

For better use of our Catalog

⟨For specifications⟩

Specifications in this product catalog are subject to change without prior notice. Detailed specifications are omitted for some of the products due to limited space. Please inquire and ask for individual specification sheets when ordering.

⟨Information⟩


Our product catalog consists of two volumes.

This catalog, the first volume, carries product information on switches, trimmers, attenuators, circuit protectors,

Please see the second volume for other products such as sensors and motors.

The switches described in this catalog include DIP switches and Operating switches.

Concerning Operating switches such as order to be made products and standard products, there is a common annotation related to switches at last half catalog. Please refer it.

For other products, in each product catalog  logo or a description to point out order to be made products on each item at the catalog.

If there is no indication, it is a standard products.

Note prior to placing order

Please do not use our products under conditions or environments not described in this catalog. Even under the conditions or environments described in this catalog, if you want to use our products for applications requiring high reliability (These include, but are not limited to, nuclear power control equipment, railroad equipment, aviation equipment, vehicle equipment, combustion equipment, medical equipment, entertainment equipment, and disaster prevention equipment), be sure to contact our point of contact beforehand.

The details of warranty shall be as per the descriptions in this document and we shall not be liable for any damage on you resulting from the use of any equipment or device (including control systems) which is not in accordance with this document (hereinafter referred to as "use in violation"). In the case where you resell our products, we shall not be liable for any damage on a third party resulting from use in violation by the third party, and even if we make payment to the third party in connection with such use in violation regardless of the name by which such payment may be called, we may demand the whole amount thereof from you.

〈Warranty Period〉

The warranty period is one year from the date of delivery. The warranty is only applicable to the product itself, not applicable to consumable products such as batteries and etc.

〈Warranty Coverage〉

If any malfunctions should occur due to our fault, NIDEC COMPONENTS warrants any part of our product within one year from the date of delivery by repair or replacement at free of charge. However, warranty is not applicable if the causes of defect should result from the following conditions:

- Failure or damages caused by inappropriate use, inappropriate conditions, and inappropriate handling.
- Failure or damages caused by inappropriate modifications, adjustment, or repair.
- Failure or damage caused by technically and Scientifically unpredictable factors.
- Failure or damage caused by natural disaster, fire or unavoidable factors.

OUTLINE

DIP SWITCHES

The DIP switch is generally defined as "Dual In-line Package Switch".

Since we marketed our first Dip Rotary Code Switch S-1000 in 1978, we have been expanding the range of DIP switch series.

Mounted on the printed circuit board incorporated in information processing equipment, data communications equipment and control equipment, etc., DIP switches are mainly used as a means of setting such as for programs and circuits as well as circuit switching. Based on our special expertise in contact technology and sealing technology, we are manufacturing reliable switches that can satisfy the needs for digitalizing, upgrading and down-sizing of equipment.

Our DIP switches are classified as follows:

- DIP Slide Switch

CHS series is a half-pitched thin type SMD slide switch conforming to EIAJ SOP Configuration Standard.

Full-pitched slide switch CFS series has been newly added, moreover, 1 mm-pitched CVS series, piano switch CHP series and CFP series have also added, meeting various needs.

- DIP Rotary Code Switch

This switch is designed to rotate the rotor so that a code signal is output by making a binary connection between common terminal and each of terminals 1, 2, 4, 8, directly.

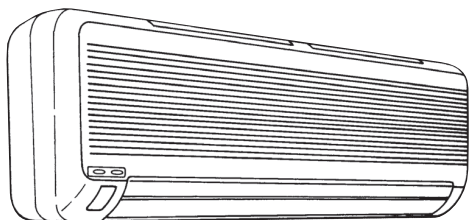
A decimal or hexadecimal step of real code and complementary code are provided as circuit configurations.

Three switch types are available according to configurations; knobbed type, top setting type and side setting type.

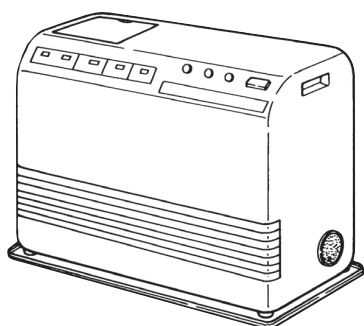
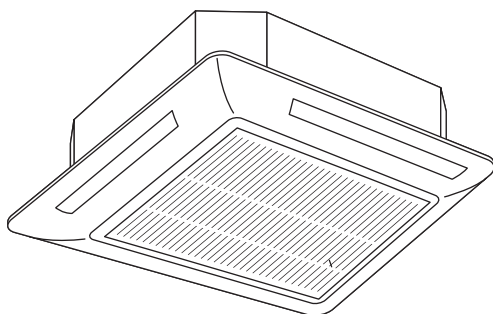
In addition, this switch is classified into a board insertion type and an SMD type according to the mounting method.

