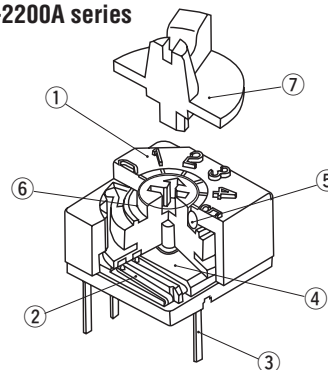


FEATURES

- Protection against dust and washable after soldering
- Pin compatible with conventional DIP switches
- "S-1000A Series" can be used for full setting of 4 bits in a PC peripheral
- "S-2000A Series" is effective for digital setting in man-machine interface

INTERNAL STRUCTURE

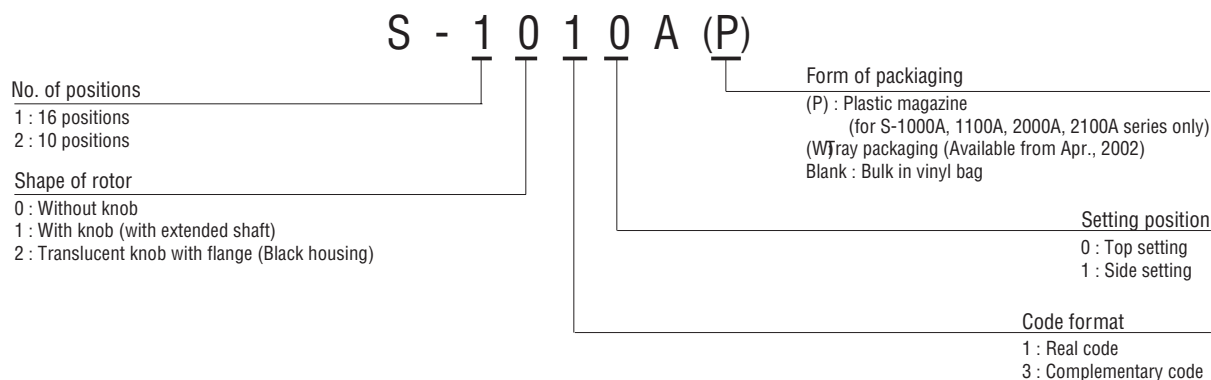
S-1200A / S-2200A series



| | Part name | Material | Flammability |
|---|------------------------------|---|--------------|
| ① | Housing | PBT (Polybutyleneterephthalate) | UL-94HB |
| ② | Contact | Copper alloy, Gold-plated | — |
| ③ | Terminal pin | | |
| ④ | Base | PBT (Polybutyleneterephthalate) | UL-94HB |
| ⑤ | "O" ring | Silicone rubber | |
| ⑥ | Insert rotor | Rotor : POM (Polyoxymethylene) Pattern : Copper alloy, Gold-plated | UL-94V-2 |
| ⑦ | Translucent knob with flange | PAR (Polyarylate) | |

CFCs, Halon, Carbon tetrachloride and designated bromic flame retardant PBBs and PBBs are not used in our products.

PART NUMBER DESIGNATION



* Please refer to the LIST OF PART NUMBERS when placing orders.

LIST OF PART NUMBERS

| Shape of rotor | Form of packaging | Binary coded decimal | | Binary coded hexadecimal | | Pieces in package | |
|--------------------|-------------------|----------------------|--------------------|--------------------------|--------------------|-------------------|----------------|
| | | Real code | Complementary code | Real code | Complementary code | | |
| Top setting | Without knob | Magazine | S-2010A (P) | S-2030A (P) | S-1010A (P) | S-1030A (P) | 50 pcs. /stick |
| | | Bulk packaging | S-2010A | S-2030A | S-1010A | S-1030A | 25 pcs. /pack |
| | | tray packaging (*) | S-2010A (W) | S-2030A (W) | S-1010A (W) | S-1030A (W) | 50 pcs. /sheet |
| | With knob | Magazine | S-2110A (P) | S-2130A (P) | S-1110A (P) | S-1130A (P) | 25 pcs. /stick |
| | | Bulk packaging | S-2110A | S-2130A | S-1110A | S-1130A | 25 pcs. /pack |
| | | tray packaging (*) | S-2110A (W) | S-2130A (W) | S-1110A (W) | S-1130A (W) | 50 pcs. /sheet |
| | Translucent knob | Bulk package | S-2210A | S-2230A | S-1210A | S-1230A | 25 pcs. /pack |
| | | tray packaging (*) | S-2210A (W) | S-2230A (W) | S-1210A (W) | S-1230A (W) | 50 pcs. /sheet |
| | Side setting | Without knob | Magazine | S-2011A (P) | S-2031A (P) | S-1011A (P) | S-1031A (P) |
| Bulk packaging | | | S-2011A | S-2031A | S-1011A | S-1031A | 25 pcs. /pack |
| tray packaging (*) | | | S-2011A (W) | S-2031A (W) | S-1011A (W) | S-1031A (W) | 50 pcs. /sheet |
| With knob | | Magazine | S-2111A (P) | S-2131A (P) | S-1111A (P) | S-1131A (P) | 25 pcs. /stick |
| | | Bulk packaging | S-2111A | S-2131A | S-1111A | S-1131A | 25 pcs. /pack |
| | | tray packaging (*) | S-2111A (W) | S-2131A (W) | S-1111A (W) | S-1131A (W) | 50 pcs. /sheet |
| Translucent knob | | Bulk package | S-2211A | S-2231A | S-1211A | S-1231A | 25 pcs. /pack |
| | | tray packaging (*) | S-2211A (W) | S-2231A (W) | S-1211A (W) | S-1231A (W) | 50 pcs. /sheet |

