150	165	210	145	125	7	16,9
5000	" 5000	195	198	228	178	173	7	25,3
6300	" 6300	195	198	248	178	173	7	30,5
8000	" 8000	195	198	268	178	173	7	35,8
10000	" 10000	240	235	280	212	218	7	47,7
12500	" 12500	240	235	300	212	218	7	55



Protection IP -20

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between windings and earth
Mounting	By screws (all ratings) DIN Rail (for ratings 100 VA and 200 VA)
Cover	Cast resin
Protection degree	IP - 20
Standards	IEC/EN/UNE-EN 61558, IEC/EN/UNE-EN 60726 CE



SERIES AUKW



Protection IP- 23

single phase reversible autotransformers IP-23

Reversible for voltage adaptation 400 / 230 V



For cast resin autotransformers, see page 29.

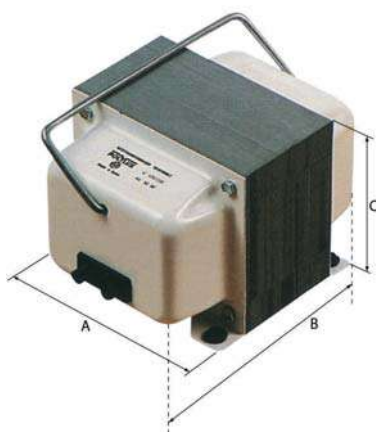
REFERENCES	
Rating kVA	Reference
16	AUKW 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50
63	" 63
80	" 80
100	" 100

DIMENSIONS / WEIGHTS									
Rating kVA	Reference	dimensions mm							Weight kg
		A	B	C	D	E	Ø		
16	AUKW 16	604	395	715	355	348	11	62	
20	" 20	604	395	715	355	348	11	79	
25	" 25	604	395	715	355	348	11	74	
31,5	" 31,5	709	370	821	330	383	11	92	
40	" 40	709	370	821	330	383	11	98	
50	" 50	760	430	1050	390	426	11	123	
63	" 63	760	430	1050	390	426	11	142	
80	" 80	860	490	1129	450	472	11	183	
100	" 100	860	490	1129	450	472	11	210	

TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Insulation	Class F - 155° C up to 20 kVA Class H - 180° C as from 25 kVA
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between windings and earth
Cooling	ANAN
Cover	In metal enclosure, epoxy polyester painted
Protection degree	IP- 23
Ambient temperature	ta = 30° C
Standards	IEC/UNE/EN 60067-60726 CE
Includes	Wheels and lifting eyebolts as from 31,5 kVA



SERIES AUR



Protection IP- 20

single phase reversible autotransformers IP-20

Reversible for voltage adaptation 220 / 125 V



REFERENCES	
Rating VA	Reference
100	AUR 100
200	" 200
300	" 300
500	" 500
1500	" 1500
2000	" 2000
2500	" 2500
3000	" 3000
4000	" 4000

DIMENSIONS / WEIGHTS						
Rating VA	Reference	dimensions mm			Weight kg	
		A	B	C		
100	AUR 100	66	90	56	0,6	
200	" 200	66	105	56	0,9	
300	" 300	96	100	80	1,4	
500	" 500	96	122	80	2,5	
1500	" 1500	126	155	105	5,3	
2000	" 2000	126	175	105	6,5	
2500	" 2500	150	185	125	9,1	
3000	" 3000	150	195	125	10,4	
4000	" 4000	150	205	125	11,7	

TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Test voltage	3 kV (1 min, 50 Hz) between windings and earth
Cover	Metal covers
Protection degree	IP- 20
Ambient temperature	ta = 25° C
Standards	IEC/ EN/ UNE - EN 60726 CE
Remarks	Inlet and outlet sockets up to 800 VA. Connection terminals as from 1500 VA
Includes	Connection cable with plugs up to 800 VA. Handgrip up to 2000 VA



SERIES AUT

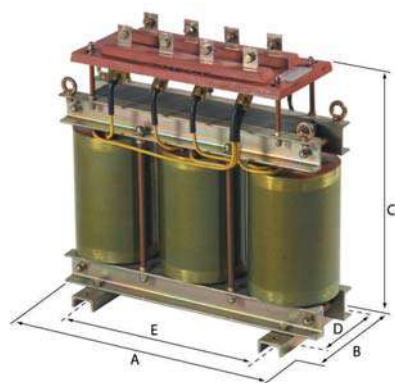
three phase reversible autotransformers

IP-00, IP-23, IP-54 and oil type

Reversible for voltage adaptation 400 / 230 V



REFERENCES		REFERENCES		REFERENCES		REFERENCES	
Rating kVA	Reference IP - 00	Rating kVA	Reference IP - 23	Rating kVA	Reference IP - 54	Rating kVA	Reference (Oil type)
1	AUTX 1	1	AUTW 1	1	AUTZ 1	400	AUTAW 400
2	" 2	2	" 2	2	" 2	500	" 500
3,15	" 3,15	3,15	" 3,15	3,15	" 3,15	630	" 630
5	" 5	5	" 5	5	" 5	800	" 800
8	" 8	8	" 8	8	" 8	1000	" 1000
10	" 10	10	" 10	10	" 10		
12,5	" 12,5	12,5	" 12,5	12,5	" 12,5		
16	" 16	16	" 16	16	" 16		
20	" 20	20	" 20	20	" 20		
25	" 25	25	" 25	25	" 25		
31,5	" 31,5	31,5	" 31,5	31,5	" 31,5		
40	" 40	40	" 40	40	" 40		
50	" 50	50	" 50	50	" 50		
63	" 63	63	" 63	63	" 63		
80	" 80	80	" 80	80	" 80		
100	" 100	100	" 100	100	" 100		
125	" 125	125	" 125	125	" 125		
160	" 160	160	" 160	160	" 160		
200	" 200	200	" 200	200	" 200		
250	" 250	250	" 250	250	" 250		
315	" 315	315	" 315	315	" 315		
400	" 400	400	" 400	400	" 400		



Protection IP - 00
Reference AUTX

DIMENSIONS / WEIGHTS								
Rating kVA	Reference	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
1	AUTX 1	150	94	178	66	125	6	4,28
2	" 2	180	109	203	81	150	6	8,81
3,15	" 3,15	240	108	253	80	200	9	13,0
5	" 5	240	143	253	115	200	9	22,0
8	" 8	300	134	303	106	250	9	28,1
10	" 10	300	154	303	126	250	9	36,0
12,5	" 12,5	300	164	303	136	250	9	44,0
16	" 16	360	144	353	116	300	11	52
20	" 20	360	164	353	136	300	11	62
25	" 25	420	170	419	142	350	11	80
31,5	" 31,5	420	190	469	162	350	11	96
40	" 40	480	230	480	162	400	11	111
50	" 50	480	250	480	182	400	11	129
63	" 63	480	270	480	182	400	11	155
80	" 80	630	300	780	250	426	11	172
100	" 100	630	300	780	250	426	11	208
125	" 125	630	370	780	310	426	11	248
160	" 160	710	300	880	250	472	11	307
200	" 200	710	370	880	310	472	11	355
250	" 250	710	370	880	310	472	11	390
315	" 315	800	500	1015	450	445	17	465
400	" 400	839	513	1115	463	461	17	604



SERIES AUT

three phase reversible autotransformers

IP - 00, IP - 23, IP - 54 and oil type

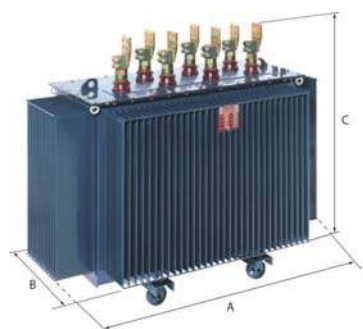
Reversible for voltage adaptation 400 / 230 V



Protection IP - 23
Reference AUTW



Protection IP - 54
(For outdoor use)
Reference AUTZ



Protection IP - 00
Oil type
Reference AUTAW

DIMENSIONS / WEIGHTS

Rating kVA	Reference	dimension mm						Weight kg
		A	B	C	D	E	Ø	
1	AUTW 1	189	175	215	165	100	6	6,0
2	" 2	244	190	252	180	150	6	11,2
3,15	" 3,15	314	220	315	205	200	6	17,0
5	" 5	314	220	315	205	200	6	25,4
8	" 8	384	260	383	245	250	6	33,0
10	" 10	384	260	383	245	250	6	40,5
12,5	" 12,5	384	260	383	245	250	6	48,8
16	" 16	454	340	513	300	300	11	58
20	" 20	454	340	513	300	300	11	69
25	" 25	604	395	715	355	348	11	91
31,5	" 31,5	604	395	715	355	348	11	108
40	" 40	604	395	715	355	348	11	131
50	" 50	604	395	715	355	348	11	149
63	" 63	604	395	715	355	348	11	178
80	" 80	760	430	1055	390	426	11	197
100	" 100	760	430	1055	390	426	11	233
125	" 125	760	430	1055	390	426	11	307
160	" 160	860	490	1129	450	472	11	348
200	" 200	860	490	1129	450	472	11	396
250	" 250	860	490	1129	450	472	11	428
315	" 315	960	570	1232	490	580	17	516
400	" 400	1090	630	1466	550	603	17	670

DIMENSIONS / WEIGHTS

Rating kVA	Reference	dimensions mm						Weight kg
		A	B	C	D	E	Ø	
1	AUTZ 1	356	260	422	230	200	9	27,0
2	" 2	356	260	422	230	200	9	28,0
3,15	" 3,15	356	260	422	230	200	9	34,3
5	" 5	556	360	632	320	300	11	52
8	" 8	556	360	632	320	300	11	62
10	" 10	556	360	632	320	300	11	85
12,5	" 12,5	556	360	632	320	300	11	86
16	" 16	556	360	632	370	300	11	125
20	" 20	738	410	837	370	348	11	135
25	" 25	738	410	837	370	348	11	141
31,5	" 31,5	738	410	837	370	348	11	151
40	" 40	738	410	837	370	348	11	169
50	" 50	738	410	837	370	348	11	218
63	" 63	888	480	1102	440	426	11	237
80	" 80	888	480	1102	440	426	11	273
100	" 100	888	480	1102	440	426	11	313
125	" 125	1112	650	1373	570	580	17	442
160	" 160	1112	650	1373	570	580	17	490
200	" 200	1112	650	1373	570	580	17	525
250	" 250	1112	650	1373	570	580	17	600
315	" 315	1382	775	1668	695	677	17	808
400	" 400	1382	775	1668	695	677	17	865

DIMENSIONS / WEIGHTS

Rating kVA	Reference	dimensions mm			Weight kg
		A	B	C	
400	AUTAW 400	1200	870	1200	900
500	" 500	1260	870	1300	1100
630	" 630	1260	870	1300	1250
800	" 800	1410	870	1360	1400
1000	" 1000	1500	870	1400	1550



three phase reversible autotransformers

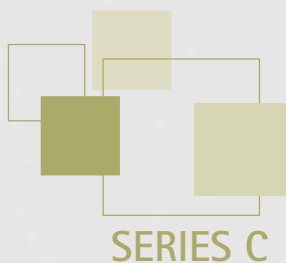
IP - 00, IP - 23, IP - 54 and oil type

Reversible for voltage adaptation 400 / 230 V



TECHNICAL CHARACTERISTICS	AUTX	AUTW
Frequency	50 - 60 Hz	
Insulation	Class F - 155°C up to 31,5 kVA, class H - 180°C as from 40 kVA	
Windings	Class HC - 200° C	
Connection group	YNO	
Test voltage	3 kV (1 min, 50Hz) between windings and earth	
Cooling	AN	ANAN
Cover	In metal enclosure, epoxy polyester painted	
Protection degree	IP - 00	IP - 23
Ambient temperature	ta = 40° C	ta = 30° C
Standards	IEC/EN/UNE-EN 61558 / 60726 / 60076 CE	
Includes	Lifting eyebolts as from 16 kVA	Wheels and lifting eyebolts as from 50 kVA. Cable inlets