APPLICATIONS

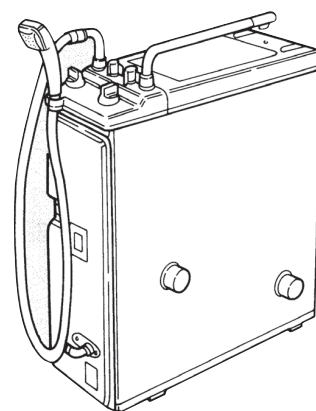
SWITCHES



air conditioner



fan heater

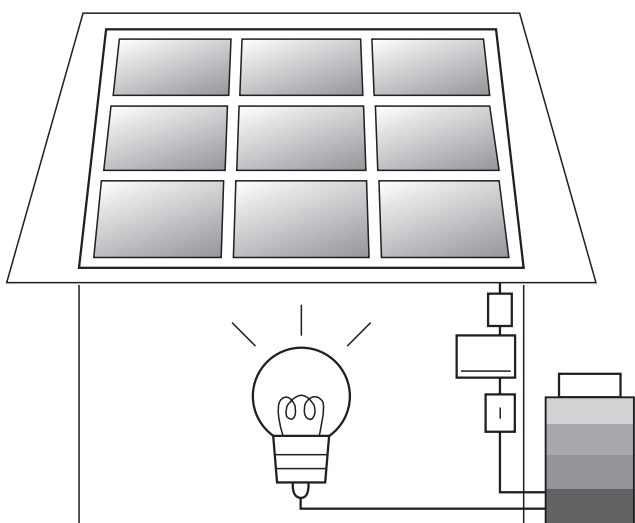


hot water supply

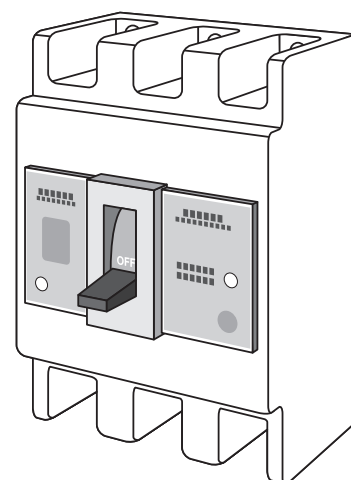
household



photovoltaic power generation

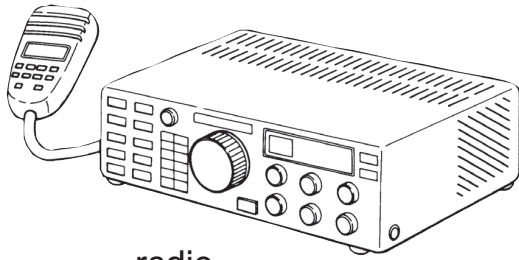


power conditioner storage battery

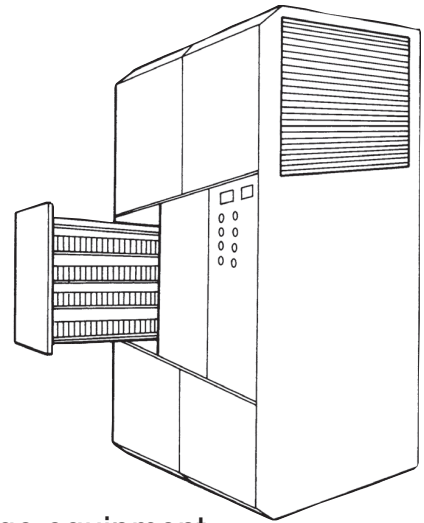


earth leakage breaker

APPLICATIONS SWITCHES

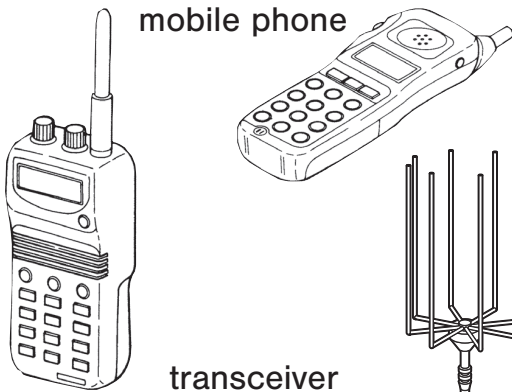


radio



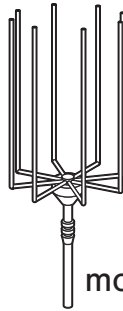
exchange equipment

communication

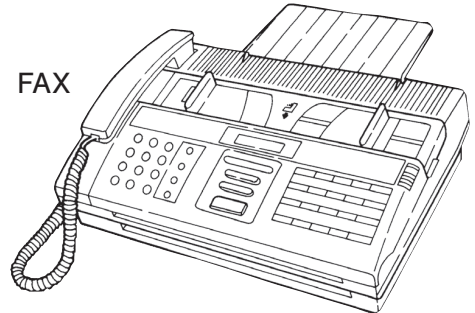


mobile phone

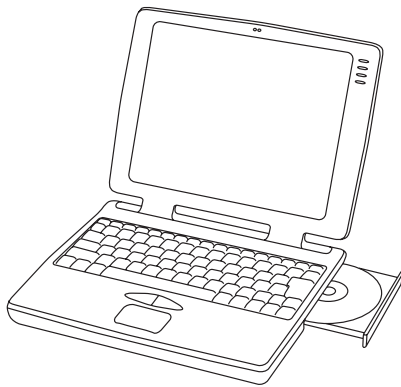
transceiver



mobile base station

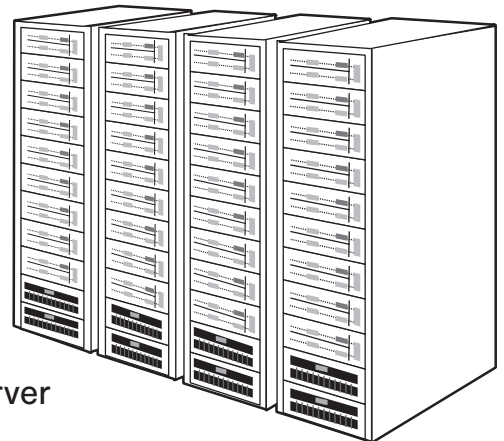


FAX



notebook PC

information

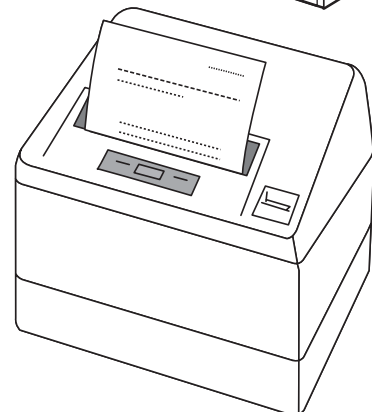


server



multifunction peripheral

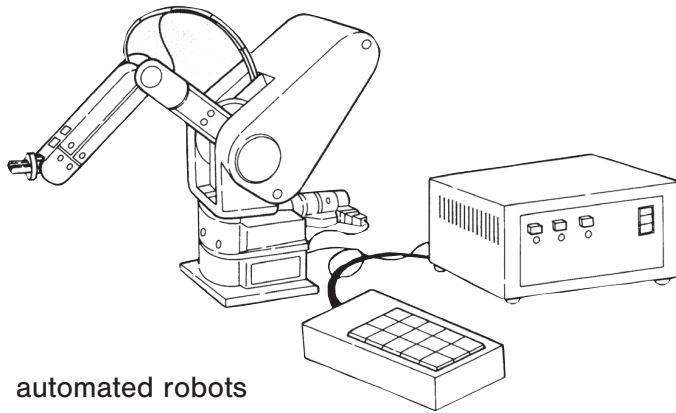
office automation



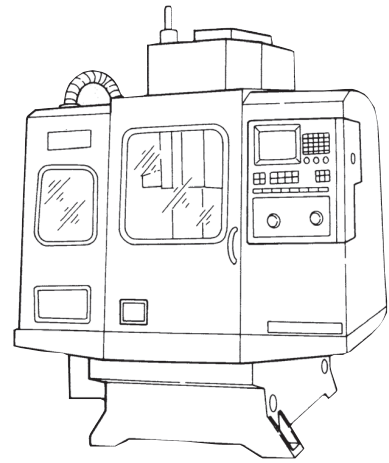
Printer

APPLICATIONS

SWITCHES

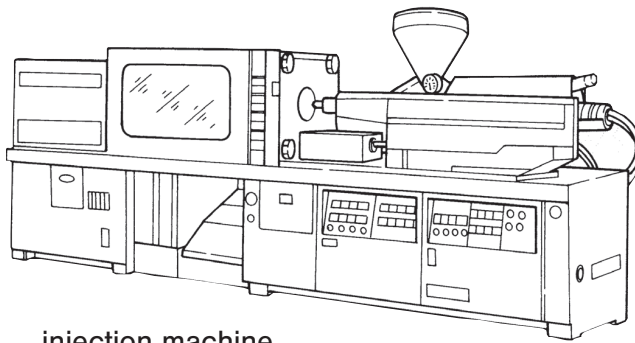


automated robots

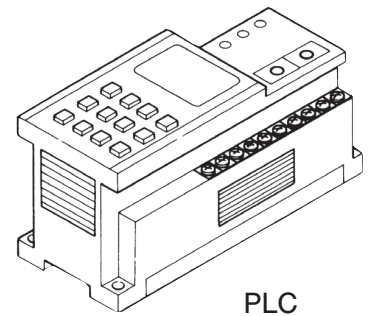


numeral control machine

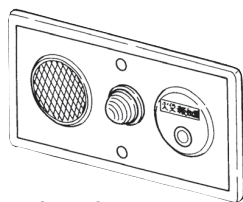
factory automation



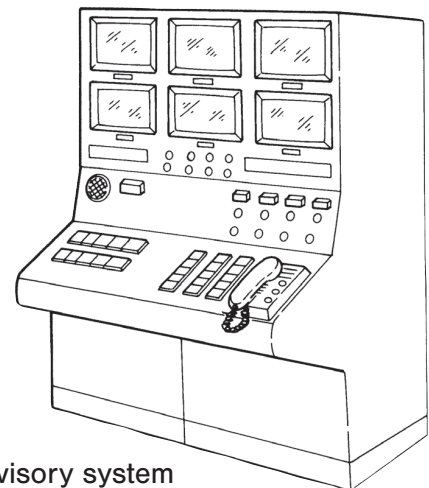