(*) Tray package will be available from Apr., 2002.

STANDARD SPECIFICATIONS

| | |
|-----------------------------|--|
| Circuit type | BCD (Real code, complementary code) BCH (Real code, complementary code) |
| Operating temperature range | -25 ~ 70 °C |
| Storage temperature range | |
| Sealing | Washable by "O" ring |
| Net weight | Approx. 0.87 g (S-1010A, S-1030A, S-2010A, S-2030A) Approx. 1.13 g (S-1011A, S-1031A, S-2011A, S-2031A) Approx. 0.97 g (S-1110A, S-1130A, S-2110A, S-2130A) Approx. 1.23 g (S-1111A, S-1131A, S-2111A, S-2131A) Approx. 1.02 g (S-1210A, S-1230A, S-2210A, S-2230A) Approx. 1.28 g (S-1211A, S-1231A, S-2211A, S-2231A) |

ELECTRICAL CHARACTERISTICS

| | |
|-----------------------|---|
| Contact rating | DC50 V 100 mA DC5 V 100 mA DC20 mV 1 μA |
| Non-switching | |
| Switching | |
| Minimum | |
| Contact resistance | 100 mΩ maximum |
| Insulation resistance | 1000 MΩ (DC100 V) minimum |
| Dielectric strength | AC300 V, 50 Hz, 60 s |

MECHANICAL CHARACTERISTICS

| | |
|-------------------|--------------------------------|
| No. of positions | 16 (S-1000A), 10 (S-2000A) |
| Adjustment torque | 13 mN·m {133 gf·cm} minimum |
| Stepping angle | 22.5° (S-1000A), 36° (S-2000A) |
| Rotational life | 10000 steps minimum |
| Terminal strength | 15 N {1.53 kgf} minimum |
| Solderability | 230 ± 5 °C, 3 s |
| Soldering heat | 260 ± 5 °C, 10 s |

{ } : Reference only

ENVIRONMENTAL CHARACTERISTICS

| | |
|---------------------------|---|
| Vibration | Amplitude of 1.5 mm (p-p) or Acceleration of 98 m/s ² , 10-500-10 Hz, 3 directions for 2 h each |
| Shock | 490 m/s ² , 11 ms 6 directions for 3 times each |
| Humidity (Steady state) | 60 °C, Relative humidity 90 ~ 95 %, 1000 h |
| High temperature exposure | 70 °C, 1000 h |
| Low temperature exposure | -25 °C, 96 h |
| Thermal shock | -25 (0.5 h) ~ 70 °C (0.5 h), 5 cycles |

S-1000A/2000A ROTARY CODED SWITCHES

■ TERMINAL CONNECTION / P.C.B. THROUGH HOLE DIMENSIONS

(Unit: mm)

| | Top setting | Side setting |
|--|--|--|
| Terminal pin layout (Bottom view) | <p>Real code</p> <p>Complementary code</p> | <p>Operating face of real code</p> <p>Operating face of complementary code</p> |
| P.C.B. dimensions (Bottom view) | | |

■ CODE FORMAT

| No. of positions | | S-1000A series (16 positions) | | | | | | | | | | | | | | | | |
|------------------|--------------------|-------------------------------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | S-2000A series (10 positions) | | | | | | | | | | A | B | C | D | E | F | |
| Position | | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | A | B | C | D | E | F | |
| Code | Real code | 8 | | | | | | | | ● | ● | ● | ● | ● | ● | ● | ● | |
| | | 4 | | | | | ● | ● | ● | ● | | | | ● | ● | ● | ● | |
| | | 2 | | | ● | ● | | | ● | ● | | | ● | ● | | | ● | ● |
| | | 1 | | ● | | ● | | | ● | ● | | ● | | ● | | ● | | ● |
| | Complementary code | 8 | ● | ● | ● | ● | ● | ● | ● | ● | | | | | | | | |
| | | 4 | ● | ● | ● | ● | | | | | ● | ● | ● | ● | | | | |
| | | 2 | ● | ● | | | ● | ● | | | ● | ● | | | ● | ● | | |
| | | 1 | ● | | ● | | ● | | ● | | ● | | ● | | ● | | ● | |