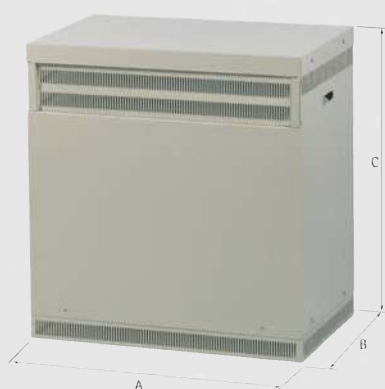
TECHNICAL CHARACTERISTICS	AUTZ	AUTAW
Frequency	50 - 60 Hz	
Insulation	Class F - 155°C up to 25 kVA, class H - 180°C as from 31,5 kVA.	Class B - 130° C
Windings	Class HC - 200° C	
Connection group	YNO	
Test voltage	3 kV (1 min, 50Hz) between windings and earth.	
Cooling	ANAN	ONAN
Cover	In metal enclosure, resin polyester painted	In metal enclosure, epoxy polyester painted
Protection degree	IP - 54	IP - 00
Ambient temperature	ta = 30° C	
Standards	IEC/EN/UNE-EN 61558 / 60726 / 60076 CE	IEC/EN/UNE-EN 60076 CE
Includes	Lifting eyebolts as from 20 kVA. Cable inlets	Wheels and lifting eyebolts
Optional	Oil level gauge	



SERIES C

harmonic compensators for electrical installations in office buildings IP-20

C10D, C20D, C22D, C25D-0, C25D-180, C30D



REFERENCES	
Phase current (A)	Reference
16	C10D 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50
63	" 63
80	" 80
100	" 100
125	" 125
160	" 160
200	" 200
250	" 250
315	" 315
400	" 400

REFERENCES	
Neutral current (A)	Reference
25	C20D 25
31,5	" 31,5
40	" 40
50	" 50
63	" 63
80	" 80
100	" 100
125	" 125
160	" 160
200	" 200
250	" 250
315	" 315
400	" 400
500	" 500
630	" 630

REFERENCES	
Rating kVA	Reference
10	C22D 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50
63	" 63
80	" 80
100	" 100
125	" 125
160	" 160

REFERENCES		
Rating kVA	Reference	
10	C25D 10-0	C25D 10-180
12,5	" 12,5-0	" 12,5-180
16	" 16-0	" 16-180
20	" 20-0	" 20-180
25	" 25-0	" 25-180
31,5	" 31,5-0	" 31,5-180
40	" 40-0	" 40-180
50	" 50-0	" 50-180
63	" 63-0	" 63-180
80	" 80-0	" 80-180
100	" 100-0	" 100-180
125	" 125-0	" 125-180
160	" 160-0	" 160-180

REFERENCES	
Rating kVA	Reference
10	C30D 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50
63	" 63
80	" 80
100	" 100
125	" 125
160	" 160

DIMENSIONS / WEIGHTS						
Phase current (A)	Reference		dimensions mm			Weight kg
			A	B	C	
16	C10D	16	189	242	219	6,7
20	"	20	189	242	219	8,8
25	"	25	244	274	256	11,1
31,5	"	31,5	244	274	256	14,1
40	"	40	244	274	256	15,6
50	"	50	314	314	319	22,8
63	"	63	314	314	319	27,0
80	"	80	314	314	319	31,0
100	"	100	314	314	319	34,0
125	"	125	384	362	367	40,0
160	"	160	384	362	367	41,0
200	"	200	384	362	367	48,0
350	"	350	384	362	367	56
315	"	315	384	362	367	63
400	"	400	454	426	463	85

DIMENSIONS / WEIGHTS						
Neutral current (A)	Reference	dimensions mm			Weight kg	
		A	B	C		
25	C20D 25	384	362	367	56	
31,5	" 31,5	384	362	367	63	
40	" 40	454	426	463	85	
50	" 50	454	426	463	97	
63	" 63	622	442	671	121	
80	" 80	622	442	671	141	
100	" 100	622	442	671	151	
125	" 125	707	465	836	187	
160	" 160	707	465	836	216	
200	" 200	758	479	966	257	
250	" 250	858	600	1041	325	
315	" 315	858	600	1041	387	
400	" 400	958	643	1248	573	
500	" 500	1088	730	1351	703	
630	" 630	1088	730	1351	841	



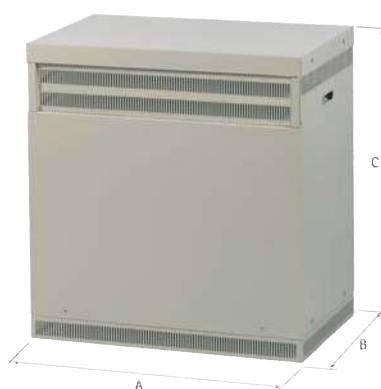
SERIES C

harmonic compensators for electrical installations in office buildings IP-20

C10D, C20D, C22D, C25D-0, C25D-180, C30D



DIMENSIONS / WEIGHTS							DIMENSIONS / WEIGHTS						
Rating kVA	Reference	dimensions mm			Weight Kg		Rating kVA	Reference	dimensions mm			Weight Kg	
		A	B	C					A	B	C		
10	C22D 10	454	426	463	97		10	C30D 10	622	442	619	141	
12,5	" 12,5	622	442	671	121		12,5	" 12,5	622	442	619	151	
16	" 16	622	442	671	141		16	" 16	707	465	836	187	
20	" 20	622	442	671	151		20	" 20	707	465	836	216	
25	" 25	707	465	836	187		25	" 25	758	479	966	257	
31,5	" 31,5	707	465	836	216		31,5	" 31,5	858	600	1041	325	
40	" 40	758	479	966	257		40	" 40	858	600	1041	387	
50	" 50	758	479	966	323		50	" 50	958	643	1248	494	
63	" 63	858	600	1041	387		63	" 63	958	643	1248	574	
80	" 80	958	643	1248	494		80	" 80	1088	730	1351	703	
100	" 100	958	643	1248	573		100	" 100	1088	730	1351	841	
125	" 125	1088	730	1351	841		125	" 125	1208	784	1491	999	
160	" 160	1088	730	1351	1174		160	" 160	1208	784	1491	1174	



DIMENSIONS / WEIGHTS						
Rating kVA	Reference		dimensions mm			Weight kg
			A	B	C	
10	C25D 10-0	C25D 10-180	622	442	671	121
12,5	" 12,5-0	" 12,5-180	622	442	671	141
16	" 16-0	" 16-180	622	442	671	151
20	" 20-0	" 20-180	707	465	836	187
25	" 25-0	" 25-180	707	465	836	216
31,5	" 31,5-0	" 31,5-180	758	479	966	257
40	" 40-0	" 40-180	858	600	1041	387
50	" 50-0	" 50-180	958	643	1248	494
63	" 63-0	" 63-180	958	643	1248	573
80	" 80-0	" 80-180	1088	730	1351	703
100	" 100-0	" 100-180	1088	730	1351	841
125	" 125-0	" 125-180	1208	784	1491	999
160	" 160-0	" 160-180	1422	867	1639	1447

TECHNICAL CHARACTERISTICS		C10D	C20D	C22D
Voltage	400 V		400 V + N	
Frequency	50 - 60 Hz			
Insulation	Class H - 180°C			
Windings	Class HC - 200° C			
Galvanic isolation	No			
Test voltage	3 kV (1 min, 50 Hz)			
Cooling	ANAN			
Cover	In metal enclosure, epoxy polyester painted			
Protection degree	IP - 20			
Ambient temperature	ta = 30° C			
Maximum admissible 3rd harmonic in voltage	2,50 %			
Filtering of harmonics coming from the load	3 rd , 9 th , 15 th C10D + C20D	3 rd , 5 th , 7 th , 9 th , 15 th , 17 th , 19 th C10D+C20D and C10D+C22D		
Reduction of neutral current and neutral - earth voltage up to	75 % C10D + C20D	80 % C10D + C20D and C10D + C22D		
Reduction of phase current up to	15 % C10D + C20D	40 % C10D + C20D and C10D + C22D		
Reduction of THD-I and THD-V up to	45 % C10D + C20D	75 % C10D + C20D and C10D + C22D		
Standards	IEC/EN/UNE-EN 60076	IEC/EN/UNE-EN 60726, IEC/EN/UNE-EN 61000-3-2, IEC/EN/UNE-EN 61000-3-4		IEEE 519 CE
Includes			Lifting eyebolts as from 63A and wheels as from 125A	Lifting eyebolts as from 12,5kVA and wheels as from 25 kVA



harmonic compensators for electrical installations in office buildings IP-20

C10D, C20D, C22D, C25D-0, C25D-180, C30D

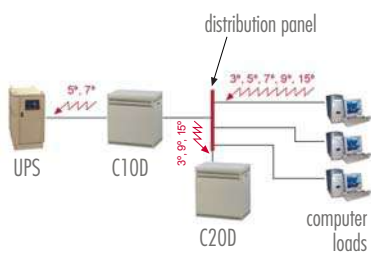


SERIES C

TECHNICAL CHARACTERISTICS	C25D-0	C25D-180	C30D
Voltage	400 V	400 V + N	Input: 400 V + N Output: 2 x 400 V + N
Frequency	50 - 60 Hz		
Insulation	Class H - 180°C		
Windings	Class HC - 200°C		
Test voltage	3 kV (1 min, 50 Hz)		
Galvanic isolation	Yes		
Cooling	ANAN		
Cover	In metal enclosure, epoxy polyester painted		
Protection degree	IP - 20		
Ambient temperature	ta = 30°C		
Maximum admissible THD-I	90 %		110 %
Filtering of harmonics coming from the load	3 rd , 5 th , 7 th , 9 th , 15 th , 17 th , 19 th combining C25D-0 and C25D-180		3 rd , 5 th , 7 th , 9 th , 15 th , 17 th , 19 th
Reduction of neutral current and neutral - earth voltage up to	90 %		
Reduction of phase current up to	15% C25D-0° or C25D-180°. 45% combining C25D-0° and C25D-180°		45 %
Reduction of THD-I up to	45% C25D-0° or C25D-180°. 85% combining C25D-0° and C25D-180°		85 %
Reduction of THD-V up to	40% C25D-0° or C25D-180°. 85% combining C25D-0° and C25D-180°		85 %
Standards	IEC/EN/UNE-EN 60076	IEC/EN/UNE-EN 60726, IEC/EN/UNE-EN 61000-3-2, IEC/EN/UNE-EN 61000-3-4	IEEE 519 CE
Includes	Lifting eyebolts. Wheels as from 20kVA		Lifting eyebolts. Wheels as from 16 kVA



Solution 1



harmonic compensators for electrical installations in office buildings IP-20

Solutions

Filtering of harmonics 3rd, 9th and 15th Compensator C10D + C20D

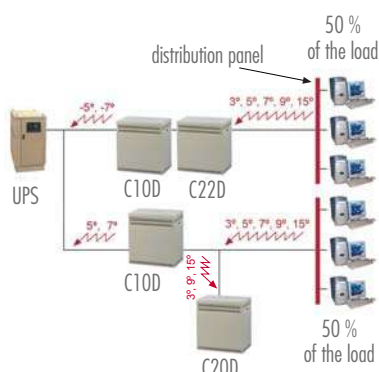
The **C20D Compensator** provides a very good cost-filtering relation. It reduces the triplen harmonics (3rd, 9th, 15th), and eliminates this way the main problems in the office installations, which are overloaded neutral conductors and a high neutral-earth voltage. It is recommended to install the C20D always with the **Impedance Adapter C10D** in order to obtain the most optimised filtering and functionality.

Filtering results:

Reduction of neutral current and neutral - earth voltage up to	75 %
Reduction of phase current up to	15 %
Reduction of voltage and current distortion up to	45 %
Obtain P.F. factor up to	0,80

Note: For selection, please consult the application guide.

Solution 2



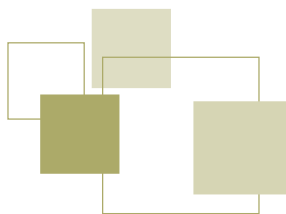
Filtering of harmonics 3rd, 5th, 7th, 9th, 15th, 17th and 19th Compensator C10D + C20D and C10D + C22D

The **C22D Compensator** offers an elevated filtering of harmonics 3rd, 5th, 7th, 9th, 15th, 17th and 19th, this way solving all common harmonic problems in the electrical installation. The C22D is used in combination with the C20D+C10D, each supplying 50% of the total load to be filtered. It is recommended to install the C20D and C22D always with the **Impedance Adapter C10D** in order to obtain the most optimised filtering and functionality.