injection machine



PLC

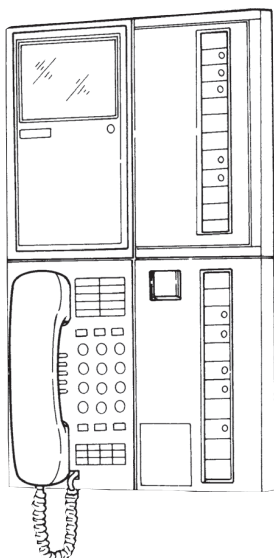


security alarm



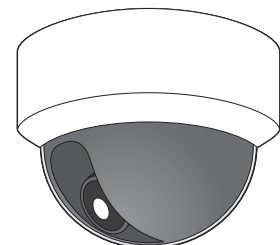
supervisory system

security



security control system

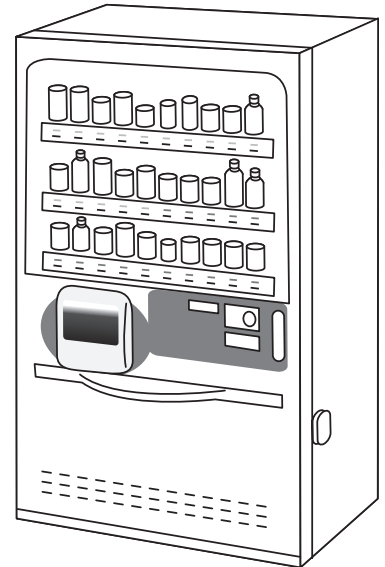
security camera



APPLICATIONS SWITCHES

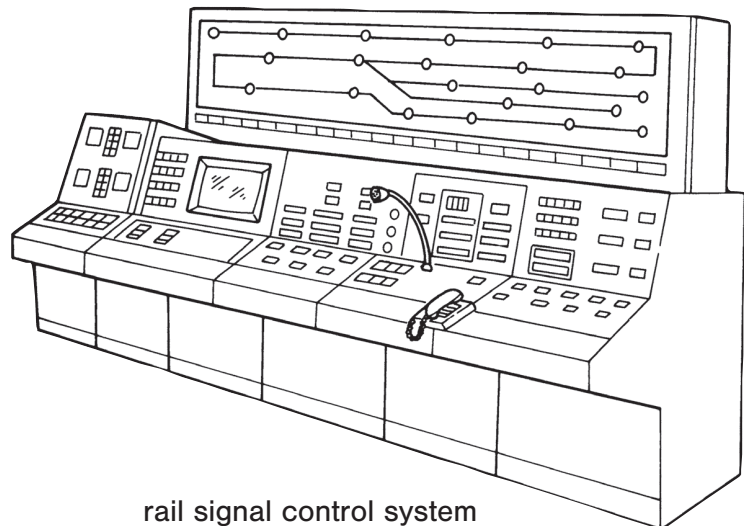


elevator



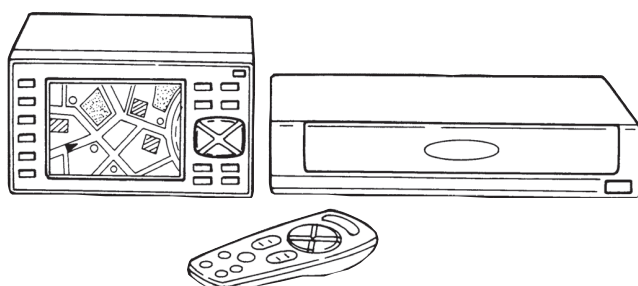
automatic vending machine

conveying & service



rail & in-vehicle

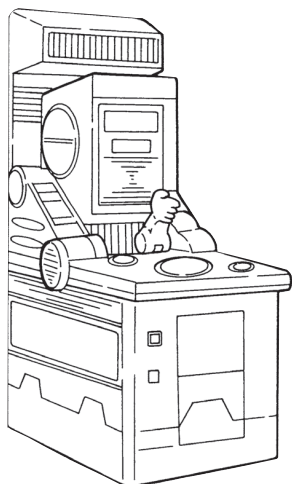
rail signal control system



car navigation system

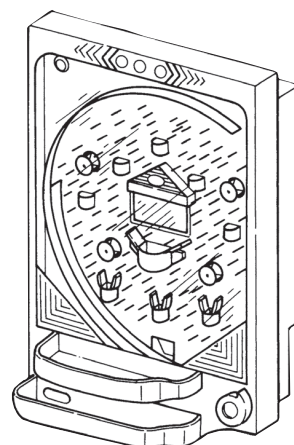
APPLICATIONS

SWITCHES

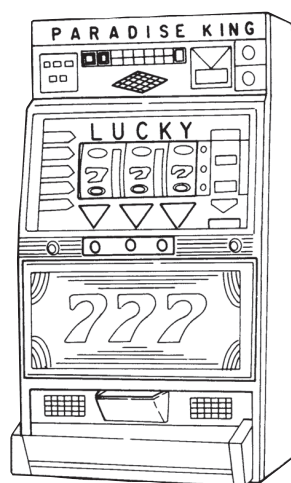


arcade game

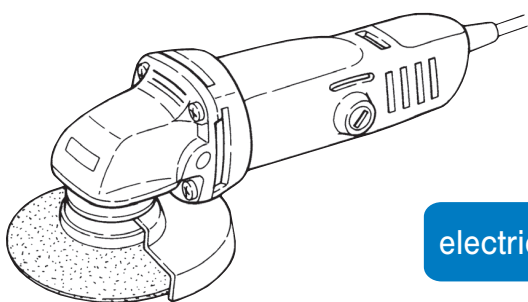
amusement



pachinko

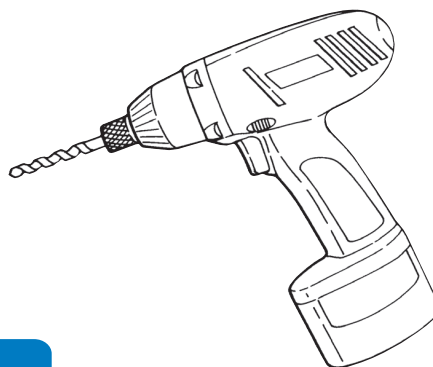


slot machine

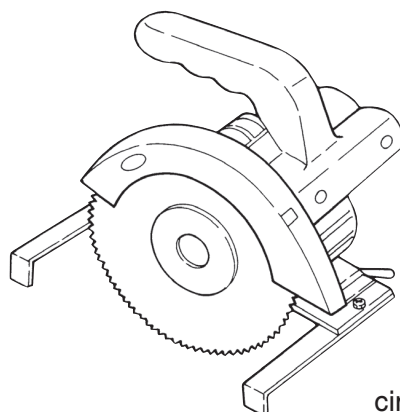


disk grinder

electric power tool

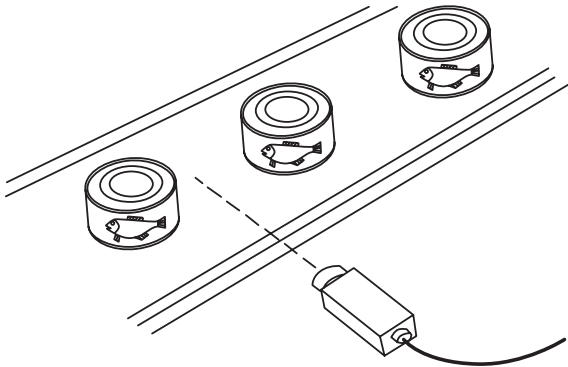


electric drill



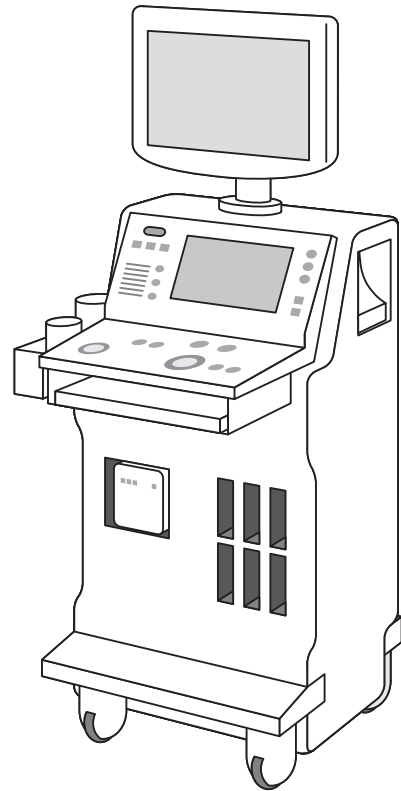
circular saw

APPLICATIONS SWITCHES

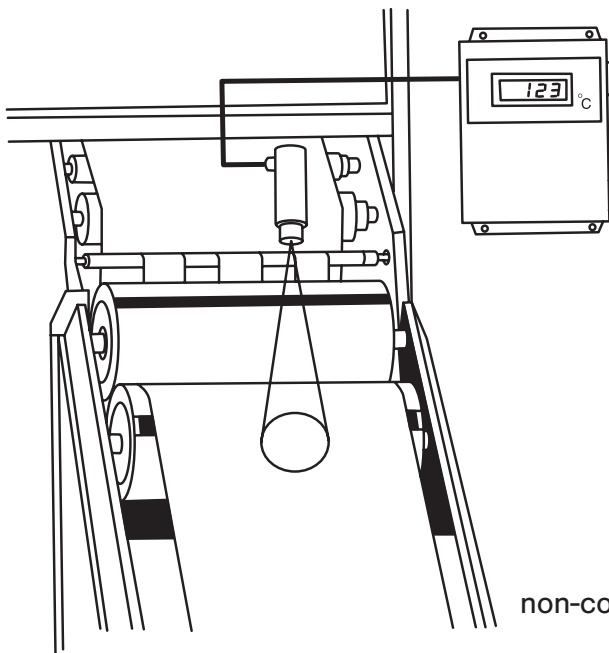


sensor device

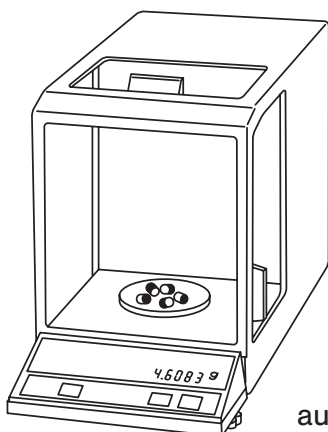
medical & measuring
and so on



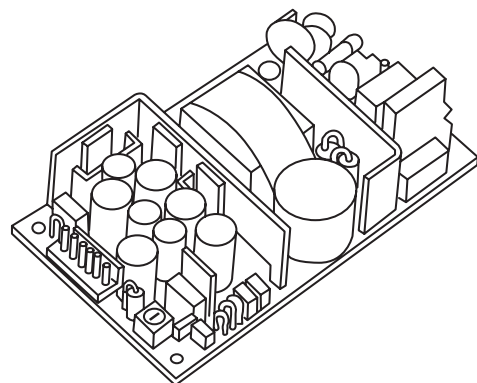
medical equipment
(ex. ultrasonograph)



