variable resistors
preset potentiometers

CTP10 – miniature carbon
10 mm – linear law

For detailed information
Handbook CM2a

Max. dissipation at T_{amb} = 40 °C		0,1 W
	70 °C	0,05 W
Ambient temperature range		−25 to +70 °C

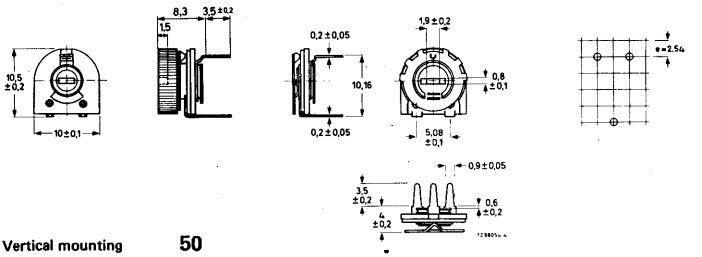
Composition of the catalogue no.

2322 410 . . . .

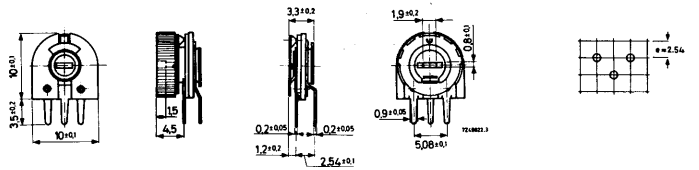
- 0 = without knob
- 4 = with knob (cat. no. of knob: 4322 047 00190)
- 11 = vertical mounting
- 33 = horizontal mounting
- 50 = vertical mounting

resistance code	nom. value ± 20%	I_{max} slider mA
100 Ω	10	51
220	7	52
330	6	69
470	4,5	53
1 kΩ	3,2	54
2,2	2,2	55
4,7	1,4	56
10	1,0	57
22	0,7	58
47	0,45	59
100	0,32	61
220	0,22	62
470	0,22	63
1 MΩ	0,22	64
2,2	0,22	65
4,7	0,14	66

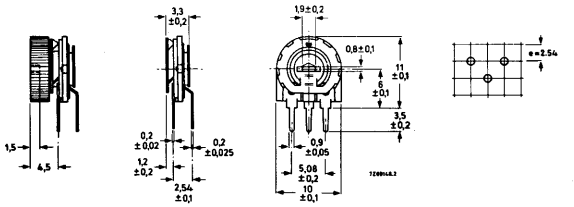
Horizontal mounting **33**



Vertical mounting **50**



Vertical mounting **11**



CTP14 – carbon
14 mm – linear law

Max. dissipation at T_{amb} = 40 °C	0,2 W
Operating temperature range	−25 to +70 °C
Climatic category IEC 68	25/070/21
Basic specification	DIN 44150

Composition of the catalogue no.

2322 409 . . . .

resistance code

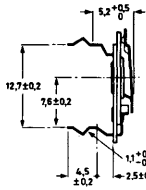
0 = without knob
1 = with knob at base-plate side
2 = with knob at carbon-track side
4 = with adjustment wheel at carbon-track side

horizontal mounting
with snap-in pins 83
straight pins 63
vertical mounting
with snap-in pins 72
straight pins 52

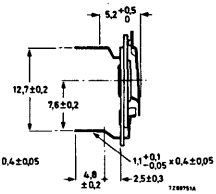
nom. value ±20%	I_{max} slider mA	
100 Ω	45	51
220	30	52
330	24,5	69
470	20,5	53
1 kΩ	14	54
2,2	9,5	55
4,7	6,5	56
10	4,5	57
22	3	58
47	2	59
100	1,4	61
220	0,9	62
470	0,6	63
1 MΩ	0,4	64
2,2	0,3	65
4,7	0,2	66

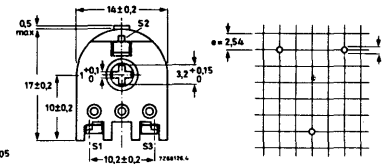
Horizontal mounting

snap-in pins



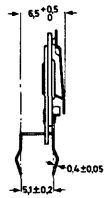
straight pins



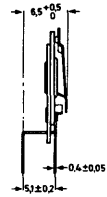


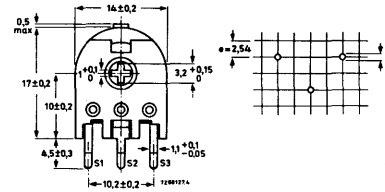
Vertical mounting

snap-in pins

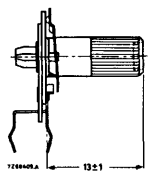


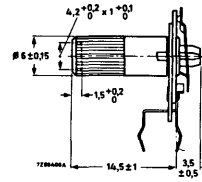
straight pins



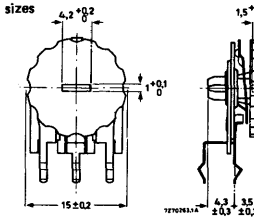


Knob sizes





Wheel sizes



variable resistors

preset potentiometers

CTP18 – carbon
18 mm – linear law

Max. dissipation at T_{amb} = 25 °C		0,25 W
	70 °C	0,15 W
Operating temperature range		−25 to +70 °C

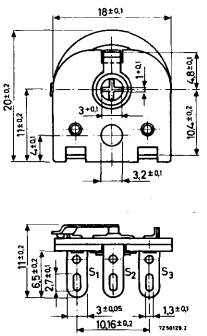
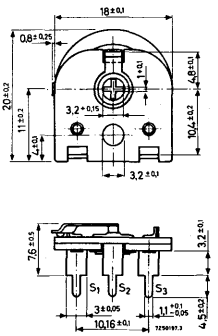


Fig.1
2322 411 000 . .



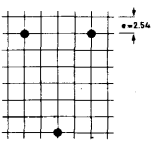
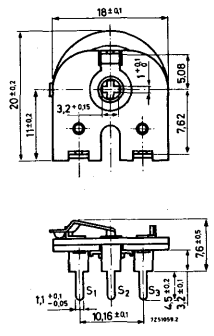


Fig.2
2322 411 033 . .



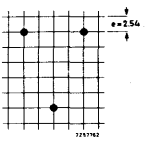
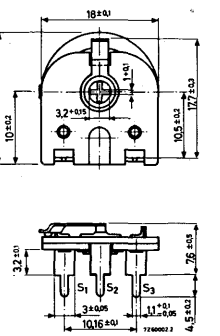


Fig.3
2322 411 083 . .



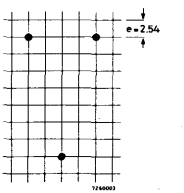
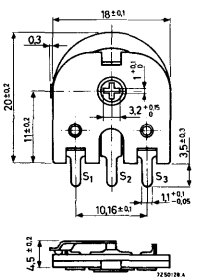


Fig.4
2322 411 084 . .



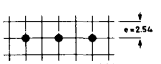
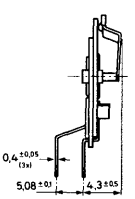
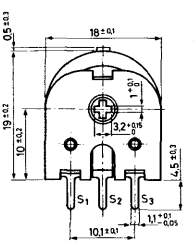


Fig.5
2322 411 022 . .