Filtering results:

Reduction of neutral current and neutral - earth voltage up to	80 %
Reduction of phase current up to	40 %
Reduction of voltage and current distortion up to	75 %
Obtain P.F. factor up to	0,95

Note: For selection, please consult the application guide.



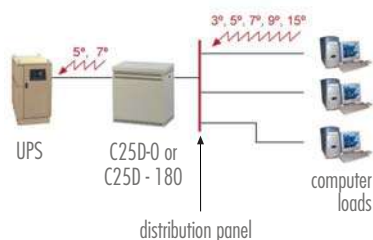
harmonic compensators for electrical installations in office buildings IP-20



Solutions

Solution 3

Filtering of harmonics 3rd, 9th and 15th, with galvanic isolation Compensator C25D



The **C25D Compensator** is totally eliminating the triplen harmonics (3rd, 9th, 15th), avoiding any type of overload in the neutral as well as a high neutral-earth voltage produced by harmonics. Thanks to its galvanic isolation, the C25D Compensator represents the ideal solution in case of a high level of 3rd harmonic voltage. Additional advantages are: reduction of the electromagnetic disturbances coming from the supply network, optional voltage adaptation and the possibility to use independent earths as the neutral is isolated from the mains.

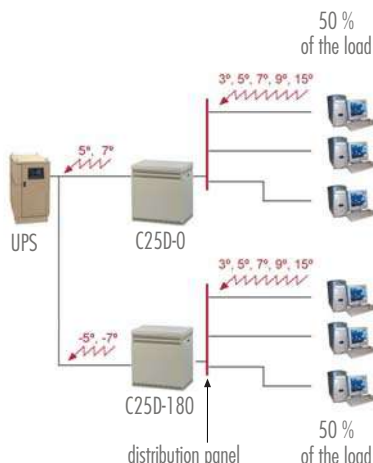
Filtering results:

Reduction of neutral current and neutral - earth voltage up to	90 %
Reduction of phase current up to	15 %
Reduction of current distortion up to	45 %
Reduction of voltage distortion up to	40 %
Obtain P.F. factor up to	0,80

Note: For selection, please consult the application guide.

Solution 4

Filtering of harmonics 3rd, 5th, 7th, 9th, 15th, 17th and 19th, with galvanic isolation Compensator C25D



The **C25D Compensator** is available in two versions offering different phase shifts (0° and 180°) for the 5th and 7th harmonic. By combining both versions, elimination of the 3rd, 5th, 7th, 9th, 15th, 17th and 19th is obtained.

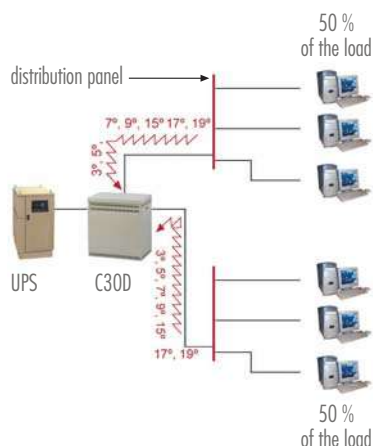
Filtering results combining 0° and 180° versions:

Reduction of neutral current and neutral - earth voltage up to	90 %
Reduction of phase current up to	45 %
Reduction of voltage and current distortion up to	85 %
Obtain P.F. factor up to	0,96

Note: For selection, please consult the application guide.

Solution 5

Filtering of harmonics 3rd, 5th, 7th, 9th, 15th, 17th and 19th, with galvanic isolation Compensator C30D



The **C30D Compensator** achieves the highest filtering level. It eliminates the 3rd, 5th, 7th, 9th, 15th, 17th and 19th harmonic and provides additional advantages like: reduction of electromagnetic disturbances, optional voltage adaptation and the use of independent earths.

Filtering results:

Reduction of neutral current and neutral - earth voltage up to	90 %
Reduction of phase current up to	45 %
Reduction of voltage and current distortion up to	85 %
Obtain P.F. factor up to	0,96

Note: For selection, please consult the application guide.



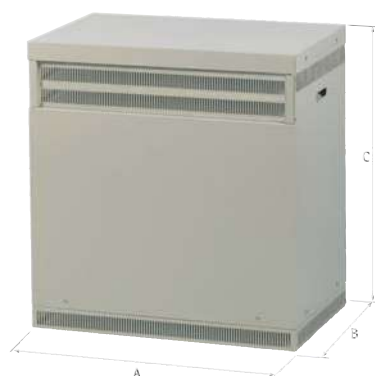
harmonic compensators for industrial installations IP-20

C10F and C20F



REFERENCES	
Rating kVA	Reference
10	C10F 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50
63	" 63
80	" 80
100	" 100
125	" 125
160	" 160
200	" 200

REFERENCES	
Rating kVA	Reference
10	C20F 10
12,5	" 12,5
16	" 16
20	" 20
25	" 25
31,5	" 31,5
40	" 40
50	" 50
63	" 63
80	" 80
100	" 100
125	" 125
160	" 160
200	" 200
250	" 250



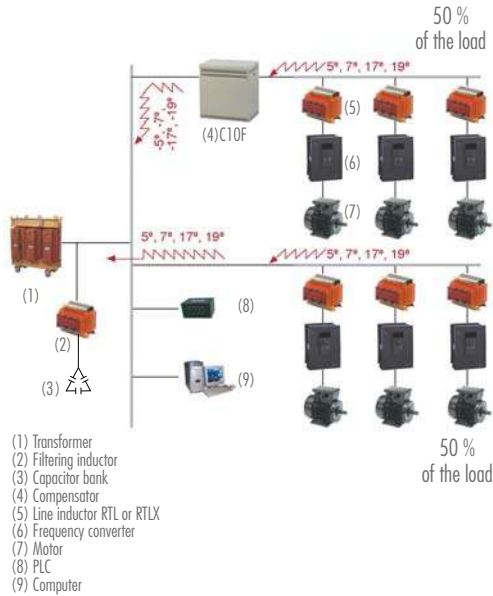
DIMENSIONS / WEIGHTS					
Rating kVA	Reference	dimensions mm			Weight kg
		A	B	C	
10	C10F 10	454	426	463	85
12,5	" 12,5	454	426	463	97
16	" 16	622	442	671	121
20	" 20	622	442	671	141
25	" 25	622	442	671	151
31,5	" 31,5	707	465	836	187
40	" 40	707	465	836	216
50	" 50	758	479	836	257
63	" 63	858	600	1041	325
80	" 80	858	600	1041	387
100	" 100	958	643	1248	494
125	" 125	1088	730	1351	703
160	" 160	1088	730	1351	841
200	" 200	1208	784	1491	999

DIMENSIONS / WEIGHTS					
Rating kVA	Reference	dimensions mm			Weight kg
		A	B	C	
10	C20F 10	622	442	671	121
12,5	" 12,5	622	442	671	141
16	" 16	622	442	671	151
20	" 20	707	465	836	187
25	" 25	707	465	836	216
31,5	" 31,5	758	479	966	257
40	" 40	858	600	1041	325
50	" 50	858	600	1041	387
63	" 63	958	643	1248	494
80	" 80	958	643	1248	573
100	" 100	1088	730	1351	703
125	" 125	1088	730	1351	841
160	" 160	1208	784	1491	999
200	" 200	1208	784	1491	1174
250	" 250	1422	867	1639	1446

TECHNICAL CHARACTERISTICS	C10F	C20F
Voltage	Input: 400 V + N. Output: 400 V + N	Input: 400 V. Output: 2 x 400 V + N
Frequency	50 - 60 Hz	
Insulation	Class H - 180°C	
Windings	Class HC - 200° C	
Test voltage	3 kV (1 min, 50 Hz)	
Galvanic isolation	Yes	No
Cooling	ANAN	
Cover	In metal enclosure, epoxy polyester painted	
Protection degree	IP - 20	
Ambient temperature	30° C	
Filtering of harmonics coming from the load	5 th , 7 th , 17 th , 19 th or 5 th , 7 th , 11 th , 13 th , 15 th , 17 th , 19 th in combination with RTL or RTLX inductors	
Reduction of phase current up to	20 % or 35 % in combination with RTL or RTLX inductors	
Reduction of THD-I and THD-V up to	60 % or 85 % in combination with RTL or RTLX inductors	
Standards	IEC/EN/UNE-EN 60076	IEC/EN/UNE-EN 60726, IEC/EN/UNE-EN 61000-3-2, IEC/EN/UNE-EN 61000-3-4 IEEE 519 CE
Includes	Lifting eyebolts as from 16 kVA (C10F), 10 kVA (C20F). Wheels as from 31,5 kVA (C10F), 20 kVA (C20F)	

Solution 1

High filtering level of harmonics 5th, 7th, 17th and 19th.
Compensator C10F



The **C10F Compensator** is used in case a high filtering level is requested. The **C10F** is installed in such a way that it supplies 50% of the load to be filtered while the other 50% is supplied directly.

For optimised filtering and elimination of voltage notches, **RTL or RTLX line inductors** should be installed as well, especially for power converters above 5 kW.

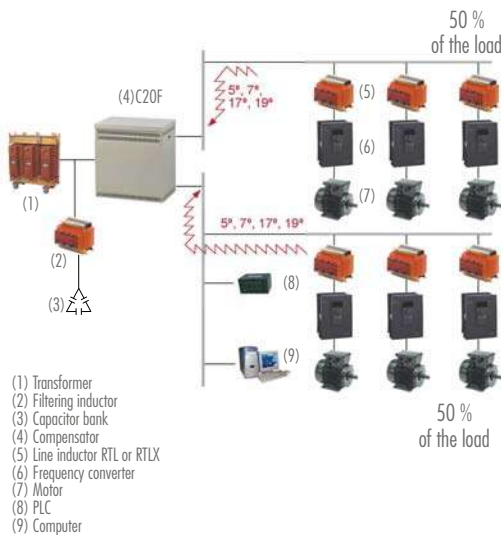
Filtering results:

	C10F	C10F + RTL
Reduction of phase current up to	20 %	35 %
Reduction of voltage and current distortion up to	60 %	85 %
Obtain P.F. factor up to	0,95	0,98

Note: For selection, please consult the application guide.

Solution 2

High filtering level of harmonics 5th, 7th, 17th and 19th, with galvanic isolation.
Compensator C20F



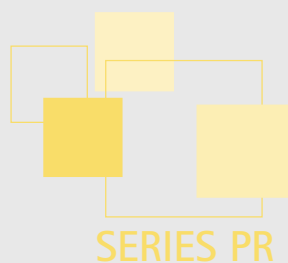
The **C20F Compensator** achieves the highest protection level for industrial installations, featuring a high filtering level and galvanic isolation of the load. The **C20F** has two outputs, each supplying 50% of the load.

For optimised filtering and elimination of voltage notches, **RTL or RTLX line inductors** should be installed as well, especially for power converters above 5 kW.

Filtering results:

	C20F	C20F + RTL
Reduction of phase current up to	20 %	35 %
Reduction of voltage and current distortion up to	60 %	85 %
Obtain P.F. factor up to	0,95	0,98

Note: For selection, please consult the application guide.



SERIES PR

single phase line inductors IP-20

Line inductors for harmonic filtering
Line voltage 220 - 260 V



For cast resin inductors, see page 41.

REFERENCES

In (A)	L (mH)	References	Motor rating	
			kW	hp
2,5	8,785	PR 2,5	0,23	0,31
4	5,491	" 4	0,37	0,5
5	4,393	" 5	0,46	0,6
6,3	3,486	" 6,3	0,55	0,75
8	2,745	" 8	0,75	1
10	2,196	" 10	1,1	1,5
12,5	1,757	" 12,5	1,5	2
16	1,373	" 16	1,85	2,5
20	1,098	" 20	2,2	3
25	0,879	" 25	3	4
31,5	0,697	" 31,5	4	5,5

For other current values, L values or other applications, please consult.

Applications

Designed for single phase harmonic generating equipment:

- Single phase frequency converters.
- Variable speed drives for DC motors.
- UPS systems.
- Power supplies.
- Rectifiers.
- Other types of converters or non-linear loads.