non-contact temperature meter



automatic scale



power supply equipment

PACKAGING DIP SWITCHES

※ In addition to the DIP switches in this chapter, the following notes on the page 155 contain common notes applied to some of the pushbutton switches (detect switches), slide switches, and rotary switches described later.

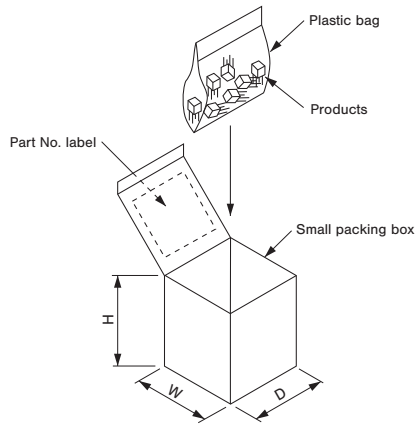
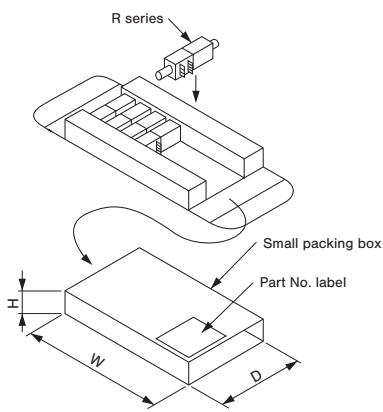
BULK PACKAGING SPECIFICATIONS IN PLASTIC BAGS & BOXES

Part number	Maximum Q'ty/pack	Small packing box					
		Maximum Q'ty/small Packing box	※ 1 Dimensions W × H × D (mm)	Gross weight (g)			
CJS-1200A, B	100	500	60 × 70 × 60	41			
CJS-1201A, B				46			
CAS-120A, B	100	500	60 × 70 × 60	41			
CAS-220A, B				60			
CAS-D20A, B				50			
CVS-04B				80			
CVS-08B	100	500	60 × 70 × 60	30			
CVS-01B,C				25			
CVS-02B,C				30			
CVS-03B,C				39			
CHS-01A, B	50	200	60 × 70 × 60	49			
CHS-02A, B				60			
CHS-04A, B				70			
CHS-06A, B				34			
CHS-08A, B				46			
CHS-10A, B				58			
CES-0202C				70			
CES-0402C				47			
CES-0602C	50	100	60 × 70 × 60	51			
CES-0802C				57			
CMS-2202A, B, C				49			
CMS-2302A, B, C				55			
CMS-2402A, B, C				61			
CMS-2212A, B, C				49			
CMS-2312A, B, C				55			
CMS-2412A, B, C				61			
CMS-2214A, B, C				47			
CMS-2314A, B, C				49			
CMS-2414A, B, C				55			
CMS-4202A, B, C				55			
CMS-4216A, B, C	61						
CRFS-2202	25	50	60 × 70 × 60	72			
CRFS-2302				96			
S-4000A, B				39			
SA-70□0A, B, C	50	200	60 × 70 × 60	83			
SA-71□0A, B, C				87			
SA-72□0A, B, C				83			
SA-70□1A, B, C		84					
SA-71□1A, B, C		86					
SA-72□1A, B, C		84					
S-70□0EA, EB, EC	50	200	60 × 70 × 60	71			
S-70□1EA, EB, EC		100		145			
CS-32-12EZA, EZB	100	500	60 × 70 × 60	40			
CS-32-12EZG, EZH				40			
CS-4-12YA, YB, YC				40			
CS-4-12XA, XB, XC				40			
CS-4-13NA, NB	50	500	60 × 70 × 60	65			
CS-4-14NA, NB				65			
CS-4-22YA, YB				65			
CL-SB-12□-0□				45			
CL-SB-12□-1□	50	100	60 × 70 × 60	46			
CL-SB-13□-0□				51			
CL-SB-13□-1□				52			
CL-SB-22□-0□				46			
CL-SB-22□-1□				47			
CL-SB-23□-0□				52			
CL-SB-23□-1□				53			
CL-SA-12□□-□□				50	100	60 × 70 × 60	39

Part number	Maximum Q'ty/pack	Small packing box		
		Maximum Q'ty/small Packing box	※ 1 Dimensions W × H × D (mm)	Gross weight (g)
S-10□0A, S-20□0A	25	50	60 × 70 × 60	57
S-11□0A, S-21□0A				62
S-12□0A, 22□0B				66
S-10□1A, S-20□1A				70
S-11□1A, S-21□1A				75
S-12□1A, 22□1B				79
SC-10□0, SC-20□0	25	50	60 × 70 × 60	47
SC-11□0, SC-21□0				52
SC-12□0, SC-22□0				47
SC-10□1, SC-20□1				53
SC-11□1, SC-21□1				58
SC-12□1, SC-22□1				53
SC-10□0B, SC-20□0B	25	50	60 × 70 × 60	47
SC-12□0B, SC-22□0B				47
SD-10□0, SD-20□0				48
SD-11□0, SD-21□0				53
SD-12□0, SD-22□0				48
SD-10□1, SD-20□1				63
SD-11□1, SD-21□1	50	100	60 × 70 × 60	68
SD-12□1, SD-22□1				63
SD-10□0B, SD-20□0B				48
SD-12□0B, SD-22□0B				48
CHP-02□A, 02□B				31
CHP-04□A, 04□B				41
CHP-08□A, 08□B	50	100	60 × 70 × 60	58
SA-50□0E				89
SA-51□0E				94
SA-50□1E				64
SA-51□1E	25	50	60 × 70 × 60	66
S-80□0				44
S-81□0				51
S-80□1				48
S-81□1	50	100	60 × 70 × 60	56
SS-10-15SPE, 16NPE				57
SS-10-16SP-AE, 23NPE				57
SS-10-15SP-LE, 16NP-LE				62
SS-10-16SP-L-AE, 23NP-LE	—	20	166 × 20 × 78	190
RS1, RG1, RD1				170
RS2, RG2				170
RS3, RG3				220

※ 1 Tolerance : ± 2

PACKAGING DIP SWITCHES



Part No. label

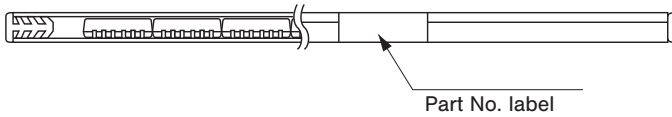
Type	
Spec	
Quantity	
LOT No	
Date code	
MADE IN XXX	2D barcode
□□□□ (RoHS)	
NIDE C COMPONENTS	