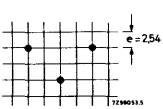
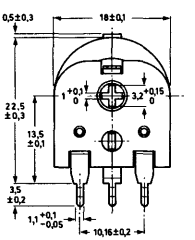


Fig.6
2322 411 072 . .



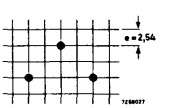
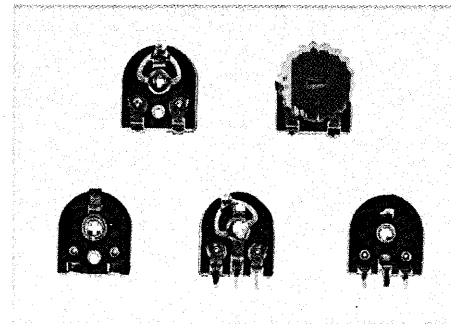


Fig.7
2322 411 073 . .



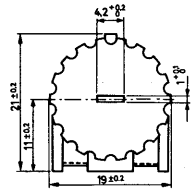


Fig.8
2322 411 433 . .

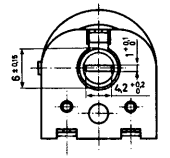


Fig.9
2322 411 133 . .

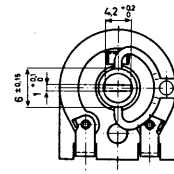


Fig.10
2322 411 233 . .

Composition of the catalogue no.

2322 411 . . . .

- 0 = without knob
- 1 = with knob at base-plate side
- 2 = with knob at carbon-track side
- 3 = with adjustment wheel at base-plate side (only for vertical mounting versions)
- 4 = with adjustment wheel at carbon-track side

. . . . code for resistance value, see table

- 00 = with solder tags (Fig.1)
- 22 = with pins for vertical mounting (Fig.5)
- 33 = with pins for horizontal mounting (Fig.2)
- 72 = with pins for vertical mounting (according to DIN 44150, Fig.6)
- 73 = with pins for vertical mounting (Fig.7)
- 83 = with pins for horizontal mounting (according to DIN 44150, Fig.3)
- 84 = with pins for horizontal mounting (according to DIN 44151, Fig.4)

nom. resistance value R_n	code in catalogue no.
100 Ω	51
220 Ω	52
330 Ω	69
470 Ω	53
1 kΩ	54
2,2 kΩ	55
4,7 kΩ	56
10 kΩ	57
22 kΩ	58
47 kΩ	59
100 kΩ	61
220 kΩ	62
470 kΩ	63
1 MΩ	64
2,2 MΩ	65
4,7 MΩ	66

Note: catalogue no. of adjustment wheel: 4322 047 08230;
catalogue no. of adjustment knob : 4322 047 08280.

variable resistors

preset potentiometers

TMP10 — cermet
10 mm — linear law

Max dissipation at T_{amb} = 70 °C	0,5 W
Operating temperature range	−55 to +70 °C
Limiting slider current	$\sqrt{P_{max}/R_{tot}}$
Tolerance on nominal resistance	± 20%

Horizontal mounting

open version

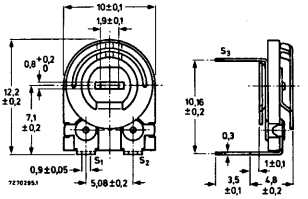


Fig.1a

dust-covered version

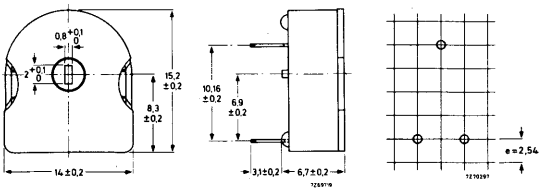


Fig.1b

Vertical mounting

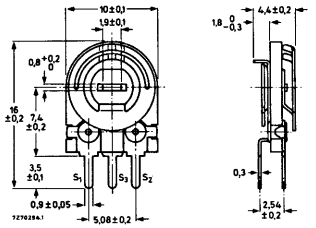


Fig.2a

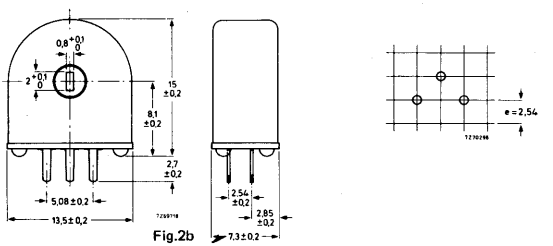


Fig.2b

Composition of the catalogue no.

2322 482 . . . .

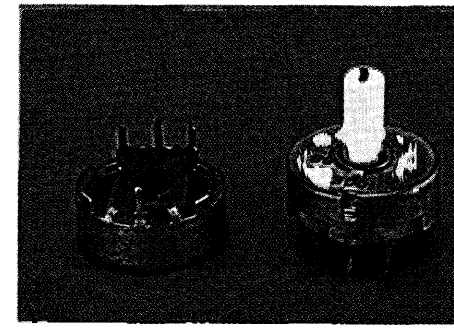
code for version — resistance code, see table

20 = for horizontal mounting (Fig.1a)
21 = dust-covered version for horizontal mounting (Fig.1b)
30 = for vertical mounting (Fig.2a)
31 = dust-covered version for vertical mounting (Fig.2b)

nominal resistance	code in catalogue no.
100 Ω	101
150 Ω	151
220 Ω	221
330 Ω	331
470 Ω	471
680 Ω	681
1 kΩ	102
1,5 kΩ	152
2,2 kΩ	222
3,3 kΩ	332
4,7 kΩ	472
6,8 kΩ	682

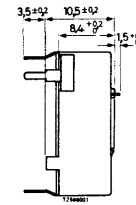
nominal resistance	code in catalogue no.
10 kΩ	103
15 kΩ	153
22 kΩ	223
33 kΩ	333
47 kΩ	473
68 kΩ	683
100 kΩ	104
150 kΩ	154
220 kΩ	224
330 kΩ	334
470 kΩ	474
680 kΩ	684
1 MΩ	105

TWP22 – wirewound
linear law

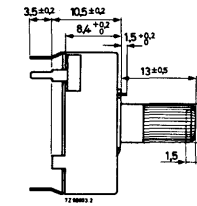


Maximum dissipation at T_{amb} = 40 °C		2 W
	70 °C	1,5 W
Operating temperature		−10 to + 70 °C
Climatic category (IEC 68)		10/070/21

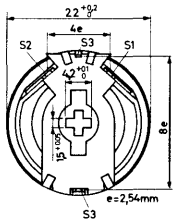
without knob



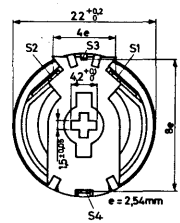
with knob

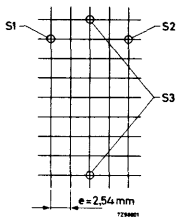


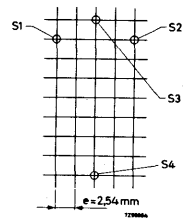
without tap



with tap







Composition of the catalogue no.