Advantages

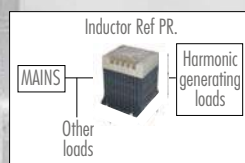
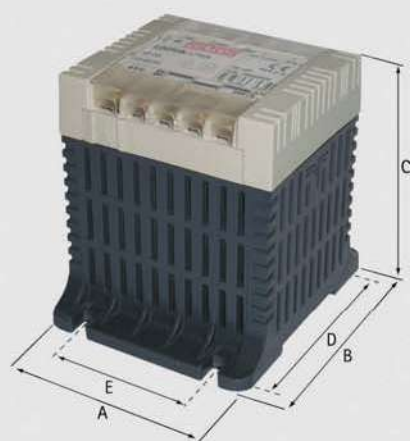
- Reduction of current harmonics generated by the load, resulting in reduced energy consumption and power factor improvement.
- Reduction of the crest factor of the current wave, extending the lifetime of the equipment and avoiding breakdowns.
- Individual installation for each load is recommended in order to improve its efficiency.

DIMENSIONS / WEIGHTS

Reference	dimensions mm						Weight kg
	A	B	C	D	E	Ø	
PR 2,5	84	101	98	88	55	5	0,74
" 4	84	101	98	88	55	5	0,74
" 5	84	101	98	88	55	5	0,90
" 6,3	106	123	118	110	74	5	1,3
" 8	106	123	118	110	74	5	1,3
" 10	106	123	118	110	74	5	1,3
" 12,5	106	123	118	110	74	5	1,3
" 16	106	123	118	110	74	5	1,8
" 20	118	138	131	121	88	6	3,1
" 25	118	138	131	121	88	6	3,1
" 31,5	136	162	156	145	104	6	3,1

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Line voltage	220 - 260 V
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz)
Voltage drop (uk)	3 % at 230 V, 50 Hz and nominal current
Cover	Polymer of latest technology, non-flammable V-0 according to UL94
Mounting	By screws / DIN Rail (all ratings)
Protection degree	IP - 20
Standards	IEC/EN/UNE-EN 60289 CE
Includes	Bimetal thermal protection



Installation of the inductor



OPTIONAL



Cast Resin Inductor

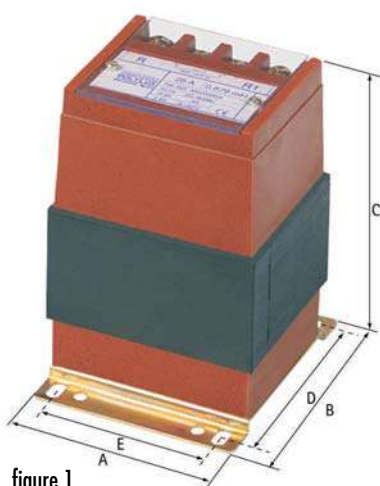


figure 1

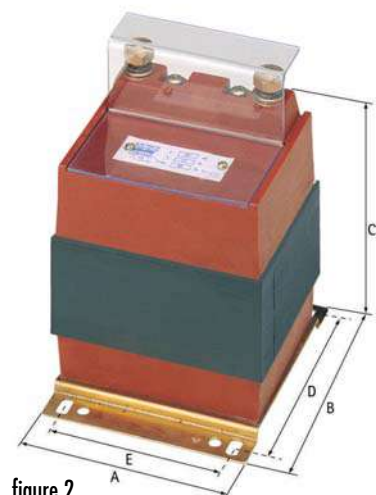
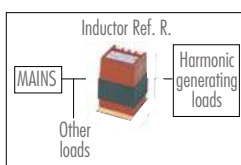


figure 2



Installation of the inductor

single phase cast resin line inductors IP-20

Line inductors for harmonic filtering
Line voltage 220 - 260 V



For standard inductors, see page 40.

REFERENCES

In (A)	L (mH)	Reference	Motor Rating	
			kW	hp
2,5	8,785	R 2,5	0,23	0,31
4	5,491	" 4	0,37	0,5
5	4,393	" 5	0,46	0,6
6,3	3,486	" 6,3	0,55	0,75
8	2,745	" 8	0,75	1
10	2,196	" 10	1,1	1,5
12,5	1,757	" 12,5	1,5	2
16	1,373	" 16	1,85	2,5
20	1,098	" 20	2,2	3
25	0,879	" 25	3	4
31,5	0,697	" 31,5	4	5,5
40	0,524	" 40	5,5	7,5
50	0,439	" 50	6,5	8,7
63	0,349	" 63	7,5	10
80	0,275	" 80	11	15
100	0,220	" 100	14	18,7

For other current values, L values or other applications, please consult.

Applications: Designed for single phase harmonic generating equipment:

- Single phase frequency converters.
- Variable speed drives for DC motors.
- UPS systems.
- Power supplies.
- Rectifiers.
- Other types of converters or non-linear loads.

Advantages

- Reduction of current harmonics generated by the load, resulting in reduced energy consumption and power factor improvement.
- Reduction of the crest factor of the current wave, extending the lifetime of the equipment and avoiding breakdowns.
- Individual installation for each load is recommended in order to improve its efficiency.

DIMENSIONS / WEIGHTS

Reference	dimensions mm						Weight kg	Figure
	A	B	C	D	E	Ø		
R 2,5	50	97	84	80	34	6	0,76	1
" 4	50	97	84	80	34	6	0,78	1
" 5	50	97	94	80	34	6	0,94	1
" 6,3	75	96	95	80	56	6	1,3	1
" 8	75	96	95	80	56	6	1,3	1
" 10	75	96	95	80	56	6	1,3	1
" 12,5	75	96	95	80	56	6	1,3	1
" 16	75	96	110	80	56	6	1,8	1
" 20	84	102	120	86	65	6	2,7	1
" 25	96	112	126	96	77	6	2,8	1
" 31,5	96	112	126	96	77	6	2,9	1
" 40	108	122	155	106	89	6	5,0	1
" 50	126	145	167	125	102	6	5,6	2
" 63	126	145	187	125	102	7	8,1	2
" 80	126	145	187	125	102	7	8,3	2
" 100	150	165	200	145	125	7	10,6	2

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Line voltage	220 - 260 V
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz)
Voltage drop (uk)	3 % at 230 V, 50 Hz and nominal current
Cover	Cast resin
Protection degree	IP - 20
Ambient temperature	ta = 40° C
Standards	IEC/EN/UNE-EN 60289 CE
Includes	Bimetal thermal protection



SERIES RTL

Cast Resin Inductor

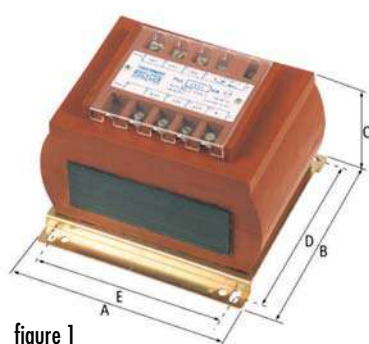


figure 1

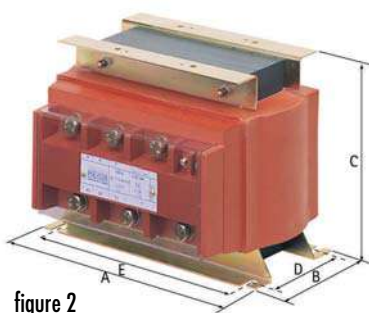
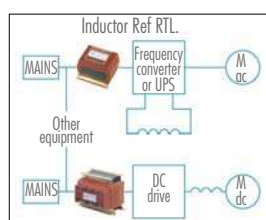


figure 2



Installation of the inductor

three phase cast resin line inductors IP-20

Line inductors for harmonic filtering
Line voltage 380- 460 V



REFERENCES					REFERENCES				
In (A)	L (mH)	Reference	motor rating		In (A)	L (mH)	Reference	motor rating	
			kW	hp				kW	hp
2,5	11,762	RTL 2,5	0,75	1	25	1,176	RTL 25	11	15
4	7,351	" 4	1,1	1,5	31,5	0,933	" 31,5	15	20
5	5,881	" 5	1,5	2	40	0,735	" 40	18,5	25
6,3	4,667	" 6,3	2,2	3	50	0,588	" 50	22	30
8	3,676	" 8	3	4	63	0,467	" 63	30	40
10	2,941	" 10	4	5,5	80	0,368	" 80	37	50
12,5	2,352	" 12,5	5,5	7,5	100	0,294	" 100	45	60
16	1,838	" 16	6,5	8,8	125	0,235	" 125	55	75
20	1,470	" 20	7,5	10					

For other current values, L values or other applications, please consult

For other current values, L values or other applications, please consult.

Applications: Especially designed for all type of power converters:

- Frequency converters.
- Variable speed drives for DC motors.
- UPS systems.
- Rectifiers.
- Other types of non-linear loads.

Advantages

- Reduction of current harmonics generated by the load, resulting in reduced energy consumption and power factor improvement.
- Reduction of the crest factor of the current wave, extending the lifetime of the equipment and avoiding breakdowns.
- Attenuation of micro cuts in the supply voltage generated by power converters, causing malfunctioning of computers PLC's and other sensitive equipment.

DIMENSIONS / WEIGHTS

Reference	dimensions mm						Weight kg	Figure
	A	B	C	D	E	Ø		
RTL 2,5	135	145	108	125	102	7	1,5	1
" 4	135	145	108	125	102	7	1,7	1
" 5	135	145	108	125	102	7	2,0	1
" 6,3	135	145	108	125	102	7	2,5	1
" 8	135	145	108	125	102	7	2,7	1
" 10	170	165	138	145	125	7	3,4	1
" 12,5	170	165	138	145	125	7	3,9	1
" 16	170	165	138	145	125	7	5,3	1
" 20	210	198	185	178	173	7	6,0	1
" 25	210	198	185	178	173	7	7,5	1
" 31,5	210	198	185	178	173	7	9,7	1
" 40	210	198	185	178	173	7	10,2	1
" 50	280	190	205	80	250	9	13,9	2
" 63	280	190	205	100	250	9	16,7	2
" 80	280	190	205	115	250	9	20,1	2
" 100	280	220	205	110	250	9	24,5	2
" 125	340	220	255	106	310	9	30,3	2

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Line voltage	380 - 460 V
Insulation	Class F - 155° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz)
Thermal overload factor	5 %
Voltage drop (uk)	4 % at 400 V, 50 Hz and nominal current
Protection degree	IP - 20
Ambient temperature	ta = 40° C
Temperature rise	< 90° C
Standards	IEC/EN/UNE-EN 60289 CE
Includes	Bimetal thermal protection

All other equipment in the installation has to be connected at the input side of the inductor. If connected at the output side, it would be affected by micro cuts in the voltage.

SERIES RTLX

three phase line inductors IP-00

Line inductors for harmonic filtering
Line voltage 380- 460 V

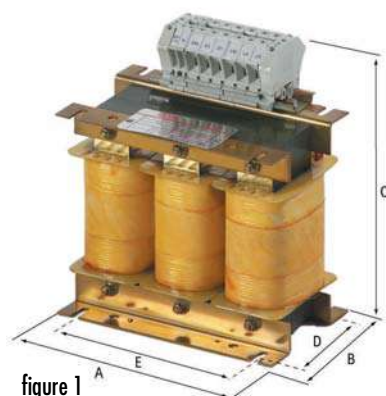


figure 1

REFERENCES				
In (A)	L (mH)	Reference	motor rating	
			kW	hp
2,5	11,762	RTLX 2,5	0,75	1
4	7,351	" 4	1,1	1,5
5	5,881	" 5	1,5	2
6,3	4,667	" 6,3	2,2	3
8	3,676	" 8	3	4
10	2,941	" 10	4	5,5
12,5	2,352	" 12,5	5,5	7,5
16	1,838	" 16	6,5	8,8
20	1,470	" 20	7,5	10
25	1,176	" 25	11	15
31,5	0,933	" 31,5	15	20
40	0,735	" 40	18,5	25
50	0,588	" 50	22	30
63	0,467	" 63	30	40
80	0,368	" 80	37	50
100	0,294	" 100	45	60
125	0,235	" 125	55	75
160	0,184	" 160	75	100
200	0,147	" 200	90	125
250	0,118	" 250	110-132	150-180
315	0,093	" 315	150-160	205-220
400	0,074	" 400	185-200	250-270
500	0,059	" 500	220-250	300-340
630	0,047	" 630	280-315	405-425

For other current values, L values or other applications, please consult.