■ マガジンの包装仕様 PACKAGING SPECIFICATIONS FOR MAGAZINE TYPE

Part number	Stick packaging		Magazine box	
	Q'ty/Stick	※ 1 Dimensions W × H × D (mm)	Maximum Q'ty/Box	(g) Gross weight
CHS-04MA, MB	70	504 × 3.9 × 10.4		17
CHS-06MA, MB	50			
CHS-08MA, MB	40			
CHS-10MA, MB	30			
CFS-010□MA, MB, MC	118	504 × 11 × 13	4720	1440
CFS-020□MA, MB, MC	72		2880	1440
CFS-030□MA, MB, MC	52		2080	1400
CFS-040□MA, MB, MC	40		1600	1400
CFS-050□MA, MB, MC	32		1280	1400
CFS-060□MA, MB, MC	28		1120	1440
CFS-070□MA, MB, MC	24		960	1400
CFS-080□MA, MB, MC	20		800	1400
CFS-090□MA, MB, MC	18		720	1400
CFS-100□MA, MB, MC	16		640	1360
CFP-02□MB, MC	62		504 × 13.5 × 14.8	1674
CFP-03□MB, MC	46	1242		1539
CFP-04□MB, MC	36	972		1512
CFP-05□MB, MC	30	810		1512
CFP-06□MB, MC	26	702		1512
CFP-08□MB, MC	20	540		1512
CFP-10□MB, MC	16	432		1512
CES-0202MC	60	504 × 17.2 × 12		1920
CES-0402MC	36		1152	2496
CES-0602MC	26		832	2496
CES-0802MC	20		640	2496
CSS-121□MC	53	504 × 6.6 × 5.8	4240	1040
CSS-131□MC	38	504 × 9.7 × 3.7	3040	1120
CSS-130□MC	38		3800	1600
CYP-02□MB	70		500 × 7.5 × 13	4200
CYP-02□MC		500 × 11.5 × 13	2800	1520
CYP-04□MB	40	500 × 7.5 × 13	2400	1980
CYP-04□MC		500 × 11.5 × 13	1600	1560
CYP-06□MB	28	500 × 7.5 × 13	1680	1980
CYP-06□MC		500 × 11.5 × 13	1120	1500
CYP-08□MB	20	500 × 7.5 × 13	1200	1920
CYP-08□MC		500 × 11.5 × 13	800	1520
CYP-10□MB	16	500 × 7.5 × 13	960	1860
CYP-10□MC		500 × 11.5 × 13	640	1480
SH-70□OMA, MB, MC	50	390 × 17.2 × 13.4	1200	1088
CS-7-14MB				

※ 1 ± 5 Tolerance

PACKAGING DIP SWITCHES

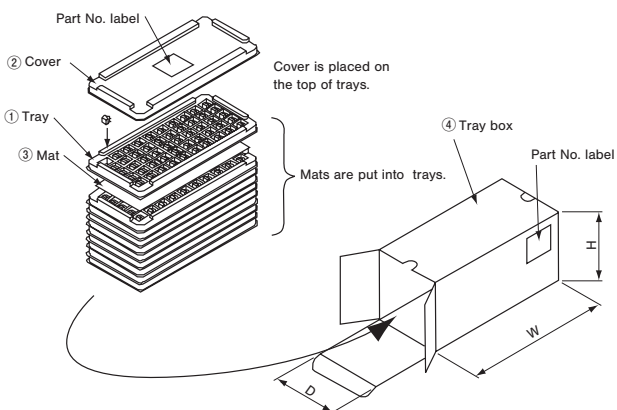


PACKAGING SPECIFICATIONS FOR TRAY TYPE

Part number	Q'ty/tray	Tray box		
		Maximum Q'ty/tray box	※ 1 Dimensions W × H × D (mm)	Gross weight (g)
CMS-2202WC	50	500	305 × 148 × 140	528
CMS-2302WC				553
CMS-2402WC				578
CMS-2212WC				538
CMS-2312WC				568
CMS-2412WC				598
CMS-2214WC				538
CMS-2314WC				568
CMS-2414WC				598
CMS-4202WC				728
CMS-4216WC				748
S-70□0EWC				50
S-70□1EWC	638			
S-10□0W, S-20□0W	50	500	305 × 148 × 140	763
S-11□0W, S-21□0W				813
S-12□0W, S-22□0W				893
S-10□1AW, S-20□1AW				943
S-11□1AW, S-21□1AW				838
S-12□1AW, S-22□1AW				968
SC-10□0W, SC-20□0W				643
SC-11□0W, SC-21□0W				693
SC-12□0W, SC-22□0W	643			
SC-10□1W, SC-20□1W	708			
SC-11□1W, SC-21□1W	758			
SC-12□1W, SC-22□1W	708			
SC-10□0WB, SC-20□0WB	643			
SC-12□0WB, SC-22□0WB	643			
CRFS-2202W	50	500	305 × 148 × 140	1028
CRFS-2302W				1278
CRFS-2204W				1078
CRFS-2304W				1328

Part number	Q'ty/tray	Tray box					
		Maximum Q'ty/tray box	※ 1 Dimensions W × H × D (mm)	Gross weight (g)			
SD-10□0W, SD-20□0W	50	500	305 × 148 × 140	653			
SD-11□0W, SD-21□0W				703			
SD-12□0W, SD-22□0W				653			
SD-10□1W, SD-20□1W				718			
SD-11□1W, SD-21□1W				768			
SD-12□1W, SD-22□1W				718			
SD-10□0WB, SD-20□0WB				653			
SD-12□0WB, SD-22□0WB				653			
SA-50□0□EW				50	500	305 × 148 × 140	1078
SA-51□0□EW							1128
SA-50□1□EW							1328
SA-51□1□EW							1368
S-80□0W	50	500	305 × 148 × 140	463			
S-81□0W				498			
S-80□1W				493			
S-81□1W				528			
SS-10-15SPEW, 16NPEW	50	500	305 × 148 × 140	748			
SS-10-16SP-AEW, 23NPEW				748			
SS-10-15SP-LEW, 16NP-LEW				798			
SS-10-16SP-L-AEW, 23NP-LEW				798			

※ 1 Tolerance ± 3



Note) Material

- ① Tray : PS (Polystyrene)
- ② Cover : PS (Polystyrene)
- ③ Mat : PE (Polyethylene foam)
- ④ Tray box : Cardboard

Part No. label

Type	
Spec	
Quantity	
LOT No	
Date code	
MADE IN XXX	2D barcode
□□□□ (RoHS)	
NIDEC COMPONENTS	

PACKAGING DIP SWITCHES

PACKAGING SPECIFICATIONS FOR TAPING TYPE (PLASTIC REEL)

Part number	Q'ty/reel	Reel box					
		Maximum Q'ty/reel box	※1 Dimensions W × H × D (mm)	Gross weight (g)			
CJS-1200A, B (522)/2 Reel	1000	2000	260 × 48 × 260	617			
CJS-1201A, B (542)/2 Reel				637			
CAS-120TA, TB	1000	2000	260 × 48 × 260	617			
CAS-220TA, TB				669			
CAS-D20TA, TB				669			
CVS-01TB	2000	4000	260 × 48 × 260	708			
CVS-02TB				719			
CVS-03TB	1000	4000	260 × 48 × 260	809			
CVS-04TB	2000	4000	260 × 48 × 260	808			
CVS-08TB				1035			
CVS-01TB-1	500	1000	185 × 46 × 188	224			
CVS-02TB-1				237			
CVS-03TB-1				251			
CVS-04TB-1				264			
CVS-08TB-1				334			
CHS-01TA, TB	500	1000	260 × 48 × 260	617			
CHS-02TA, TB				585			
CHS-04TA, TB				633			
CHS-06TA, TB			260 × 63 × 260	681			
CHS-08TA, TB				843			
CHS-10TA, TB				888			
CHP-02	500	1000	260 × 48 × 260	647			
CHP-04 □ TA, TB				735			
CHP-08 □ TA, TB				979			
CMS-2202TA, TB	900	900	335 × 33 × 335	866			
CMS-2302TA, TB				911			
CMS-2402TA, TB				956			
CMS-2212TA, TB				932			
CMS-2312TA, TB				986			
CMS-2412TA, TB				1040			
CMS-2214TA, TB				932			
CMS-2314TA, TB				986			
CMS-2414TA, TB				1040			
CMS-4202TA, TB				500	500	335 × 41 × 335	905
CMS-4216TA, TB							1005
CUS-12TB				2500	2500	335 × 24 × 335	780
CUS-13TB	335 × 33 × 335	880					
CUS-14TB	1010						
CUS-22TB	1400	1400	335 × 24 × 335	660			
CSS-1210TB	1900	1900	335 × 24 × 335	760			
CSS-1310TB			335 × 33 × 335	900			
S-4010TA, TB	500	500	260 × 24 × 260	331			
SA-70 □ 0TA, TB	500	500	260 × 24 × 260	519			
SA-71 □ 0TA, TB				610			
SA-72 □ 0TA, TB				519			
SA-70 □ 1TA, TB			335 × 24 × 335	785			
SA-71 □ 1TA, TB				815			
SA-72 □ 1TA, TB				785			
SA-70 □ 2TB			335 × 33 × 335	683			
SA-71 □ 2TB				695			
SA-72 □ 2TB				683			
SA-70 □ 3TB			683	683			
SA-71 □ 3TB				695			
SA-72 □ 3TB				683			
CL-DA-1CB4-A2			1000	1000	260 × 24 × 260	490	
CL-DA-1BB4-A2					500		
CL-DB			1000	1000	260 × 24 × 260	454	
CL-SB-12A-0 □ T, 12B			500	500	335 × 33 × 335	648	
CL-SB-12A-1 □ T, 12B	648						
CL-SB-13A-0 □ T, 13B	672						
CL-SB-13A-1 □ T, 13B	677						
CL-SB-22A-0 □ T, 22B	651						
CL-SB-22A-1 □ T, 22B	655						
CL-SB-23A-0 □ T, 23B	680						
CL-SB-23A-1 □ T, 23B	686						