2322 011 . . . .
└ resistance code, see table

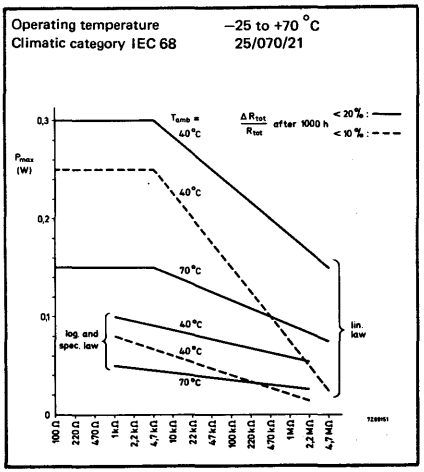
without tap or knob	= 02
with tap, without knob	= 03
without tap, with knob	= 22
with tap and knob	= 23

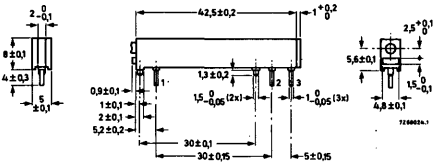
resistance value in Ω	code in catalogue no.
2,2	228
3,3	338
4,7	478
6,8	688
10	109
15	159
22	229
33	339
47	479
68	689
100	101
120	121
150	151
180	181
220	221
330	331
470	471
680	681
1000	102
4700	472
11 + 11	229
50 + 50	101
150 + 150	301

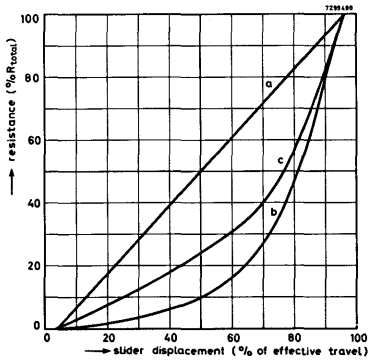
variable resistors
preset potentiometers

MCP10 MCP20 MCP40 – multiturn carbon linear and other laws

Precision multiturn preset potentiometers, widely used in tv and radio tuning.

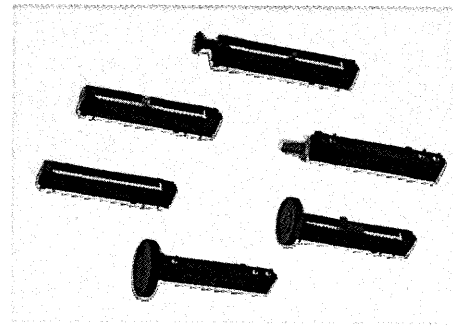






code in catalogue no.

nominal resistance	linear law, curve a	logarithmic law, curve b	special law, curve c
100 Ω	01		
220 Ω	02		
470 Ω	03		
1 kΩ	04	24	
2,2 kΩ	05	25	
4,7 kΩ	06	26	
10 kΩ	07	27	
22 kΩ	08	28	
47 kΩ	09	29	
100 kΩ	11	31	38
220 kΩ	12	32	
470 kΩ	13	33	
1 MΩ	14	34	
2,2 MΩ	15	35	
4,7 MΩ	16		



Composition of the catalogue no.

2322 41 . . . . .

code for number of turns of spindle
2 = 20 turns
3 = 10 turns
4 = 40 turns

code for indicator

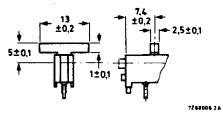
resistance code, see table on previous page

code for adjustment provision,

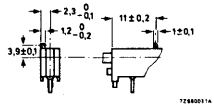
8 without indicator but with dust cover

0 without indicator

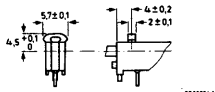
1



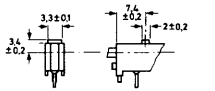
2



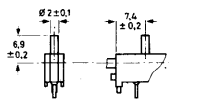
3



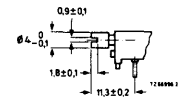
4



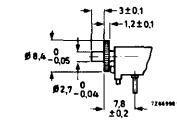
5

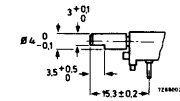


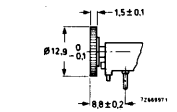
slotted

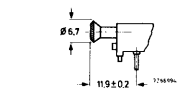


gear-wheel









51 62

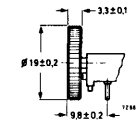
81 61

52 64

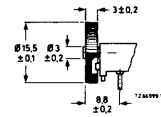
82 63

83

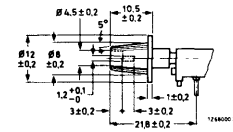
knobs

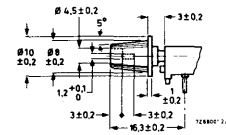


approx. 48 notches



approx. 60 notches



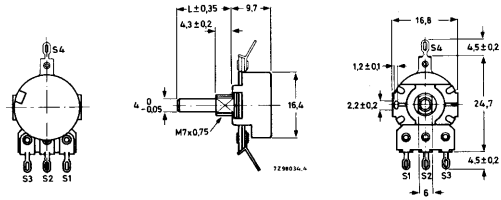


variable resistors
control potentiometers

CP16 — carbon
16 mm — linear and other laws

Widely used in video and audio equipment; switched versions also available.

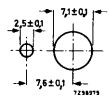
Max dissipation at T_{amb} = 40 °C	
linear	0,1 W
others	0,05 W
Operating temperature	−10 to +70 °C
Climatic category IEC 68	10/070/21
Breaking capacity of switch	
rotary	12 V(d.c.), 2A
push-pull	250 V(a.c.), 1A



Single potentiometer

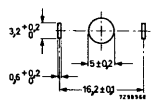
Mounting facilities
required mounting holes in chassis.

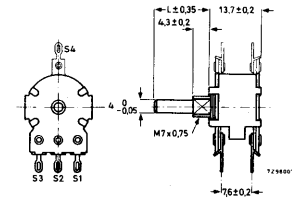
mounting bush
M7 x 0,75



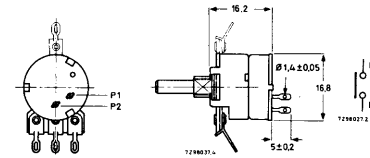
twist tags

Note: not for potentiometers with push-pull switch.

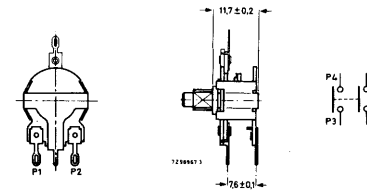




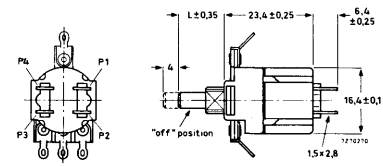
Tandem potentiometer



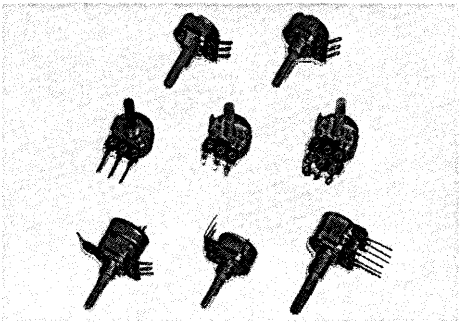
Single potentiometer
with s.p.s.t. rotary switch
(spring actuated).