DIMENSIONS / WEIGHTS								
Reference	dimensions mm						Weight kg	Figure
	A	B	C	D	E	Ø		
RTLX 2,5	120	74	107	44	100	6	1,4	1
" 4	120	74	107	44	100	6	1,4	1
" 5	120	74	107	44	100	6	1,6	1
" 6,3	120	74	107	44	100	6	1,9	1
" 8	120	84	107	54	100	6	2,3	1
" 10	120	84	108	54	100	6	2,7	1
" 12,5	150	100	225	72	125	6	4,2	1
" 16	150	105	225	77	125	6	5,0	1
" 20	150	110	225	82	125	6	5,8	1
" 25	150	115	225	87	125	6	6,5	1
" 31,5	150	120	226	92	125	6	7,6	1
" 40	150	130	226	102	125	6	9,3	1
" 50	150	140	227	112	125	6	11,0	1
" 63	180	125	280	97	150	6	12,7	1
" 80	180	135	280	107	150	6	15,7	1
" 100	180	150	281	122	150	6	18,8	1
" 125	240	151	368	123	200	9	25,1	1
" 160	240	161	327	133	200	9	30,4	2
" 200	240	181	327	153	200	9	37,4	2
" 250	240	211	336	183	200	9	46,8	2
" 315	300	182	409	154	250	9	54	2
" 400	300	207	419	179	250	9	68	2
" 500	360	264	463	185	300	11	102	2
" 630	360	290	464	210	300	11	122	2

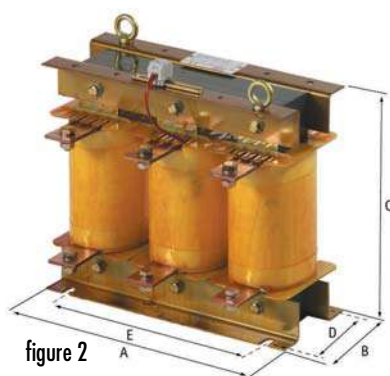


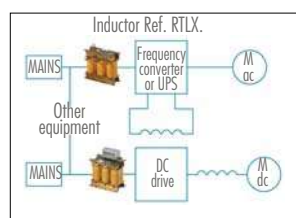
figure 2

Applications: Especially designed for all type of power converters:

- Frequency converters
- Variable speed drives for DC motors.
- UPS systems.
- Rectifiers.
- Other types of non-linear loads.

Advantages

- Reduction of current harmonics generated by the load, resulting in reduced energy consumption and power factor improvement.
- Reduction of the crest factor of the current wave, extending the lifetime of the equipment and avoiding breakdowns.
- Attenuation of micro cuts in the supply voltage generated by power converters, causing malfunctioning of computers PLC's and other sensitive equipment.



Installation of the inductor

TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Line voltage	380 - 460 V
Insulation	Class F - 155° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz)
Thermal overload factor	5 %
Voltage drop (uk)	4 % at 400 V 50 Hz and nominal current
Protection degree	IP - 00
Ambient temperature	ta = 40° C
Temperature rise	< 90° C
Standards	IEC/EN/UNE-EN 60289 CE
Includes	Bimetal thermal protection

All other equipment in the installation has to be connected at the input side of the inductor. If connected at the output side, it would be affected by micro cuts in the voltage.



three phase filtering inductors for capacitor banks IP-00

Inductors for protection of capacitors
Line voltage 400 V 50 Hz



REFERENCES			
Capacitor rating kVAR (*)	Effective rating kVAR (**)	In (A)	Reference
5	4,4	6,8	RTFX 5
10	8,9	13,6	" 10
12,5	11,1	17	" 12,5
15	13,3	20,4	" 15
20	17,8	27,2	" 20
25	22,2	34	" 25
30	26,7	40,8	" 30
40	35,5	54,4	" 40
50	44,4	68	" 50
60	53,3	82	" 60
80	71,1	109	" 80
100	88,8	136	" 100

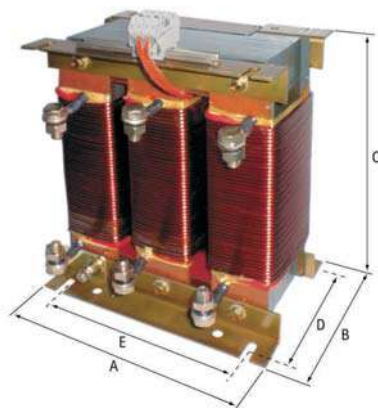
For other capacitors, other voltages and frequencies or other applications, please consult.
(*) Capacitor rating at 440 V. (**) Effective reactive power supplied to the mains.

Applications

- In case of power factor correction in an installation where harmonics are present, it is necessary to use a capacitor bank with filtering inductors to protect the capacitors.
- The purpose of these filtering inductors is the protection of the capacitors against harmonics.
- In case harmonics have to be eliminated from the network, special filters such as RTL line inductors or harmonic compensators should be installed.

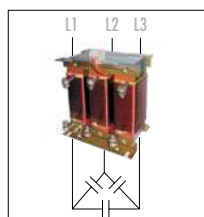
Advantages

- Avoids resonance between the inductance of the supply transformer and the capacity of the capacitor bank.
- Eliminates over voltage and over current in the transformer and capacitor bank.
- Protects capacitors against harmonics, avoiding premature breakdown of the capacitor bank.
- Limits the connection spikes of the capacitor bank, extending its lifetime and reducing micro cuts in the voltage.



DIMENSIONS / WEIGHTS							
Reference	dimensions mm						Weight kg
	A	B	C	D	E	Ø	
RTFX 5	180	100	215	62	150	6	5,7
" 10	180	115	215	77	150	6	9,1
" 12,5	180	125	215	87	150	6	10,7
" 15	180	130	215	92	150	6	12,0
" 20	180	140	215	102	150	6	14,3
" 25	180	150	215	112	150	6	16,4
" 30	180	160	215	122	150	6	18,5
" 40	180	180	215	142	150	6	23,1
" 50	240	156	290	118	200	9	28,0
" 60	240	161	290	123	200	9	30,7
" 80	240	196	290	158	200	9	41,7
" 100	240	221	290	183	200	9	51

TECHNICAL CHARACTERISTICS	
Frequency	50 Hz
Resonance frequency	189 Hz (P = 7 %)
Capacitor voltage	440 V
Line voltage	400 V
Insulation	Class F - 155° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz)
Harmonic currents	I3 = 8 % I5 = 31 % I7 = 13 %
Thermal overload factor	5 %
Over current In	6 %
Tolerance inductance	+ / - 3 %
Protection degree	IP - 00
Ambient temperature	ta = 40° C
Temperature rise	< 90° C
Standards	IEC/EN/UNE-EN 60289 CE
Includes	Bimetal thermal protection



Step of the capacitor bank.



SERIES RTOX

three phase inductors for converter output, IP-00

Inductors for the filtering of the
converter output voltage

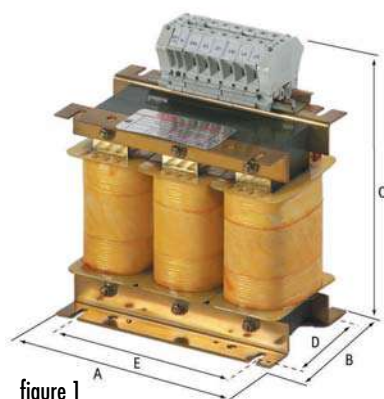


figure 1

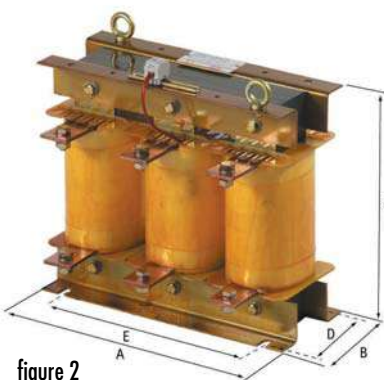
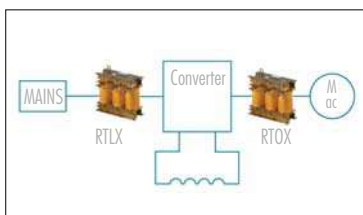


figure 2



Installation of the inductors.

REFERENCES			
In (A)	L (mH)	Ref.	Voltage drop
2,5	8,821	RTOX 2,5	3 %
4	5,513	" 4	3 %
5	4,411	" 5	3 %
6,3	3,501	" 6,3	3 %
8	2,757	" 8	3 %
10	2,205	" 10	3 %
12,5	1,764	" 12,5	3 %
16	1,378	" 16	3 %
20	1,103	" 20	3 %
25	0,882	" 25	3 %
31,5	0,700	" 31,5	3 %
40	0,551	" 40	3 %

REFERENCES			
In (A)	L (mH)	Ref.	Voltage drop
50	0,441	RTOX 50	3 %
63	0,350	" 63	3 %
80	0,276	" 80	3 %
100	0,221	" 100	3 %
125	0,176	" 125	3 %
160	0,138	" 160	3 %
200	0,110	" 200	3 %
250	0,088	" 250	3 %
315	0,070	" 315	3 %
400	0,055	" 400	3 %
500	0,044	" 500	3 %
630	0,035	" 630	3 %

Applications

- Attenuation of the voltage spikes at the output of the converter; these spikes cause premature deterioration of the motor isolation.
- Reduction of the voltage wave reflection caused by the length of the cable between the converter and the motor. This reflection amplifies the voltages at the motor terminals.

Remarks

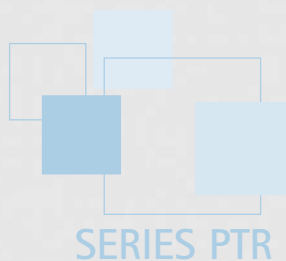
- These inductors are recommended for cable lengths of 50m or more.

DIMENSIONS / WEIGHTS

Reference	dimensions mm							Weight kg	Figure
	A	B	C	D	E	Ø			
RTOX 2,5	150	85	242	57	125	9	2,0	1	
" 4	150	95	242	67	125	9	3,2	1	
" 5	150	95	242	67	125	9	3,3	1	
" 6,3	150	95	242,5	67	125	9	3,4	1	
" 8	150	100	243	72	125	9	4,0	1	
" 10	150	105	243,3	77	125	9	4,7	1	
" 12,5	150	110	244	82	125	9	5,4	1	
" 16	150	115	244,5	87	125	9	6,3	1	
" 20	150	125	244,8	97	125	9	7,8	1	
" 25	150	130	245	102	125	9	8,5	1	
" 31,5	180	125	281	97	150	9	11,1	1	
" 40	180	140	281	112	150	9	13,9	1	
" 50	180	155	281	127	150	9	16,7	1	
" 63	180	180	281	152	150	9	21,3	1	
" 80	240	196	287,5	168	200	9	27,3	1	
" 100	240	211	287,5	183	200	9	32,4	1	
" 125	240	236	287,5	208	200	9	40,7	1	
" 160	300	192	395	164	250	11	38,7	2	
" 200	300	212	395	184	250	11	49,1	2	
" 250	300	232	395	204	250	11	59	2	
" 315	300	267	395	239	250	11	77	2	
" 400	300	292	396	264	250	11	93	2	
" 500	360	304	466,5	276	300	11	128	2	
" 630	360	344	466,5	316	300	11	159	2	

TECHNICAL CHARACTERISTICS

Line voltage	400 V, 50 Hz
Voltage drop (uk)	3 %
Thermal overload factor	5 %
Ambient temperature	ta = 40° C
Insulation	Class F-155°C
Temperature rise	< 90° C
Test voltage	3 kV (1 min, 50 Hz)
Protection degree	IP - 00
Standards	IEC/EN/UNE-EN 60289 CE
Includes	Bimetal thermal protection



single phase transformer rectifier units IP-20



Without capacitor filter
Non stabilised DC power supply

For cast resin transformer rectifier units, see page 47.