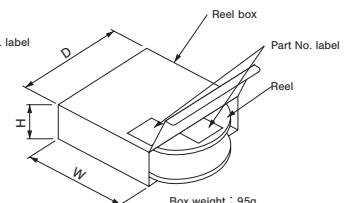
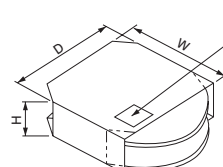
Part number	Q'ty/reel	Reel box				
		Maximum Q'ty/reel box	※1 Dimensions W × H × D (mm)	Gross weight (g)		
S-70 □ 0ETA, ETB	500	500	260 × 24 × 260	512		
S-70 □ 1ETA, ETB			335 × 24 × 335	763		
SH-70 □ 0TA, TB	500	500	335 × 24 × 335	655		
CS-32-12ZETA, ZETB	500	2000	185 × 74 × 185	420		
CS-32-12ZETG, ZETH			500	260 × 20 × 260	277	
CS-4-12YTA, YTB	500	2000	185 × 69 × 185	527		
CS-4-12XTA, XTB						
CS-4-13NTA, NTB						
CS-4-14NTA, NTB						
CS-4-22YTA, YTB						
CS-7-14TB	500	500	335 × 33 × 335	655		
SC-10 □ 0TB, 20 □ 0TB	500	500	333 × 33 × 333	816		
SC-12 □ 0TB, 22 □ 0TB						
SD-10 □ 0TB, 20 □ 0TB	500	500	333 × 33 × 333	826		
SD-12 □ 0TB, 22 □ 0TB						
CFS-0100TA, TB, 0101TA, TB	1000	1000	335 × 33 × 335	750		
CFS-0200TA, TB, 0201TA, TB				810		
CFS-0300TA, TB, 0301TA, TB				920		
CFS-0400TA, TB, 0401TA, TB				990		
CFS-0500TA, TB, 0501TA, TB				1110		
CFS-0600TA, TB, 0601TA, TB				1180		
CFS-0700TA, TB, 0701TA, TB			335 × 41 × 335	1370		
CFS-0800TA, TB, 0801TA, TB				1440		
CFS-0900TA, TB, 0901TA, TB			335 × 53 × 335	1670		
CFS-1000TA, TB, 1001TA, TB				1730		
CFS-0102TA, TB, 0103TB			800	800	335 × 33 × 335	690
CFS-0202TA, TB, 0203TB						760
CFS-0302TA, TB, 0303TB	830					
CFS-0402TA, TB, 0403TB	910					
CFS-0502TA, TB, 0503TB	980					
CFS-0602TA, TB, 0603TB	1060					
CFS-0702TA, TB, 0703TB	335 × 41 × 335	1190				
CFS-0802TA, TB, 0803TB		1350				
CFS-0902TA, TB, 0903TB	335 × 53 × 335	1430				
CFS-1002TA, TB, 1003TB		1480				
CFP-02 □ □ TB	500	500			335 × 33 × 335	810
CFP-03 □ □ TB						890
CFP-04 □ □ TB			970			
CFP-05 □ □ TB			1060			
CFP-06 □ □ TB			335 × 41 × 335	1190		
CFP-08 □ □ TB				1440		
CFP-10 □ □ TB			335 × 53 × 335	1677		
CYP-0200B, 0201B, 0202B				700	700	335 × 33 × 335
CYP-0210B, 0211B, 0212B	800					
CYP-0400B, 0401B, 0402B	800					
CYP-0410B, 0411B, 0412B	980					
CYP-0600B, 0601B, 0602B	335 × 41 × 335	1124				
CYP-0610B, 0611B, 0612B		1124				
CYP-0800B, 0801B, 0802B		1124				
CYP-0810B, 0811B, 0812B		1124				
CYP-1000B, 1001B, 1002B	335 × 53 × 335	1280				
CYP-1010B, 1011B, 1012B		1280				

Notes) Reel material : Plastic (Polystyrene)

※1 Tolerance±5

CS-4, CS-32 (A-B),
CVS-XX-1 reel box

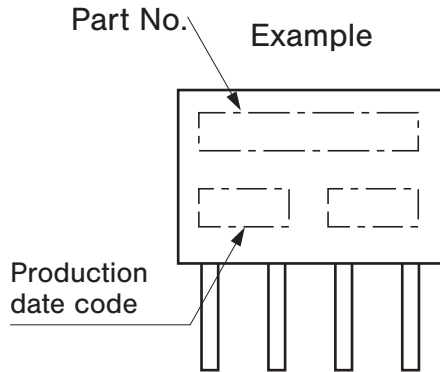
CS-32 (G-H), CJS, CAS, CVS, CHS, CHP,
CFS, CFP, CMS, S-4000, SA-7000, S-7000,
SC-1000/2000, SD-1000/2000,
SH-7000, CS-7, CL-DA, CL-DB, CL-SB reel box



MARKING DIP SWITCHES

1. Production date code (No. 1)

Production date code is exhibited on each product as shown in below.



Note

- Date code marking position is per outline drawing of each model.
- Marking of Part No. is made for the following models.

S-1000A/2000A	RD
SA-5000	SS-10 (Rotary switches)
S-8000	RS/RG (Rotary switches)

Production date code

year	code	Month	code
1999	9	1	A
2000	0	2	B
2001	1	3	C
2002	2	4	D
2003	3	5	E
2004	4	6	F
2005	5	7	G
2006	6	8	H
2007	7	9	J
2008	8	10	Y
2009	9	11	L
2010	0	12	M
...	...	—	—

Date code, in principle, consists of one digit and one capital letter. Per above table the last digit of year represents, a year while a capital letter a month.

Example) Manufactured in Sep. of 2008.

Models of date code application

DIP switches

CVS
CHS
CHP
CFS
CES
CFP
CYP
RD
S-1000A/2000A
SC-1000/2000
SD-1000/2000
S-4000
SA-5000
SA-7000
S-7000
SH-7000
S-8000

Slide switches

CJS
CAS
CL-SA
CL-SB
CRFS
CMS
CUS
CSS

Rotary switches

CS-4
CS-7
SS-10
RS/RG

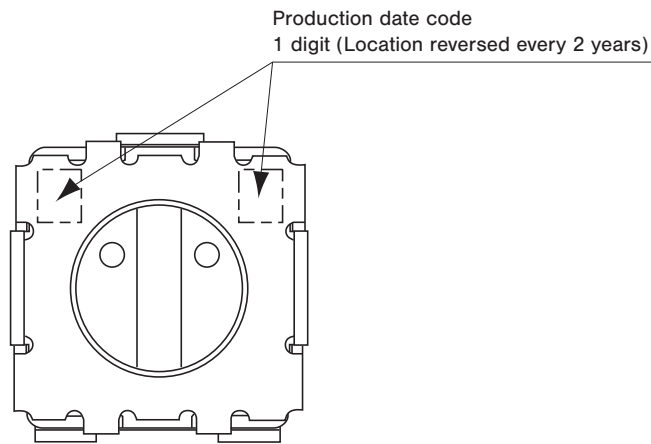
Pushbutton (Detect) switches

CL-DA
CL-DB

MARKING DIP SWITCHES

1. Production date code (No. 2)

Production date code is exhibited on each product as shown in below.



The model that this marking method is applicable : Rotary switch CS-32

Production date code

Stamping position	Year			
	Upper right	Upper left		Upper right
Month	1999	2000	2001	2002
	2003	2004	2005	2006
	2007	2008	2009	2010
1	A	N	A	N
2	B	P	B	P
3	C	Q	C	Q
4	D	R	D	R
5	E	S	E	S
6	F	T	F	T
7	G	U	G	U
8	H	V	H	V
9	J	W	J	W
10	K	X	K	X
11	L	Y	L	Y
12	M	Z	M	Z

In principle, capitals per the table are used, commencing with January of 2001 as A in order. The same arrangement will be repeated after 48 months or 4 years.