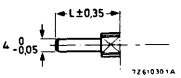
Single potentiometer
with s.p.s.t. rotary switch
(direct operating).



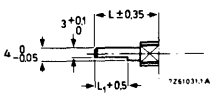
Single potentiometer
with d.p.s.t. push-pull switch.



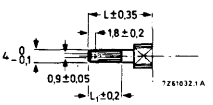
Spindles



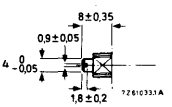
plain



flat-faced

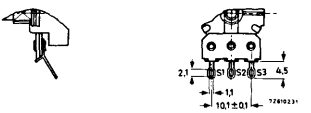


knurled

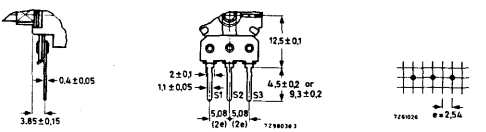


slotted

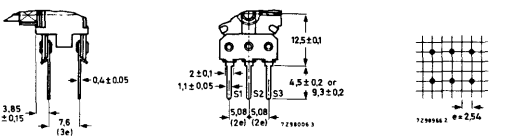
Connecting terminals



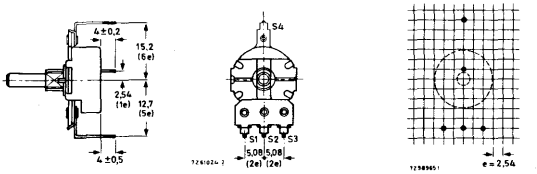
Solder tags



Long or short printed-wiring pins (single potentiometer)



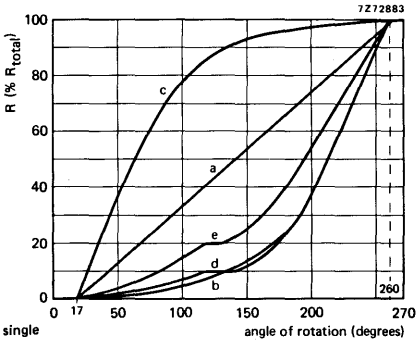
Long or short printed-wiring pins (tandem potentiometer)



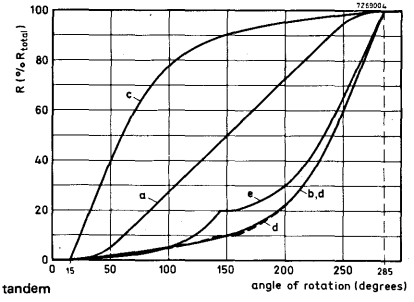
Bent printed-wiring pins

variable resistors
control potentiometers

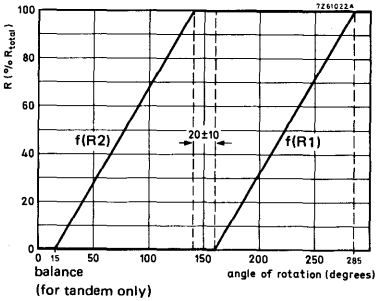
CP16 – carbon
16 mm – linear and other laws



single



tandem



balance
(for tandem only)

code in catalogue no.

nominal resistance	linear law curve a	log. law curve b	rev. log. law curve c	balance curve f
220 Ω	02			
470 Ω	03			
1 kΩ	04	24	44	
2,2 kΩ	05	25	45	
4,7 kΩ	06	26	46	
10 kΩ	07	27	47	91
22 kΩ	08	28	48	92
47 kΩ	09	29	49	93
100 kΩ	11	31	51	94
220 kΩ	12	32	52	95
470 kΩ	13	33	53	96
1 MΩ	14	34	54	97
2,2 MΩ	15	35	55	
4,7 MΩ	16			

code in catalogue no.

nominal resistance	tap at 10% curve d	tap at 20% curve e
5 + 42 kΩ	72	
20 + 200 kΩ	67	
50 + 420 kΩ	73	
100 + 900 kΩ	64	
2 + 8 kΩ		76
5 + 17 kΩ		82
10 + 37 kΩ		86
20 + 80 kΩ		77
50 + 170 kΩ		83
100 + 370 kΩ		87
0,5 + 1,7 MΩ		84

Composition of the catalogue no.

2322 ... .

code for type and switch, see table below

code for terminals, mounting facility, spindle type and length L

code for resistance law and nominal resistance, see table previous page

solder tags				p.w. pins, length 4,5 mm				p.w. pins, length 9,3 mm			
mounting bushing		twist tags		mounting bushing		twist tags		mounting bushing		twist tags	
steel spindle 0..	plastic spindle 7..	steel spindle 2..	plastic spindle 4..	steel spindle 0..	plastic spindle 7..	steel spindle 2..	plastic spindle 4..	steel spindle 1..	plastic spindle 6..	steel spindle 3..	plastic spindle 5..

L =	10 mm = .11	L =	10 mm = .61
	12 mm = .09		12 mm = .59
	15 mm = .12		15 mm = .62
	17 mm = .13		17 mm = .63
	19 mm = .14		19 mm = .64
plain	20 mm = .15	plain	20 mm = .65
	22 mm = .17		22 mm = .67
	24 mm = .19		24 mm = .69
	25 mm = .01		25 mm = .51
	28 mm = .02		28 mm = .52
	30 mm = .03		30 mm = .53
	10 mm = .42 (L_1 = 3,5 mm)		10 mm = .92 (L_1 = 3,5 mm)
flat	15 mm = .44 (L_1 = 8,5 mm)	flat	15 mm = .94 (L_1 = 8,5 mm)
faced	20 mm = .45 (L_1 = 8,5 mm)	faced	20 mm = .95 (L_1 = 8,5 mm)
	20 mm = .46 (L_1 = 13,5 mm)		20 mm = .96 (L_1 = 13,5 mm)
knurled	10 mm = .26 (L_1 = 5 mm)	knurled	10 mm = .76 (L_1 = 5 mm)
(plastic	15 mm = .27 (L_1 = 9 mm)	(plastic	15 mm = .77 (L_1 = 9 mm)
only)	20 mm = .28 (L_1 = 9 mm)	only)	20 mm = .78 (L_1 = 9 mm)
slotted	= .10	slotted	= .60

Code for type and switch

without switch	single	= 380
	single, with bent p.w. pins (only available with mounting bushing and p.w. pins of 9,3 mm length)	= 389
	tandem (and balance)	= 390
with switch	single, with s.p.s.t. rotary switch, spring actuated (only available with mounting bushing)	= 381
	single, with d.p.s.t. push-pull switch (only available with mounting bushing and plastic spindle, not available with slotted spindle)	= 382
	single, with s.p.s.t. rotary switch, direct operating (plastic spindle only)	= 387

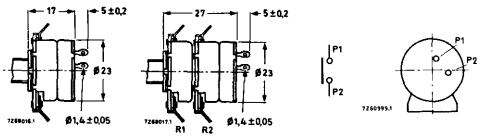
variable resistors

control potentiometers

CP23 – carbon
23 mm – linear and other laws

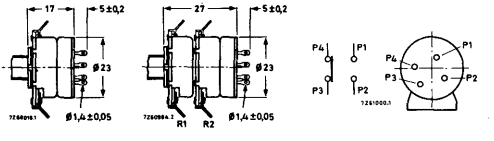
Max. dissipation at T_{amb} = 40 °C	
linear	0,25 W
others	0,125 W
Working temperature	– 10 to +70 °C
Climatic category IEC 68	10/070/21
Breaking voltage of switch	250 V (a.c.)