REFERENCES

Output current A (DC)	Input voltage V	Referencias		
		Output voltage 12 V (DC)	Output voltage 24 V (DC)	Output voltage 48 V (DC)
1,6	230	PTRA 1,6	PTRB 1,6	PTRC 1,6
2,5	"	" 2,5	" 2,5	" 2,5
4	"	" 4	" 4	" 4
6,3	"	" 6,3	" 6,3	" 6,3
10	"	" 10	" 10	" 10
16	"	" 16	" 16	" 16
25	"	" 25	" 25	" 25
40	"	" 40	" 40	" 40
63	"	" 63	" 63	" 63

PTRA DIMENSIONS / WEIGHTS

Output current A (DC)	Dimensions mm (Output 12 V DC)			Weight kg
	A	B	C	
1,6	95	101	98	0,74
2,5	95	101	98	0,90
4	142	123	118	1,3
6,3	143	123	118	1,8
10	159	138	131	2,5
16	177	162	156	3,7
25	267	220	242	7,4
40	329	250	242	9,3
63	339	257	242	12,6

PTRB DIMENSIONS / WEIGHTS

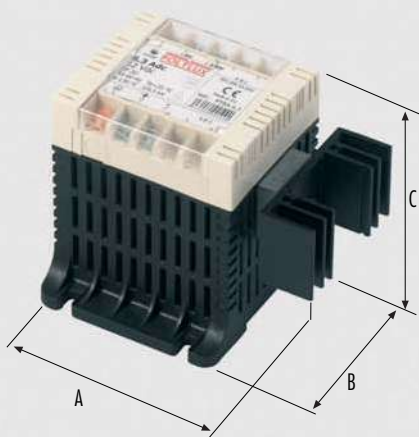
Intensidad Salida A (DC)	Dimensions mm (Output 24 V DC)			Weight kg
	A	B	C	
1,6	117	123	118	1,3
2,5	117	123	118	1,8
4	154	138	131	2,5
6,3	173	162	156	3,1
10	240	220	242	6,6
16	240	220	242	8,2
25	267	220	242	11,2
40	329	250	242	14,3
63	387	260	299	22,1

PTRC DIMENSIONS / WEIGHTS

Output current A (DC)	Dimensions mm (Output 48 V DC)			Weight kg
	A	B	C	
1,6	117	123	118	1,8
2,5	129	138	131	2,5
4	172	162	156	3,7
6,3	236	220	242	7,4
10	240	220	242	9,3
16	240	220	242	15,5
25	267	220	282	16,9
40	377	260	299	27,7

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between input and output 3 kV (1 min, 50 Hz) between input and earth 0,5 kV (1 min 50 Hz) between output and earth
Mounting	By screws (all ratings). DIN Rail for following ratings: PTRA up to 16 A, PTRB up to 6,3 A, PTRC up to 4 A
Output Ripple	48 %
Cover	Polymer of latest technology, non-flammable V-0 according to UL94 up to PTRA40, PTRB25 and PTRC10. Metal enclosure, epoxy polyester painted for higher ratings
Protection degree	IP - 20
Ambient temperature	ta = 25° C
Standards	IEC/EN/UNE-EN 61204 CE
Includes	Fuse in primary as from 300W. Signal LED



SEE REF.

≥ 300 W



SERIES TR

Cast Resin Rectifier Transformer



single phase cast resin transformer rectifier units IP-20

Without capacitor filter
Non stabilised DC power supply



For standard transformer rectifier units, see page 46.

REFERENCES

Output current A (DC)	Input voltage V	References		
		Output voltage 12 V (DC)	Output voltage 24 V (DC)	Output voltage 48 V (DC)
1,6	230	TRA 1,6	TRB 1,6	TRC 1,6
2,5	"	" 2,5	" 2,5	" 2,5
4	"	" 4	" 4	" 4
6,3	"	" 6,3	" 6,3	" 6,3
10	"	" 10	" 10	" 10
16	"	" 16	" 16	" 16
25	"	" 25	" 25	" 25
40	"	" 40	" 40	" 40
63	"	" 63	" 63	" 63

TRA DIMENSIONS / WEIGHTS

Output current A (DC)	Dimensions mm (Output 12 V DC)			Weight kg
	A	B	C	
1,6	80	97	74	0,76
2,5	80	97	84	0,95
4	111	100	99	1,4
6,3	112	100	122	1,9
10	125	102	142	2,9
16	137	112	160	4,0
25	149	122	195	6,3
40	167	145	227	10,0
63	191	165	240	15,0

TRB DIMENSIONS / WEIGHTS

Output current A (DC)	Dimensions mm (Output 24 V DC)			Weight kg
	A	B	C	
1,6	95	96	85	1,3
2,5	95	96	100	1,8
4	120	102	124	2,8
6,3	133	112	128	3,3
10	149	122	157	4,9
16	167	145	191	7,4
25	167	145	237	11,3
40	191	165	250	15,8
63	236	198	288	27,0

TRC DIMENSIONS / WEIGHTS

Output current A (DC)	Dimensions mm (Output 48 V DC)			Weight kg
	A	B	C	
1,6	95	96	100	1,8
2,5	104	102	110	2,7
4	132	112	130	3,8
6,3	145	122	157	5,5
10	167	145	199	9,3
16	191	165	224	13,6
25	191	165	270	17,8
40	236	198	308	31,4
63	281	235	340	49,4

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between input and output 3 kV (1 min, 50 Hz) between input and earth 0,5 kV (1 min 50 Hz) between output and earth
DIN Rail mounting	TRA 1,6, TRA 2,5, TRA 4, TRB 1,6 and TRB 2,5
Output Ripple	48 %
Cover	Cast resin
Protection degree	IP - 20
Ambient temperature	ta = 25° C
Standards	IEC/EN/UNE-EN 61204 CE
Includes	Fuse in primary as from 300W



SEE REF.

≥ 300 W



Cast Resin Rectifier Transformer



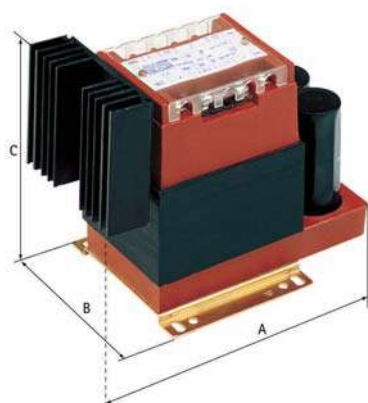
single phase cast resin transformer rectifier units with filter IP-20



With capacitor filter
Non stabilised DC power supply

REFERENCES

Output current A (DC)	Input voltage V	With capacitor filter		
		Output voltage 12 V (DC)	Output voltage 24 V (DC)	Output voltage 48 V (DC)
1,6	230	TRFA 1,6	TRFB 1,6	TRFC 1,6
2,5	"	" 2,5	" 2,5	" 2,5
4	"	" 4	" 4	" 4
6,3	"	" 6,3	" 6,3	" 6,3
10	"	" 10	" 10	" 10
16	"	" 16	" 16	" 16
25	"	" 25	" 25	" 25



TRFA	DIMENSIONS / WEIGHTS			
Output current A (DC)	Dimensions mm (Output 12 V DC)			Weight kg
	A	B	C	
1,6	133	97	84	1,1
2,5	148	96	99	1,5
4	164	96	122	2,0
6,3	174	102	142	3,0
10	190	112	150	3,7
16	202	122	185	5,4
25	250	250	205	8,6

TRFB	DIMENSIONS / WEIGHTS			
Output current A (DC)	Dimensions mm (Output 24 V DC)			Weight kg
	A	B	C	
1,6	148	96	85	1,5
2,5	148	96	100	2,0
4	173	102	124	3,0
6,3	186	112	138	4,1
10	202	122	167	6,0
16	220	145	211	9,9
25	270	280	225	15,0

TRFC	DIMENSIONS / WEIGHTS			
Output current A (DC)	Dimensions mm (Output 48 V DC)			Weight kg
	A	B	C	
1,6	157	102	110	2,9
2,5	169	112	106	3,5
4	197	122	149	5,8
6,3	216	145	169	7,7
10	220	145	209	11,2
16	244	165	234	16,1
25	290	310	265	27,7

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class B - 130° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between input and output 3 kV (1 min, 50 Hz) between input and earth 0,5 kV (1 min 50 Hz) between output and earth
Output Ripple	5 %
Cover	Cast resin
Protection degree	IP - 20
Ambient temperature	ta = 25° C
Standards	IEC/EN/UNE-EN 61204 CE
Includes	Fuse in primary as from the references TRFA16, TRFB10 and TRFC4 DIN Rail mounting for the references TRFA 1,6, TRFA 2,5, TRFB 1,6 and TRFB 2,5



SEE REF.

SEE REF.



Cast Resin Rectifier Transformer



three phase cast resin transformer rectifier units

Non stabilised DC power supply



REFERENCES

Output current A (DC)	Input voltage V	References			
		Output voltage 12 V (DC)	Output voltage 24 V (DC)	Output voltage 48 V (DC)	
10	400	TRTA 10	TRTB 10	TRTC 10	
16	"	" 16	" 16	" 16	
25	"	" 25	" 25	" 25	
40	"	" 40	" 40	" 40	
63	"	" 63	" 63	" 63	
100	"	" 100	" 100	" 100	
160	"	" 160	" 160	" 160	
250	"	" 250	" 250	" 250	
400	"	" 400	" 400	" 400	
500	"	" 500	" 500	" 500	
630	"	" 630	" 630	" 630	
800	"	" 800	" 800	" 800	
1000	"	" 1000	" 1000	" 1000	

TRTA DIMENSIONS / WEIGHTS

Output current A (DC)	Dimensions mm (Output 12 V DC)			Weight kg
	A	B	C	
10	180	211	203	3,8
16	180	211	203	3,8
25	180	305	203	5,9
40	240	352	253	9,5
63	240	318	253	15,0
100	300	294	303	23,9
160	300	405	303	31,4
250	360	405	353	47,3
400	420	591	419	73
500	420	636	469	84
630	480	785	480	104
800	480	675	480	124
1000	630	640	780	133

TRTB DIMENSIONS / WEIGHTS

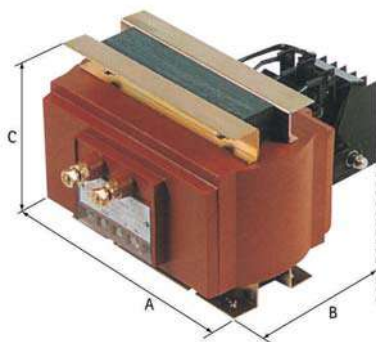
Output current A (DC)	Dimensions mm (Output 24 V DC)			Weight kg
	A	B	C	
10	180	211	203	3,8
16	180	206	203	5,9
25	180	363	203	6,4
40	240	318	253	12,0
63	300	294	303	23,9
100	300	330	303	31,4
160	360	405	353	47,3
250	420	436	419	73
400	480	710	480	104
500	480	755	480	124
630	630	795	780	133
800	630	648	780	161
1000	710	598	880	189

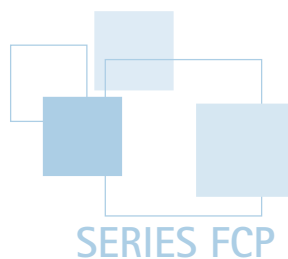
TRTC DIMENSIONS / WEIGHTS

Output current A (DC)	Dimensions mm (Output 48 V DC)			Weight kg
	A	B	C	
10	180	206	203	5,9
16	240	253	253	9,5
25	240	318	253	12,0
40	300	289	303	27,40
63	300	330	303	39,50
100	360	345	353	54
160	420	481	469	84
250	480	600	480	124
400	630	728	780	161
500	710	678	880	189
630	710	855	880	229
800	710	744	880	326
1000	839	817	1115	463

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Insulation	Class F - 155° C
Windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between input and output 3 kV (1 min, 50 Hz) between input and earth 0,5 kV (1 min 50 Hz) between output and earth
Output Ripple	4 %
Cover	Cast resin
Protection degree	IP - 20 (up to 16 A), IP - 00 (as from 25 A)
Ambient temperature	ta = 30° C
Standards	IEC/EN/UNE-EN 61204 CE
Includes	Bimetal thermal protection Signal LED





Switch mode power supplies IP-20

Switched power supplies



figure 1



figure 2

REFERENCES

Output current A (DC)	Reference	Input voltage V (AC)	Output voltage V (DC)
1	FCP 1	100 ~ 240	24
3	" 3	100 ~ 240	24
5	" 5	100 ~ 240	24
10	" 10	100 ~ 240	24

- Protected against over voltage.
- Protected against overload.
- Protected against short circuit.