2. Coating and potting

If the switch is coated or potted, the movable parts may lock, making readjustment difficult.

Further, if coating or potting is made, make sure that the hardening temperature does not exceed 70°C .

In actual coating and potting, please make sure before use that the using conditions differ respectively.

Please note that the CVS, CHS, CHP, CFP, CYP, CES & Slide switches CJS, CAS, CL-SA, CL-SB, CRFS, CMS, CUS, CSS are not of sealed construction and therefore cannot be coated or potted. For details, please refer to page 152.

HANDLING NOTES

DIP SWITCHES

1. Caution for storage

When storage of the products, it must consider terminal soldering-ability, packaging function with temperature and humidity may effect the product. Especially, be caution on the below items.

- 1) Under High temperature and High humidity, the package will accelerate aging variation. It is recommended to store the product under room temperature 25°C with relative humidity 75%.
- 2) To avoid store under sulfidizing gas/corrosive gas environment.
- 3) Handle with care to avoid the terminal change of shape.
- 4) To avoid direct daylight and dust.
- 5) Only open the standard package at the last minute before use.
- 6) When storing the switches, please take precautions such as putting them in vinyl bags to avoid terminal discoloration. And do not store the switches at high temperature, high humidity, or where harmful gas exists.

For products manufactured 3 to 6 months before, depending on their storage location, reinspection is recommended before use.

- 7) When terminal discoloration is found, clean the discolored areas before use.

2. Using Environment

Be caution, it is not suitable for the below conditions.

- Sulfidizing gas, corrosive gas, reducing gas of atmosphere
- Rapid cooling of solvents
- Long time dipping into solvents (specially at high temperature)
- High humid environment

3. Soldering condition

Generally, it is possible to use soldering construction method.

However,if use flow soldering,it does require to consider carefully condition of wave soldering.

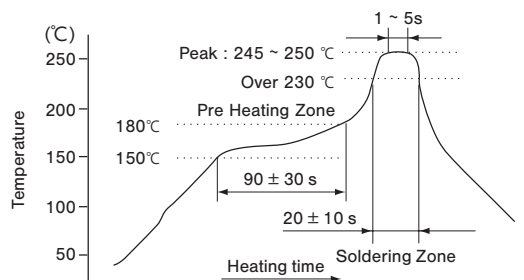
(The amount of flax applied to the switches has to be minimized. After apply flux,it must carry out pre-heat process.)

It may not suitable for condition of high package density or equipment.

● Infrared reflow soldering < SMD type in common >

For lead free soldering, it is recommended as indicate on the below temperature profile drawing. However, concerning infrared heater style, It depends on physical object's color and material. The infrared absorb fraction varied, heating degree will be changed. If the temperature of product is more than 260°C , it will change the shape of product. Be caution, do not excess temperature 260°C on the surface of the product.

● Infrared reflow soldering



Reflow : two times maximum
Recommended profile for Lead-free soldering

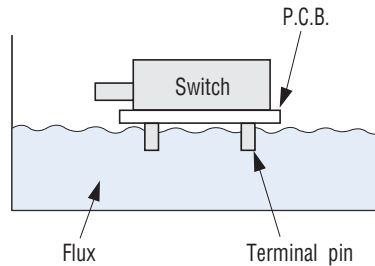
HANDLING NOTES

DIP SWITCHES

● Flow soldering

< Through hole type in common >

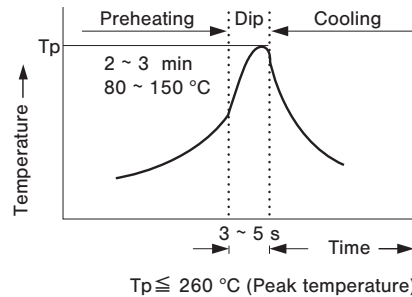
Use Rosin series flux with non-corrosive
 When apply flux, make sure do not overflow on PCB



After apply flux, it must carry out pre-heat.
 Make sure the product does not touch soldering.
 If the product touch soldering, the product shape will be changed. It causes production function degradation.
 The temperature of soldering bath should be at 245 ~ 260°C .
 The dipping time is 3 ~ 5 second per operation. The total dipping time must not exceed 10 seconds.

For flow soldering, it is recommended as indicate on the below temperature profile drawing.

● Flow soldering



Recommended profile for Lead-free soldering

<S-7000, SH-7000, DRS/DRR, S-1000A/2000A, SC-1000/2000, SA-5000, S-8000, RD, Rotary switches SS-10/S-2050, RS/RG in common > (C type of S-7000, SH-7000, SC-1000/2000)

The amount of flux applied to the switches has to be minimized.
 The contact section will be sealed by O ring. Although the flux does not get inside the switch. If the flux remain between up rotor and cover, The torque may be heavy. Due to this, it must minimally apply flux. After the soldering, please wash off after soldering.

< SA-7000, SD-1000/2000 (C type) in common >

Due to non seal structure, please apply flux on terminal section only. After soldering, do not wash off.

HANDLING NOTES

DIP SWITCHES

<CVS-01C and CFS, CFP, CYP, CES, Slide switches CL-SB, CRFS, CMS (C type) in common>

Due to open structure, please apply flux on terminal section only. After soldering, do not wash off.

(CFS, CYP are washable type, it can be washed.)

● Manual soldering (Through hole type)

For soldering by soldering gun, it is recommended to use a small soldering gun under 380°C within 3 seconds. The soldering gun tip must not touch to the housing resin, but only to the terminal.

● Soldering iron

3 s maximum at 350°C

4. Cleaning

< CHS(All of these items, washable type only with seal tape), S-7000, S-1000A/2000A, SA-5000, S-8000, Slide switches CJS, CAS, Rotary switches CS-32, CS-4, SS-10/S-2050 in common >

It can be cleaned in general. Be caution on the following points.

- After the soldering, make sure the product temperature well cool off below room temperature 30°C, then proceed for clearing. If we dip the product with hot temperature into cleaning liquid, the inner section of the product will be shrinking. The absorption phenomenon will be incurred. The cleaning liquid will go into inner section. Moreover, the products can not apply for special cleaning such as vacuum (decompression) cleaning. Do not use special clearing.
- The washable of wash liquid stated as below, it depends on the wash liquid. It may affect the product material and outlook. Be caution.

CLEANTHROUGH 750HS [Kao Corporation]

PINE ALPHA ST-100S [ARAKAWA CHEMICAL INDUSTRIES LTD.]

AK225AES [ASAHI GLASS COMPANY]

Water cleaning

Alcohol

※ It is not suitable for hydrocarbon series clear liquid.

※ Flon and trichloroethane are ozone-depleting substance.

From protect earth environment point view, please do not use them.

< S-4000, SA-7000, SD-1000/2000 in common >

- Due to non sealed structure, it can not be washed. Be caution.

< CVS, CHP, CFP, CES, Slide switches CL-SA, CL-SB, CRFS, CMS, CUS, CSS, Detect switchs CL-DA, CL-DB in common >

- Due to open structure, it can not be washed. Be caution.

< CFS, CYP(Washable type), CS-7, SH-7000, DRS/DRR, SMR/SMRR, SC-1000/2000, Rotary switches CS-7 in common >

- Water cleaning

- Alcohol

HANDLING NOTES

DIP SWITCHES

< RD, Rotary switches RS/RG in common >

- Regarding bolt of clean liquid, it must control of the flux density under(volume) 5%. If the flux blot density above 5%, the torque will be big. It will destroy click structure in the worse case.

5. Clean method

The method of apply cleaning stated as below.
Please minimized cleaning time.

○ : Possible × : Not possible

Method	Applicability	Time	Note
Dipping	○	Approx. 2 min	_____
Ultrasonic	○		_____
Vapor	○		_____
Showering	○		_____
Brushing	×	—	Marking ink will be removed

※ Series of CYP(washable type), CS-7, SH-7000 and SC-1000/2000 are applicable only dipping.

- After the cleaning, make sure it well dry. If it is not well dry, the varied of torque may incur electrical damage.
- For CHS, CFS, CYP and Slide switches CJS, CAS, it is washable type.
when cleaning, do not peeling off the seal tape on the surface.
- For vacuum (decompression) cleaning, be caution do not mix 2 different liquids.
- After cleaning, when peel off washable sealing tape, it might have some glue left over.