Widely used in video and audio equipment; switched versions also available.



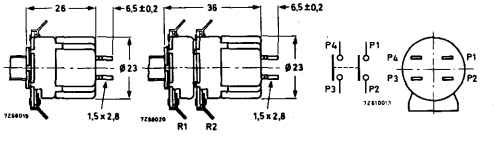
S.P.S.T. rotary switch (single)

S.P.S.T. rotary switch (tandem or twin)



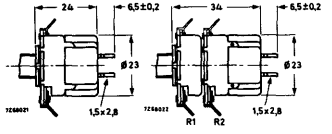
S.P.D.T. rotary switch (single)

S.P.D.T. rotary switch (tandem)



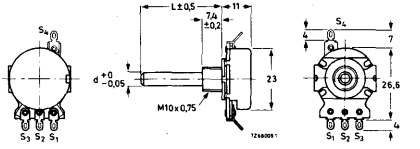
D.P.S.T. rotary switch (single)

D.P.S.T. rotary switch (tandem or twin)

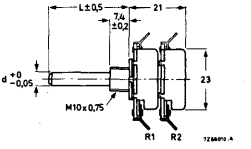


D.P.S.T. push-pull switch (single)

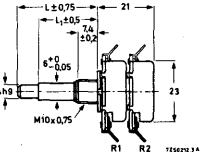
D.P.S.T. push-pull switch (tandem or twin)



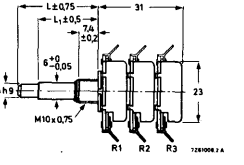
Single



Tandem



Twin

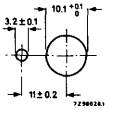


Triple

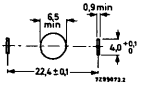
For d, L and L_1 see composition of catalogue no.

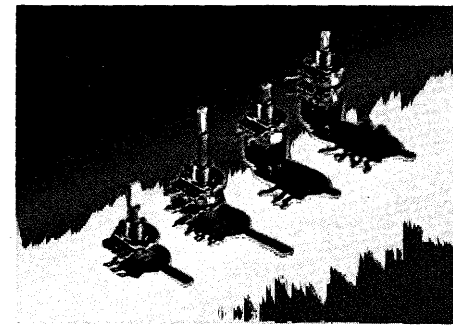
Required mounting holes in chassis

mounting bushing M10 x 0,75

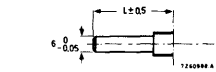


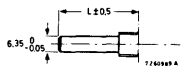
twist tags only for single and tandem



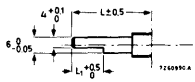


Spindles

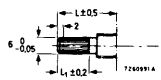




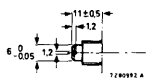
plain



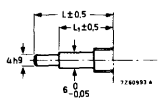
flat faced
(single only)



knurled
(single only)

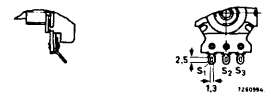


slotted

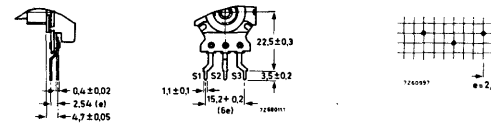


twin/triple

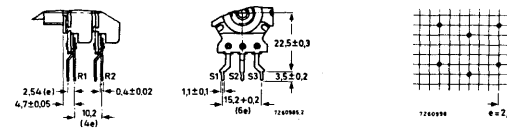
Connecting terminals



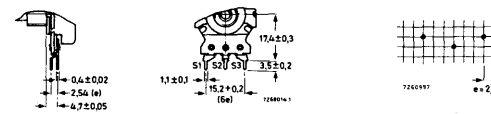
Solder tags



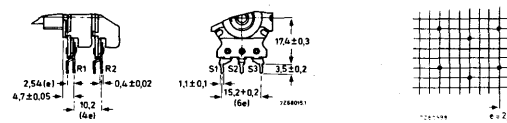
Long printed-wiring pins, pin distance 15,2 mm (6e) (single potentiometer).



Long printed-wiring pins, pin distance 15,2 mm (6e) (tandem potentiometer).



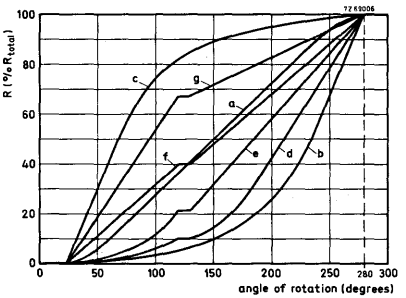
Short printed-wiring pins, pin distance 15,2 mm (6e) (single potentiometer).



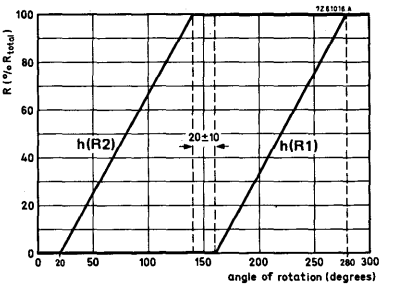
Short printed-wiring pins, pin distance 15,2 mm (6e) (tandem potentiometer).

variable resistors
control potentiometers

CP23 – carbon
23 mm – linear and other laws



single and tandem



balance (tandem only)

code in catalogue no.

nominal resistance	linear law curve a	log. law curve b	rev. log. law curve c	balance curve h
220 Ω	02			
330 Ω	19		59	
470 Ω	03		43	
1 kΩ	04	24	44	
2,2 kΩ	05	25	45	
4,7 kΩ	06	26	46	
10 kΩ	07	27	47	
22 kΩ	08	28	48	92
47 kΩ	09	29	49	93
100 kΩ	11	31	51	94
220 kΩ	12	32	52	95
470 kΩ	13	33	53	96
1 MΩ	14	34	54	97
2,2 MΩ	15	35	55	
4,7 MΩ	16	36		

code in catalogue no.