DIMENSIONS / WEIGHTS

Output current A (DC)	Reference	dimensions mm			Weight kg	Figure
		A	B	C		
1	FCP 1	45	75	97	0,18	1
3	" 3	56	121	110	0,57	2
5	" 5	75	121	110	0,65	2
10	" 10	100	121	110	1,05	2

TECHNICAL CHARACTERISTICS FCP1 FCP3 FCP5 FCP10

Input	Nominal voltage	100 ~ 240 VAC
	Frequency	47 ~ 63 Hz
Output	Hold- up time	10 ms Min
	Over voltage protection	Auto recovery
	Overload protection	Power limited
	Short circuit protection	Auto recovery
	Transient response	
	Voltage deviation	5 % (load change 50 % to 100 %)
	Recovery time	500 us (load change 50 % to 100 %)
Ambient temperature		ta = 50° C
Protection degree		IP - 20
Standards		EN550011, EN55022, EN61000
Includes		Signal LED. DIN rail mounting





Single phase linear stabilised power supplies IP-20

DC power supply for equipment that require a stabilised input voltage
With isolating transformer



For cast resin linear power supplies, see page 52.

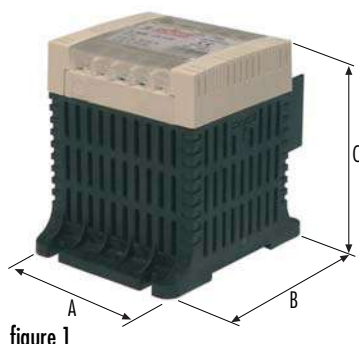


figure 1

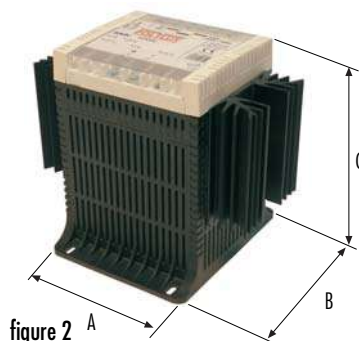


figure 2

REFERENCES

Output current A (DC)	Input voltage V (AC)	References	
		Output voltage 12 V (DC)	Output voltage 24 V (DC)
1	230 / 400	PFA 1	PFA 1
2	" "	" 2	" 2
4	230 / 400 / 460	" 4	" 4
8	" "	" 8	" 8

DIMENSIONS / WEIGHTS

Reference	dimensions mm						Weight kg	Figure
	A	B	C	D	E	Ø		
PFA 1	83	116	98	88	55	5	0,8	1
PFA 1	83	116	98	88	55	5	1,0	1
PFA 2	152	180	156	145	104	6	1,7	1
PFA 2	152	180	156	145	104	6	2,3	1
PFA 4	171	180	156	145	104	6	5,8	2
PFA 4	171	180	156	145	104	6	7,0	2
PFA 8	206	180	156	145	104	6	7,3	2
PFA 8	206	180	156	145	104	6	8,3	2

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Transformer insulation	Class B - 130° C
Transformer windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between input and output 3 kV (1 min, 50 Hz) between input and earth 0,5 kV (1 min 50 Hz) between output and earth
Input voltage margin	+ / - 10 %
Output voltage accuracy	+ / - 2 %
Output ripple	< 0,1 %
Output voltage adjustment	+ / - 10 % by potentiometer (except PFA 1 and PFA 2)
Output protection	Galvanic isolation by isolating transformer, overload protection, short-circuitable
Cover	Polymer of latest technology, non-flammable V-0 according to UL94
Protection degree	IP - 20
Ambient temperature	ta = 25° C
Standards	Functional: IEC/EN/UNE-EN 61204 Safety: IEC/EN/UNE-EN 60950 Interferences: IEC 61000-3-2/3, IEC 61000-4-2/4/5/8/11, EN/UNE-EN 55022 CE directives: 73/23 CEE, 93/68 CEE, 86/336 CEE
Includes	DIN Rail mounting for PFA1, PFA2, PFA3 and PFA4, signal LED



I ≤ 2A



Single phase cast resin linear stabilised power supplies IP-20

DC power supply for equipment that require a stabilised input voltage
With isolating transformer



For standard linear power supplies, see page 51.

Cast Resin



REFERENCES				
Output current A (DC)	Input voltage V (AC)	References		
		Output voltage 12 V (DC)	Output voltage 12/ 24 V (DC)	
1	230 / 400	FAB 1	FA 1 (sólo 24 V)	
2	" "	" 2	" 2	
4	230 / 400 / 460	" 4	" 4	
8	" "	" 8	" 8	
12	" "	" 12	" 12	
16	" "	" 16	" 16	
20	" "	" 20	" 20	

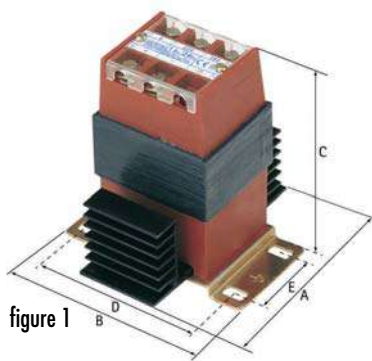


figure 1

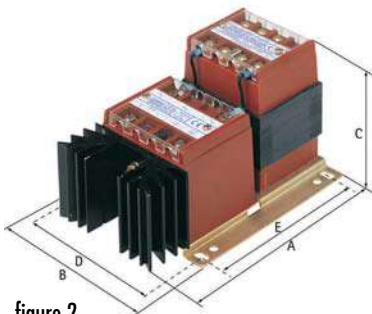


figure 2

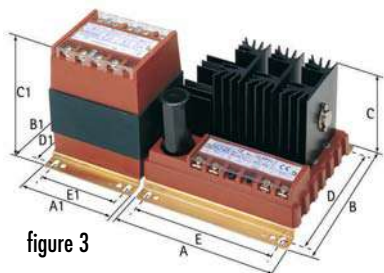
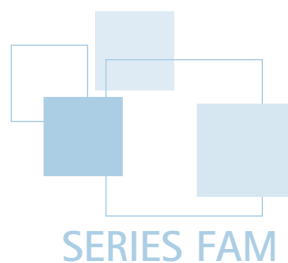


figure 3

DIMENSIONS / WEIGHTS														
Reference	dimensions mm													Figure
	A	B	C	D	E	Ø	A1	B1	C1	D1	E1	Ø1	Total Weight kg	
FAB 1	80	98	98	81	34	6							0,88	1
FA 1	80	98	108	81	34	6							1,1	1
FAB 2	175	112	86	92	119	7							2,2	2
FA 2	175	112	100	92	119	7							2,7	2
FAB 4	123	152	102	125	102	7	84	102	110	86	65	6	4,5	3
FA 4	123	152	102	125	102	7	96	112	106	96	77	6	5,0	3
FAB 8	152	164	102	125	102	7	96	112	116	96	77	6	6,0	3
FA 8	152	164	102	125	102	7	108	122	135	106	89	6	7,7	3
FAB 12	205	197	150	178	173	7	108	122	135	106	89	6	9,7	3
FA 12	205	197	150	178	173	7	126	145	167	125	102	7	13,4	3
FAB 16	260	197	150	178	173	7	126	145	147	125	102	7	12,3	3
FA 16	260	197	150	178	173	7	150	165	170	145	125	7	15,4	3
FAB 20	318	197	150	178	173	7	126	145	167	125	102	7	15,4	3
FA 20	318	197	150	178	173	7	150	165	180	145	125	7	19,6	3

TECHNICAL CHARACTERISTICS	
Frequency	50 - 60 Hz
Transformer insulation	Class B - 130° C
Transformer windings	Class HC - 200° C
Test voltage	3 kV (1 min, 50 Hz) between input and output 3 kV (1 min, 50 Hz) between input and earth 0,5 kV (1 min 50 Hz) between output and earth
Input voltage margin	+ / - 10 %
Output voltage accuracy	+ / - 2 %
Output ripple	< 0,1 %
Output voltage adjustment	+ / - 10 % by potentiometer (except for FA 1 and FAB 1)
Output protection	Galvanic isolation by isolating transformer. Overload protection. Short-circuitable
Cover	Cast resin
Protection degree	IP - 20
Ambient temperature	ta = 25° C
Standards	Functional: IEC/EN/UNE-EN 61204 Safety: IEC/EN/UNE-EN 60950 Interferences: IEC 61000-3-2/3, IEC 61000-4-2/4/5/8/11, EN/UNE-EN 55022 CE directives: 73/23 CEE, 93/68 CEE, 86/336 CEE
Includes	Signal LED. DIN Rail mounting for FA 1 and FAB 1





Single phase cast resin linear stabilised power modules IP-20



DC power supply for equipment that require a stabilised input voltage
Without isolating transformer

Cast Resin Module



REFERENCES

Output current A (DC)	Input voltage V (AC)	Output voltage V (DC)	Reference
1	24	24	FAM 1
2	"	"	" 2
4	"	"	" 4
8	"	"	" 8
12	"	"	" 12
16	"	"	" 16
20	"	"	" 20

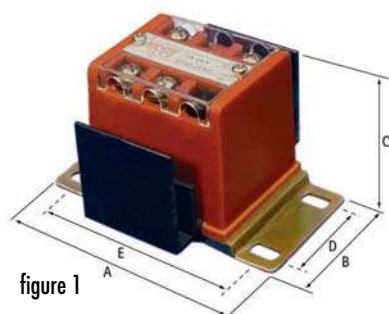


figure 1

DIMENSIONS / WEIGHTS

Reference	dimensions mm						Weight kg	Figure
	A	B	C	D	E	Ø		
FAM 1	98	80	52	34	80	6	0,3	1
" 2	112	100	81	77	96	6	0,9	2
" 4	123	152	102	125	102	7	1,8	3
" 8	152	164	102	125	102	7	2,3	3
" 12	205	197	150	178	173	7	4,3	3
" 16	260	197	150	178	173	7	5,2	3
" 20	318	197	150	178	173	7	6,3	3

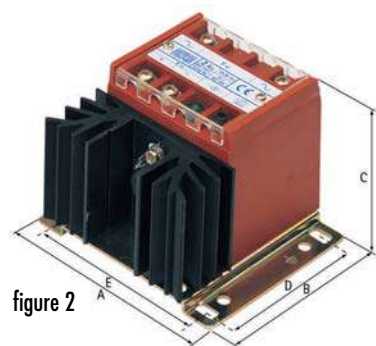


figure 2

TECHNICAL CHARACTERISTICS

Frequency	50 - 60 Hz
Test voltage	0,5 kV (1 min, 50 Hz) between input/output and earth
Input voltage margin	+ 15 % / - 5 %
Output voltage accuracy	+ / - 2 %
Output ripple	< 0,1 %
Output voltage adjustment	+/-10% by potentiometer (except FAM 1)
Output protection	Overload protection. Short-circuitable
Cover	Cast resin
Protection degree	IP - 20
Ambient temperature	ta = 25° C
Standards	Functional: IEC/EN/UNE-EN 61204 Safety: IEC/EN/UNE-EN 60950 Interferences: IEC 61000-3-2/3, IEC 61000-4-2/4/5/8/11, EN 55022 CE directives: 73/23 CEE, 93/68 CEE, 86/336 CEE
Includes	Signal LED. DIN Rail mounting for FAM 1

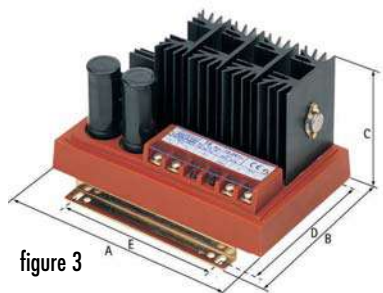


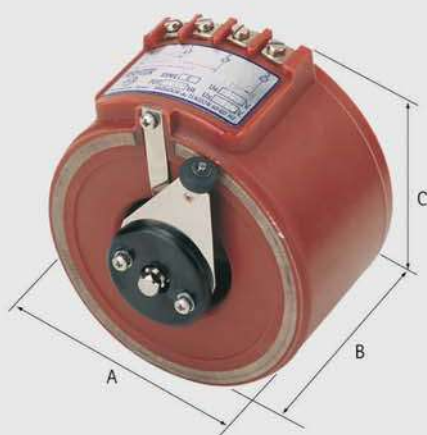
figure 3





SERIES E

Cast Resin



SERIES ET

Cast Resin



single phase toroidal voltage regulating autotransformers IP-00



Input voltage 230 V · Output voltage 0 to 230 V

REFERENCES			DIMENSIONS / WEIGHTS									
Rating VA	Reference		Rating VA	dimensions mm (Ref. E)			Weight kg	dimensions mm (Ref. EM)			Weight kg	
	Manual	Motorised		A	B	C		A	B	C		
350	E	350	EM	350								
500	"	500	"	500								
1000	"	1000	"	1000								
2000	"	2000	"	2000								
2500	"	2500	"	2500								
3000	"	3000	"	3000								
4000	"	4000	"	4000								
5000	"	5000	"	5000								
6000	"	6000	"	6000								