6. Combination of cleaning methods

The cleaning combination examples stated as below.
In this case, the cleaning time should be approximately
1 minute respectively.

- 1) Dipping (1 min) + Vapor (1 min)
- 2) Ultrasonic (1 min) + Dipping (1 min)
- 3) Showering (1 min) + Vapor (1 min)

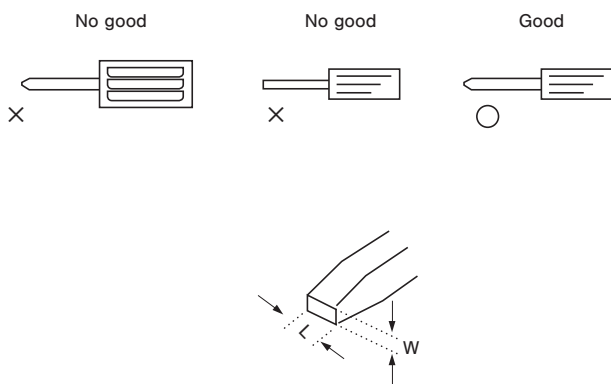
※ Be caution of the condition can be changed. Please check before actual cleaning.

HANDLING NOTES

DIP SWITCHES

7. Screwdriver to use

Be sure to use a small screwdriver with the correct size bit. If the handle is too large or the bit is too small, the switch end stops or setting slot may be damaged.



The driver bit size for a setup (reference value)

Sereis	Tip thickness	Tip width
CS-32(Rotary switches)	0.2 ~ 0.4	1.5 ~ 1.7
CS-4(Rotary switches)	0.4 ~ 0.5	1.8 ~ 2.0
S-4000		
SA-7000	0.5 ~ 0.6	2.0 ~ 2.4
S-7000		
SH-7000	0.5 ~ 0.6	2.0 ~ 2.2
CS-7(Rotary switches)		
SS-10/S-2050(Rotary switches)	0.5 ~ 0.6	2.0 ~ 2.5
S-1000A/2000A		
SC-1000/2000		
SD-1000/2000		
SA-5000		
S-8000		
RS/RG(Rotary switches), RD	0.5 ~ 0.6	2.4 ~ 3.0

< CVS, CHS, CHP, CFS, CFP, CYP , Slide switches CJS,CAS in common >

Be sure to use an edge of tweezers with tip width of about 0.8mm to set up the switch.

8. Be caution of setting

< S-1000A/2000A, SC-1000/2000, SD-1000/2000, SA-5000, S-8000 , Rotary switches SS-10/SA-2050 in common >

When set up the switch, rotate the shaft, it does feel clicking.

The switch does not have a stop structure in mid flow.

To avoid over click and stop in mid flow.

Moreover, for code switch case, code ambiguity may occur during transition from one code position to another. (Except SS-10 series)

HANDLING NOTES

DIP SWITCHES

< Pushbutton (Detect) switches CL-DA, CL-DB in common >

- When operate the switch, do not apply force over than rated load sufficiently.
- Be caution to use On (begin) position with sufficient allowance from travel distance.
- For NC : ON → (OFF) type, make sure knob must return to the free position of operation setting.
- The switch-restoring force cannot be used as the mechanism driving force of any set.
- The switch body and the knob of termination cannot be used as the operating body termination.
- Make sure the operating body move in a direction where the knob moves, and the operating body is applied a force to the knob vertically.
(See drawing below)

9. Strength of terminals

Do not bend or twist the terminals, as this will weaken or break the terminals.

10. Automatic mounting (SMD type in common)

The switches are compatible with automatic mounting machines. However, confirm the type of mounting machine before use, since some machines are not applicable.

11. Coating (potting)

< S-7000, S-1000A/2000A, SA-5000, S-8000, RD, Rotary switches CS-32, CS-4, SS-10/SA-2050, RS/RG in common >

If the switch is coated or potted, the movable parts may lock, making readjustment difficult. Further more, if coating or potting is made, make sure that the hardening temperature does not exceed 70°C.

Do not use coating and potting material containing the following substance.

- Methylene chloride
- Thinner
- Acetone
- Xylene

<S-4000, SA-7000, SH-7000, SD-1000/2000, Slide Switchs CAS, CVS, CHS, CHP, CFS, CFP, CYP, CJS, CL-SA, CL-SB, CRFS, CMS, CUS, CSS, Detect switchs CL-DA, CL-DB, Rotary switchs SC-1000/2000, CS-7 in common >

Due to open structure, be caution do not coating or potting.

GLOSSARY

DIP SWITCHES

● Stopper strength mN·m

This shows the mechanical strength of the stops employed to limit the rotation of the rotor. A designated torque is applied to the switch axis, etc., and the strength is measured.

● Rotational torque mN·m

This shows the operating force required to turn the rotor of a rotary type switch.

● Switching timing

Timing is either shorting or non-shorting.

Shorting: In this case, when switching contacts on the same circuit, the second connection is made before the previously connected terminal is electrically disconnected, after which the circuit completely switches over to the correct position.

Non-shorting: This case differs from shorting in that during the switch over, ② is completely electrically disconnected from ① and ③, after which ② and ③ are connected at the new connection location.



● Click (detent)

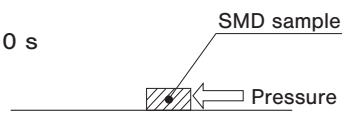
The method whereby the set position is checked in a sensory manner.

● Shear (Adhesion)

This test is to evaluate if any damages like electrode stripping, breaks, or cracks occur on SMD component soldered to the printed circuit board due to stress from the flank.

Pressure: 5 N

Holding time: 10 s



GLOSSARY

DIP SWITCHES

● Contact

① A contact occurs when two insulated conductors touch each other.

② A contact is the small touching area between two conductors. In a switch, this is the conductive metal connection that controls the opening and closing of the electric circuit.

● Operating force N

This is the maximum force when sliding a knob.

● Contact resistance [mΩ]

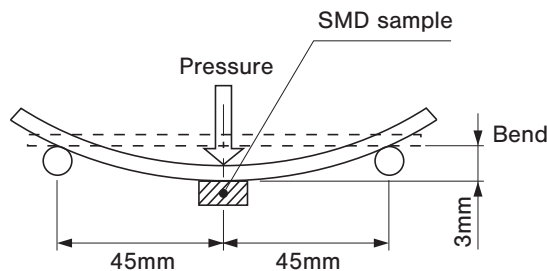
This is the electrical resistance that occurs between contact points when a switch is closed.

● Insulation resistance [MΩ]

The insulation resistance value given by taking measurements at a given voltage between two terminals or between a terminal and ground.

● Substrate bending

This test is to evaluate durability against stress due to distortion on the printed circuit at time or after SMD is mounted.



● Dielectric strength [V]

This shows the specified voltage that can be applied between two terminals or between a terminal and ground without causing a short.

● Terminal strength N

This shows the strength of the tip of the terminal to withstand a static load for a fixed period of time without breaking.

● Rating [VA]

This shows the maximum voltage and current capacity of a switch. Use in excess of the rated capacity will result in failure.

● Soldering heat

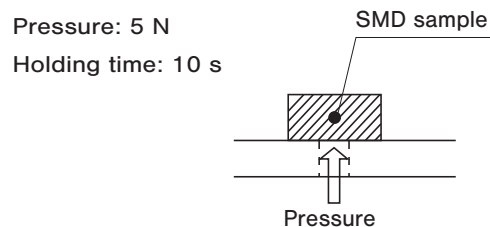
This is to evaluate heat resistance in soldering SMD component.

● Solderability

This is a wetting evaluation test to find out how much new solder covers the terminals when immersed in the soldering bath, and to confirm the proper fillet formation in soldering process.

● Pull-off strength

This test is to evaluate adherence strength of SMD component soldered to the printed circuit board against peel off strength.



● Low voltage & current rating

This is operatable margin in the load range of low voltage & low current.

● Binary coded decimal notation (BCD)

This is a numbering system where each digit of a base 10 (decimal) number is expressed in binary notation.

● BCH

Binary Coded Hexa-decimal. Each row in hexa decimal is represented by binary coded system.

● BCO

Binary Coded Octal. Each row in octal is represented by binary coded system.

● SCSI

This is a micro computer control system and abbreviated from Small Computer System Interface, which controls 8 units.

● Hexadecimal

This is a number system that uses 16 as a base. A ~ F are used to express the base 10 numbers from 10 ~ 15.