nominal resistance	tap at 10% curve d	tap at 20% curve e	tap at 40% curve f	tap at 67% curve g
20 + 200 kΩ	67			
50 + 420 kΩ	73			
100 + 900 kΩ	64			
0,2 + 2 MΩ	68			
0,5 + 1,7 kΩ		81		
5 + 17 kΩ		82		
10 + 37 kΩ		86		
20 + 80 kΩ		77		
50 + 170 kΩ		83		
100 + 370 kΩ		87		
200 + 800 kΩ		78		
0,5 + 1,7 MΩ		84		
400 + 600 kΩ			89	
200 + 100 kΩ				65

Composition of the catalogue no.
Single and tandem types

2322 ... .

code for type and switch — code for terminals, mounting facility, type, and length of plastic spindle — code for resistance law and nominal resistance, see table previous page

without switch	single = 350 / tandem = 360
with s.p.d.t. rotary switch	single = 352 / tandem = 363
with s.p.s.t. rotary switch	single = 353 / tandem = 362
with d.p.s.t. push-pull switch 2A	single = 355 / tandem = 365
with d.p.d.t. rotary switch	single = 357 / tandem = 366

solder tags				long p.w. pins		short p.w. pins	
mounting bushing		twist tags		mounting bushing 3 . .	twist tags 5 . .	mounting bushing 2 . .	twist tags 6 . .
	17 mm = 713		17 mm = 433		17 mm = . 63		17 mm = . 83
	18 mm = 706		18 mm = 426		18 mm = . 56		18 mm = . 76
	19 mm = 714		19 mm = 434		19 mm = . 64		19 mm = . 84
	20 mm = 715		20 mm = 435		20 mm = . 65		20 mm = . 85
	22 mm = 717		22 mm = 437		22 mm = . 67		22 mm = . 87
plain	25 mm = 701	plain	25 mm = 421	plain	25 mm = . 51	plain	25 mm = . 71
ϕ 6 mm	30 mm = 703	ϕ 6,35	30 mm = 423	ϕ 6 mm	30 mm = . 53	ϕ 6,35	30 mm = . 73
	35 mm = 704	mm	35 mm = 424		35 mm = . 54	mm	35 mm = . 74
	40 mm = 705		40 mm = 425		40 mm = . 55		40 mm = . 75
	60 mm = 707		60 mm = 427		60 mm = . 57		60 mm = . 77
	70 mm = 708		70 mm = 428		70 mm = . 58		70 mm = . 78
	90 mm = 709		90 mm = 429		90 mm = . 59		90 mm = . 79
	18 mm = 740		18 mm = 411		18 mm = . 90		18 mm = . 61
	25 mm = 741	knurled	30 mm = 412		25 mm = . 91	knurled	30 mm = . 62
	28 mm = 742		60 mm = 431		28 mm = . 92		70 mm = . 81
	30 mm = 743				30 mm = . 93		
flat faced	35 mm = 744			flat faced	35 mm = . 94		
	40 mm = 745	slotted	= 410		40 mm = . 95	slotted	= . 60
	60 mm = 747				60 mm = . 97		
	70 mm = 748				70 mm = . 98		
	90 mm = 749				90 mm = . 99		

Composition of the catalogue no.
Twin and triple types

2322 ... .

code for type, switch and hollow spindle — code for resistance law and nominal resistance of potentiometer R_2, see table previous page — code for resistance law and nominal resistance of potentiometer R_1, see table previous page — code for spindle lengths

steel hollow spindle			plastic hollow spindle		
without switch	twin	= 370	without switch	twin	= 470
	triple	= 378		triple	= 478
with s.p.d.t. rotary switch	twin	= 372	with s.p.d.t. rotary switch	twin	= 472
with s.p.s.t. rotary switch	twin	= 373	with s.p.s.t. rotary switch	twin	= 473
with d.p.s.t. push-pull switch 2A	twin	= 375	with d.p.s.t. push-pull switch 2A	twin	= 475
with d.p.s.t. rotary switch	twin	= 376	with d.p.s.t. rotary switch	twin	= 476

steel hollow spindle	plastic hollow spindle
18 and 30,5 mm = 6	18 and 30,5 mm = 0
30 and 42,5 mm = 7	30 and 42,5 mm = 1

variable resistors

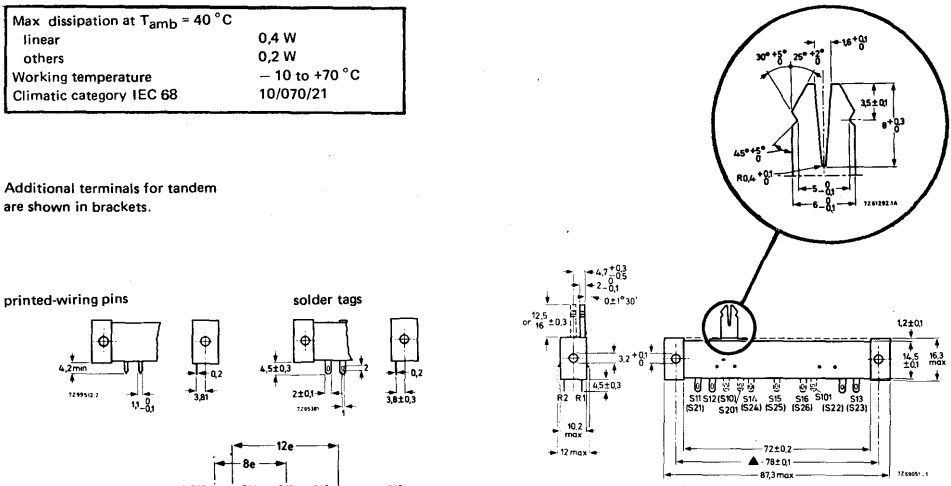
control potentiometers

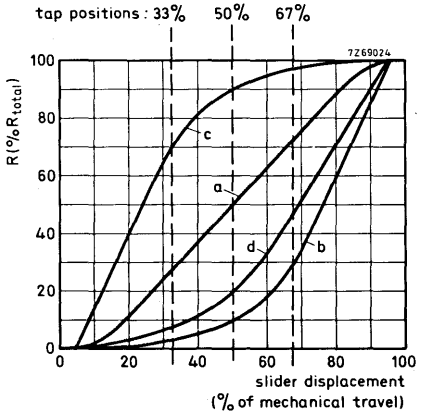
2322 42 . – slide carbon
60 mm – linear and other laws

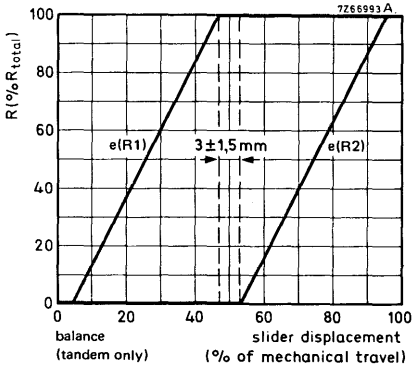
Widely used in video and audio equipment.