TECHNICAL CHARACTERISTICS		E	EM
Frequency		50 - 60 Hz	
Insulation		Class B - 130° C	
Windings		Class HC - 200° C	
Test voltage		3 kV (1 min, 50 Hz) between windings and earth	
Cover		Cast resin	
Protection degree		IP - 00	
Standards		IEC/EN/UNE-EN 60989	CE
Includes		Knob and front plate	

three phase toroidal voltage regulating autotransformers IP-00

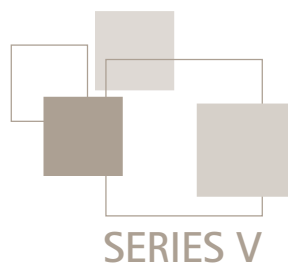


Input voltage 400 V · Output voltage 0 to 400 V

REFERENCES			
Rating kVA	Reference		
	Manual	Motorised	
1	ET 1	ETM 1	
1,5	" 1,5	" 1,5	
3	" 3	" 3	
6	" 6	" 6	
7,5	" 7,5	" 7,5	
9	" 9	" 9	
12	" 12	" 12	
15	" 15	" 15	

DIMENSIONS / WEIGHTS													
Rating kVA	dimensions mm (Ref. ET)						Weight kg	dimensions mm (Ref. ETM)					
	A	B	C	D	E	Ø		A	B	C	D	E	Ø
1	120	130	375	100	100	M6	9,4	155	130	365	100	100	M6
1,5	120	130	375	100	100	M6	10,4	155	130	375	100	100	M6
3	120	130	375	100	100	M6	13,5	155	130	435	100	100	M6
6	165	175	460	135	135	M6	23,5	165	175	460	135	135	M6
7,5	200	210	515	170	170	M8	35,0	200	210	525	170	170	M8
9	235	242	545	195	195	M8	45,0	235	242	555	195	195	M8
12	285	295	610	255	255	M8	61	285	293	600	255	255	M8
15	320	320	610	255	255	M8	65	320	295	600	255	255	M8

TECHNICAL CHARACTERISTICS		ET	ETM
Frequency		50 - 60 Hz	
Insulation		Class B - 130° C	
Windings		Class HC - 200° C	
Test voltage		3 kV (1 min, 50 Hz) between windings and earth	
Cover		Cast resin	
Protection degree		IP - 00	
Standards		IEC/EN/UNE-EN 60989	CE
Includes		Knob and front plate	



single phase automatic voltage stabilisers IP-20

Input voltage 230 V · Output voltage 230 V



REFERENCES

Rating kVA	Reference	
	without isolating transformer	with isolating transformer
5	VK 5	VCTK 5
6,3	" 6,3	" 6,3
8	" 8	" 8
10	" 10	" 10
16	" 16	" 16
20	" 20	" 20
25	" 25	" 25
31,5	" 31,5	" 31,5
40	" 40	" 40

For voltages 400/400 V a 3% surcharge to be added to 230/230 V prices.



DIMENSIONS / WEIGHTS

Rating kVA	Reference	without isolating transformer dimensions mm			Weight kg	Reference	with isolating transformer dimensions mm			Weight kg
		A	B	C			A	B	C	
5	VK 5	380	480	515	33,4	VCTK 5	380	610	670	125
6,3	" 6,3	380	480	515	35,9	" 6,3	380	610	670	125
8	" 8	380	480	515	41,4	" 8	380	610	670	147
10	" 10	380	480	515	54	" 10	670	810	986	229
16	" 16	380	610	670	103	" 16	670	810	986	298
20	" 20	380	610	670	132	" 20	670	810	986	347
25	" 25	380	610	670	139	" 25	670	810	986	381
31,5	" 31,5	670	810	986	214	" 31,5	820	1210	1360	458
40	" 40	670	810	986	247	" 40	820	1210	1360	524

TECHNICAL CHARACTERISTICS

VK

VCTK

Operation principle	Electro mechanic, by electronically controlled regulating autotransformer	
Frequency	50 - 60 Hz	
Input voltage margin	+ 15 % - 15 %	
Output voltage accuracy	+/- 1 %	
Output voltage adjustment	+/- 4 % by potentiometer	
Response time	10 V/s	
Efficiency	> 96 %	
Protections	MCB in input	
Cover	In metal enclosure, epoxy polyester painted	
Protection degree	IP - 20	
Standards	IEC/EN/UNE-EN 60439 CE	
Includes	Signal light. Output voltmeter MCB	
Options	Digital voltmeter. Voltage out of range protection Overload protection	





three phase automatic voltage stabilisers IP-20

Input voltage 400 V · Output voltage 400 V



REFERENCES

Rating kVA	Reference			
	Three phase control		Individual phase control	
	without isolating transformer	with isolating transformer	without isolating transformer	with isolating transformer
5	VT 5	VTCT 5	VTF 5	VTFCT 5
8	" 8	" 8	" 8	" 8
10	" 10	" 10	" 10	" 10
16	" 16	" 16	" 16	" 16
20	" 20	" 20	" 20	" 20
25	" 25	" 25	" 25	" 25
31,5	" 31,5	" 31,5	" 31,5	" 31,5
40	" 40	" 40	" 40	" 40
50	" 50	" 50	" 50	" 50
63	" 63	" 63	" 63	" 63
80	" 80	" 80	" 80	" 80
100	" 100	" 100	" 100	" 100

For voltages 230/230 V a 3% surcharge to be added to 400/400 V prices.

Three phase control

DIMENSIONS / WEIGHTS

Rating kVA	Reference	without isolating transformer dimensions mm			Weight kg	Reference	with isolating transformer dimensions mm			Weight kg
		A	B	C			A	B	C	
5	VT 5	380	480	515	35,0	VTCT 5	380	480	515	82
8	" 8	380	480	515	44,3	" 8	380	610	670	143
10	" 10	380	480	515	48,1	" 10	380	610	670	158
16	" 16	380	480	515	66	" 16	380	610	670	216
20	" 20	380	480	515	70	" 20	670	810	986	286
25	" 25	380	610	670	117	" 25	670	810	986	336
31,5	" 31,5	670	810	986	211	" 31,5	670	810	986	400
40	" 40	670	810	986	218	" 40	820	1210	1360	483
50	" 50	670	810	986	241	" 50	820	1210	1360	570
63	" 63	670	810	986	324	" 63	820	1210	1360	714
80	" 80	670	810	986	364	" 80	820	1210	1360	852
100	" 100	820	1210	1360	496	" 100	820	1210	1360	1024

Individual phase control

DIMENSIONS / WEIGHTS

Rating kVA	Reference	without isolating transformer dimensions mm			Weight kg	Reference	with isolating transformer dimensions mm			Weight kg
		A	B	C			A	B	C	
5	VTF 5	380	480	515	39,6	VTFCT 5	380	610	670	157
8	" 8	380	480	515	53	" 8	670	810	986	244
10	" 10	380	610	670	85	" 10	670	810	986	286
16	" 16	670	810	986	163	" 16	670	810	986	325
20	" 20	670	810	986	174	" 20	820	1210	1360	400
25	" 25	670	810	986	185	" 25	820	1210	1360	466
31,5	" 31,5	670	810	986	250	" 31,5	820	1210	1360	564
40	" 40	670	810	986	265	" 40	820	1210	1360	618
50	" 50	820	1210	1360	328	" 50	820	1210	1360	740
63	" 63	820	1210	1360	448	" 63	820	1210	1360	919
80	" 80	820	1210	1360	499	" 80	820	1210	1360	1054
100	" 100	820	1210	1360	608	" 100	820	1210	1360	1221

TECHNICAL CHARACTERISTICS	VT	VTCT	VTF	VTFCT
Operation principle	Electro mechanic, by electronically controlled regulating autotransformer			
Frequency	50 - 60 Hz			
Input voltage margin	+ 15 % - 15 %			
Output voltage accuracy	+/- 1 %			
Output voltage adjustment	+/- 4 % by potentiometer			
Response time	10 V/s			
Efficiency	> 96 %			
Measurement	between L1 - L2		between L1 - L2, L2 - L3 y L3 - L1	
Stabilisation principle	common for all three phases (for balanced loads and voltage fluctuations)		individual for each phase (for unbalanced loads and voltage fluctuations)	
Protections	MCB in input			
Cover	In metal enclosure, epoxy polyester painted			
Protection degree	IP - 20			
Standards	IEC/EN/UNE-EN 60439		CE	
Includes	Signal light. Output voltmeter. MCB			
Options	Digital voltmeter. Voltage out of range protection. Overload protection			

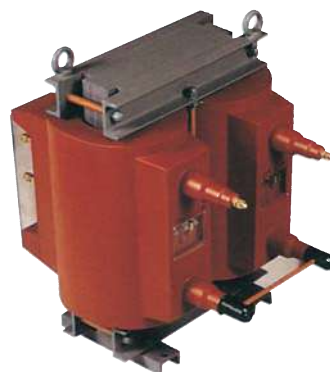


Cast Resin Transformer



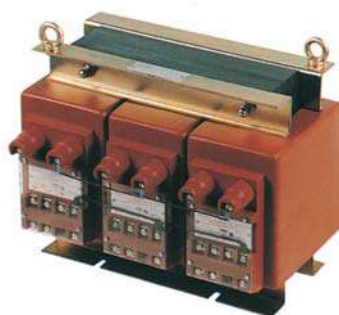
Single phase cast resin transformers

Maximum voltage 6 kV



Three phase cast resin transformers

Maximum voltage 6 kV · Ratings up to 500 kVA



Single phase cast resin transformers

for high currents



General Sales Terms



- The PRICES of our products are quoted in EURO, on Ex Works Cerdanyola del Vallès (Barcelona), Spain, base and always those valid at the time of shipment will be applicable.
- Standard PACKING for road, air or consolidated container shipment is included.
- PAYMENT will be arranged in advance by bank transfer or by irrevocable Letter of Credit payable at sight upon delivery of shipping documents to bank. Letter of Credit is accepted only if opened to banks indicated by POLYLUX and for minimum net amounts of 6000,00 EURO.
- DELIVERY TIME is to be understood in our premises for completely fulfilled orders, ready for delivery to forwarders.
- SPECIAL or CUSTOM MADE items must be covered by a written order and it is not until the time of receiving such formal order that they will be considered as firm.
- Whenever payment terms other than above may be agreed upon, the goods shall remain the FULL OWNERSHIP of POLYLUX, S.L. until total settlement is accomplished.
- No RETURNS can be accepted without the prior agreement from our Sales Departments and, in any case, in excess of 15 days from receipt of goods. In case of such agreements, return shall be made freight prepaid. When standard stock items are involved and the reasons for return are not the fault of POLYLUX, S.L., then goods will be applied a 15% depreciation on invoice value.
- Goods returned to POLYLUX for repair or any purpose whatsoever, and for which no written instructions are received within a period of six months, will be definitely turned down and discharged, the customer having no further rights over such material.
- All our products are covered by a 1 year GUARANTEE as from the date of shipment and against all manufacturing faults. This guarantee refers strictly to defective parts, to be replaced at our premises and it does not cover the two-way carriage of goods. The buyer agrees to waive the right for claiming indemnities of any kind. The rights covered by this guarantee will be void in case of damage or accidents due to mishandling by the user, or if operation of the units has been carried out under conditions other than those for which they were manufactured or intended.
- The CIVIL LIABILITY of our products expires one year after delivery date.
- Place of jurisdiction for both parties is Barcelona.



POLYLUX
QUALITY AND TECHNOLOGY

C/ Boters, 3B - Parc Tecnològic del Vallès
 08290 Cerdanyola del Vallès Barcelona (Spain)
 Tels. (+34) 93 692 65 65 Fax (+34) 93 580 96 03
<http://www.polylux.com> e-mail: polylux@polylux.com