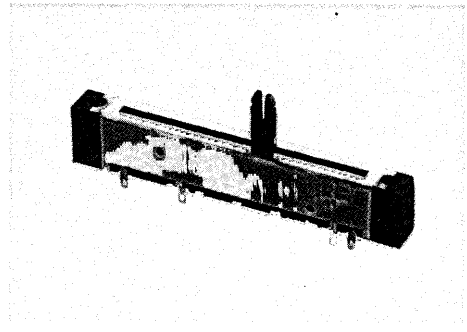
Max dissipation at T_{amb} = 40 °C	
linear	0,4 W
others	0,2 W
Working temperature	– 10 to +70 °C
Climatic category IEC 68	10/070/21

Additional terminals for tandem are shown in brackets.









Composition of the catalogue no. 2322 42 . . . . .

single
code for mounting facility
0 = no mounting facility
1 = making use of holes in top and bottom
2 = making use of holes in the small sides
3 = making use of holes in front and back
4 = mounting with self-tapping Parker screws

1, 2, 3 mounting with screws

tandem
5 = no mounting facility
6 = making use of holes in top and bottom
7 = making use of holes in the small sides
8 = making use of holes in front and back
9 = mounting with self-tapping Parker screws

6, 7, 8 mounting with screws

code for resistance law and nominal resistance, see table below

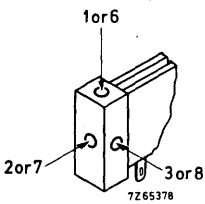
code for taps
0 = without taps
1 = tap at 1/3
2 = tap at 1/2
4 = taps at 1/3 and 2/3

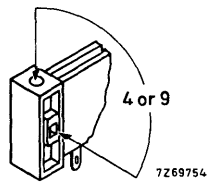
code for terminals and screening

0	= without screening	with solder tags
1	= with internal screening [1]	
2	= with internal and external screening [1]	
3	= with external screening	
5	= without screening	with printed-wiring pins
6	= with internal screening [1]	
7	= with internal and external screening [1]	
8	= with external screening	

code for adjustment provision

0	= asymmetrically placed	length 12,5 mm
1	= symmetrically placed	
2	= asymmetrically placed	length 16 mm
3	= symmetrically placed	





code in catalogue no.

nominal resistance	linear law curve a	log. law curve b	rev. log. law curve c	semi-log. law curve d	balance [2] curve e
220 Ω	02				
330 Ω	19 [2]				
470 Ω	03			63	
1 kΩ	04	24	44	64 [2]	
2,2 kΩ	05	25 [2]	45 [2]	65	
4,7 kΩ	06	26	46	66	
10 kΩ	07	27	47	67	87
22 kΩ	08	28	48	68	88
47 kΩ	09	29	49	69	89
100 kΩ	11	31	51	71	91
220 kΩ	12	32	52 [3]	72	92
470 kΩ	13	33	53	73	93
1 MΩ	14	34	54	74	94
2,2 MΩ	15	35	55	75	95
4,7 MΩ	16	36	56	76	96
10 MΩ	17 [2]				

[1]) Only for tandem potentiometers. [2]) Only without tap. [3]) Without tap, or with tap at 1/3 of the total travel.

variable resistors

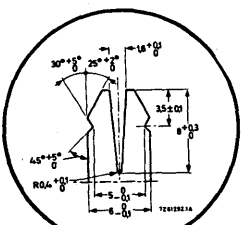
control potentiometers

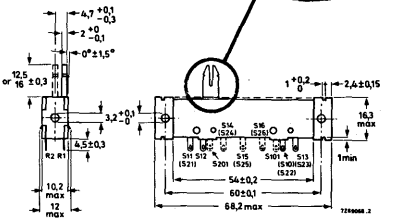
2322 43 . – slide carbon
40 mm – linear and other laws

Widely used in video and audio equipment.

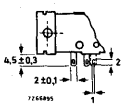
Max dissipation at T_{amb} = 40 °C	
linear	0,25 W
others	0,125 W
Working temperature	–10 to +70 °C
Climatic category IEC 68	10/070/21

Additional terminals for tandem are shown in brackets.

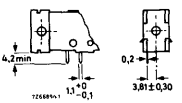




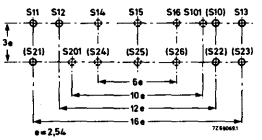
printed-wiring pins



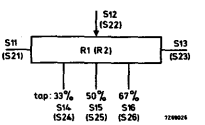
solder tags



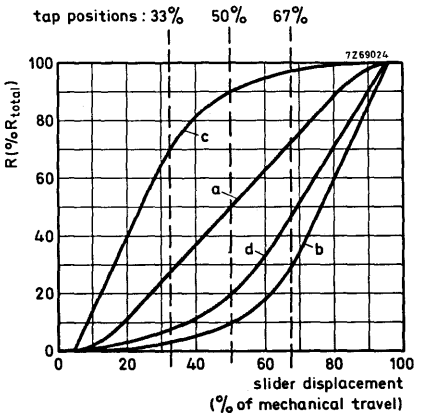
holes:
(viewed on component side)

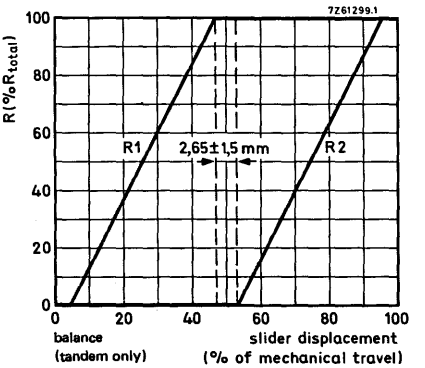


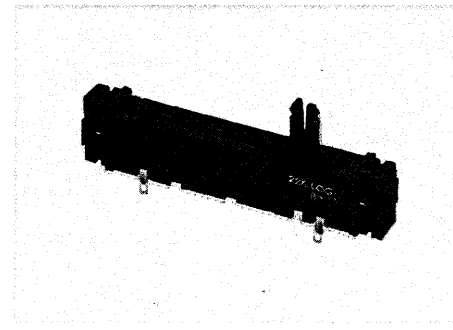
marking is always placed at the beginning of R1 (S11)



earthing screen
S101; S201 external
S10 internal







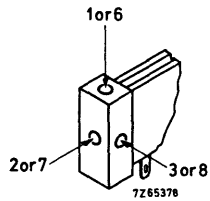
Composition of the catalogue no.

2322 43 . . . . .

code for screw-mounting facility

single
- 0 = without
- 1 = making use of holes in top and bottom
- 2 = making use in holes in the small sides
- 3 = making use of holes in front and back

tandem
- 5 = without
- 6 = making use of holes in top and bottom
- 7 = making use of holes in the small sides
- 8 = making use of holes in front and back



code for resistance law and nominal resistance, see table below

code for tap
- 0 = without tap
- 2 = tap at 1/2
- 4 = tap at 1/3 and 2/3

code for terminals and screening
- 0 = without screening
- 1 = with internal screening [1] — with solder tags
- 2 = with internal and external screening [1] — with solder tags
- 3 = with external screening — with solder tags
- 5 = without screening
- 6 = with internal screening [1] — with printed-wiring pins
- 7 = with internal and external screening [1] — with printed-wiring pins
- 8 = with external screening — with printed-wiring pins

code for adjustment provision
- 0 = asymmetrically placed — length 12,5 mm
- 1 = symmetrically placed — length 12,5 mm
- 2 = asymmetrically placed — length 16 mm
- 3 = symmetrically placed — length 16 mm

code in catalogue no.

nominal resistance	linear law curve a	log. law curve b	rev. log. law curve c	semi-log. law curve d	balance [2] curve e
220 Ω	02				
330 Ω	19 [2]				
470 Ω	03				
1 kΩ	04	24	44	64	
2,2 kΩ	05	25 [2]	45 [2]	65 [2]	
4,7 kΩ	06	26	46	66	
10 kΩ	07	27	47	67	87
22 kΩ	08	28	48	68	88
47 kΩ	09	29	49	69	89
100 kΩ	11	31	51 [3]	71	91
220 kΩ	12	32	52	72	92
470 kΩ	13	33	53	73	93
1 MΩ	14	34	54	74	94
2,2 MΩ	15	35	55	75	95
4,7 MΩ	16				

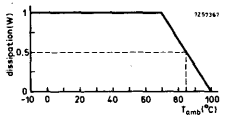
[1] Only for tandem potentiometers.
[2] Only without tap.
[3] Without tap, or with tap at 1/2 of total travel.

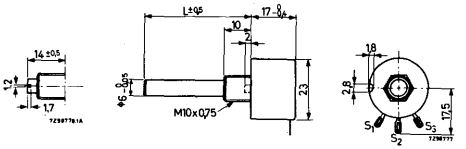
variable resistors

control potentiometers

2322 012 2322 013 – wirewound
linear law – 1 W

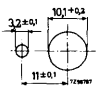
Max. dissipation





supplied with nut
catalogue no. of spare nuts
4322 047 00350

mounting holes



resistance value Ω	temperature coefficient ppm/ °C	code in catalogue no.
2,2		228
3,3		338
4,7	0 to +600	478
6,8		688
10		109
15		159
22		229
33		339
47	– 25 to +25	479
68		689
100		101
150		151
220		221
330		331
470		471
680		681
1000	0 to +140	102
1500		152
2200		222
3300		332
4700		472
6800		682
10000		103
15000	– 20 to +140	153
22000		223

Composition of the catalogue no.

2322 01 . . . . .

figure indicating the spindle material
2 = plastic
3 = steel

figure indicating the spindle type

0 = length 14 mm slotted plastic spindle

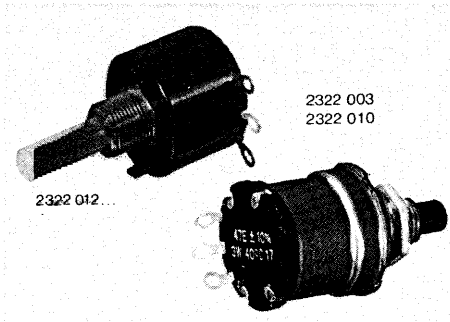
2 = length 17 mm
3 = length 25 mm
4 = length 50 mm
5 = length 60 mm
6 = length 20 mm
7 = length 30 mm
plain spindle

resistance code

figure indicating the tolerance
,1 = ± 10%
2 = ± 5% (R_n > 47 Ω)

Example: For a potentiometer with a nominal resistance value of 10 Ω, tolerance ± 10%, with slotted plastic spindle, the catalogue no. is 2322 012 01109.

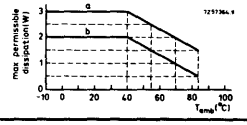
2322 003 2322 010 — wirewound linear law — 3 W

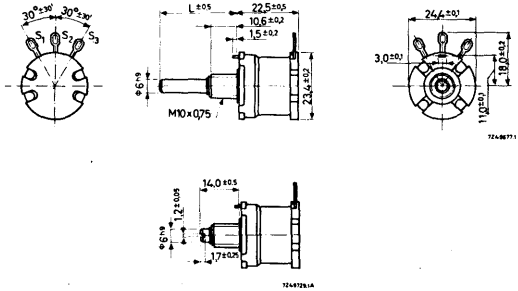


Max. dissipation

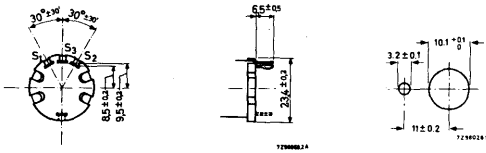
Curve a: mounted on a metal chassis 100 x 100 x 1 mm

Curve b: mounted on an insulating panel





mounting holes



resistance value Ω	temperature coefficient ppm/ °C	code in catalogue no.
2,2	0 to +600	228
3,3		338
4,7		478
6,8		688
10		109
15		159
22		229
33	– 25 to +600	339
47		479
68	– 25 to +25	689
100		101
150		151
220		221
330	– 25 to +140	331
470		471
680	0 to +140	681
1000		102
1500		152
2200		222
3300		332
4700		472
6800		682
10000	– 20 to +140	103
15000		153
22000		223

Composition of the catalogue no.

2322 0 . . . . . .

figure indicating the type
03 = potentiometer with solder tags at the side
10 = potentiometer with solder tags at the bottom

resistance code

figure indicating the spindle type
0 = slotted spindle
2 = plain spindle; length 17 mm
3 = plain spindle; length 20 mm
4 = plain spindle; length 30 mm
5 = plain spindle; length 60 mm

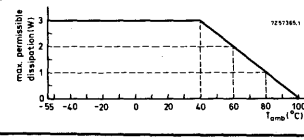
figure indicating the tolerance and tap
1 = ± 10%
2 = ± 5% (R_n > 47 Ω)
6 = ± 10% with tap
7 = ± 5% (R_n > 47 Ω) with tap

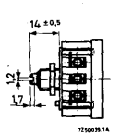
6 and 7 with tap at 50% of effective angle of rotation

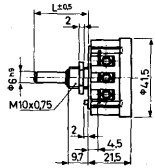
variable resistors
control potentiometers

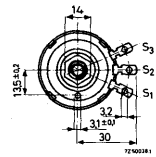
2322 004 — wirewound
linear law — 3 W

Max. dissipation



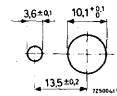






supplied with nut
catalogue no. of spare nuts
4322 047 00350

mounting holes



resistance value Ω	temperature coefficient ppm/ °C	code in catalogue no.
10		109
15		159
20		209
25	0 to +600	259
35		359
50		509
75		759
100		101
150		151
200		201
250		251
350	– 25 to +25	351
500		501
750		751
1000		102
1500		152
2000		202
2500		252
3500		352
5000	0 to +140	502
7500		752
10000		103
15000		153
20000		203
25000		253
35000	– 20 to +20	353
50000		503

Composition of the catalogue no.

2322 004 .....

figure indicating the spindle type
2 = slotted spindle
3 = plain spindle; length 20 mm
4 = plain spindle; length 25 mm
5 = plain spindle; length 30 mm
6 = plain spindle; length 35 mm
7 = plain spindle; length 80 mm

resistance code

figure indicating the tolerance
1 = ± 10%
2 = ± 5% (R_n > 75 Ω)