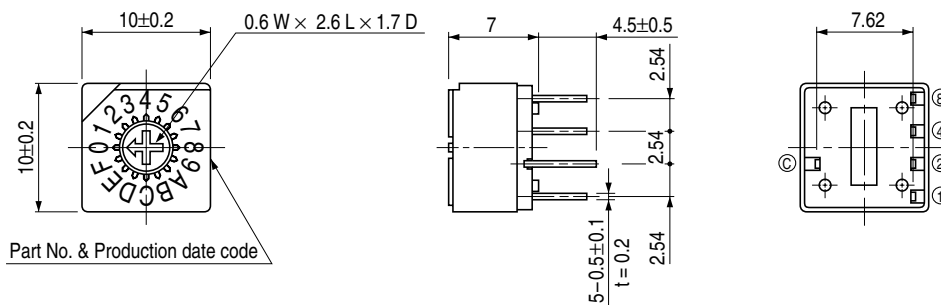
● ... Contact closed

OUTLINE DIMENSIONS

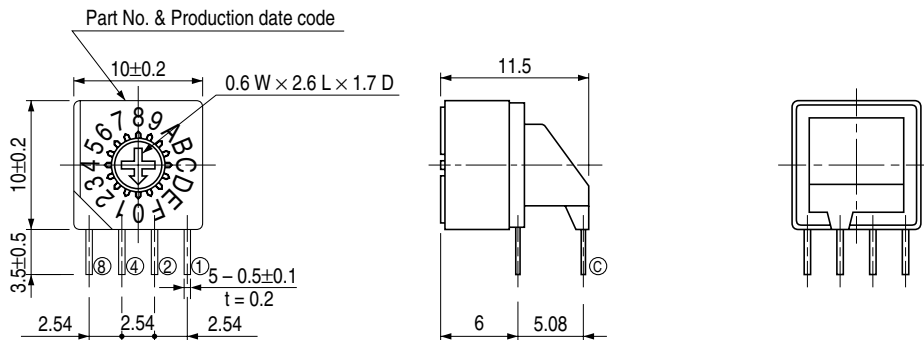
Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

(S-1000A series)

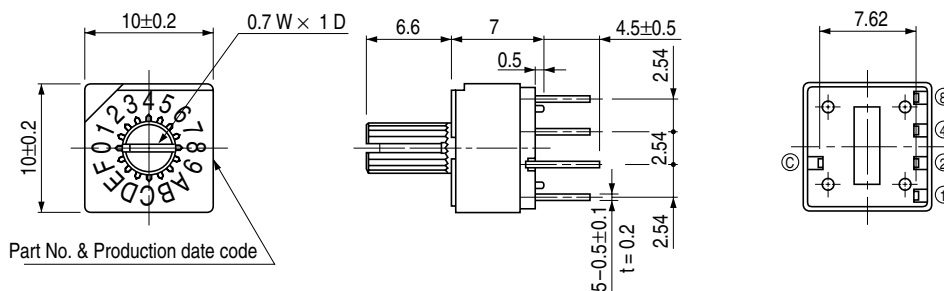
- S-1010A
 - S-1030A
- Top setting



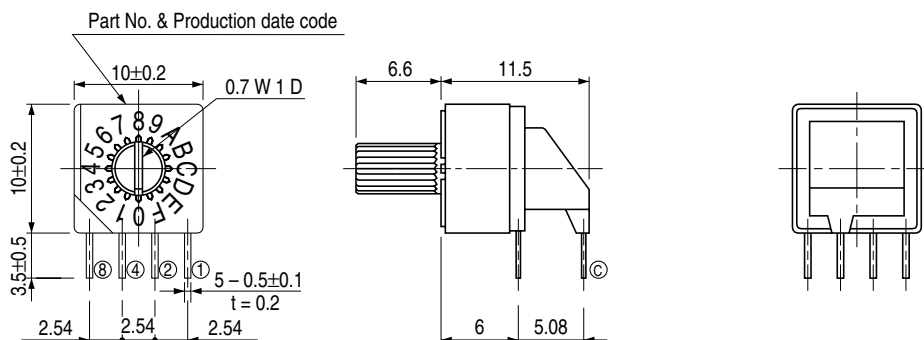
- S-1011A
 - S-1031A
- Side setting



- S-1110A
 - S-1130A
- Top setting



- S-1111A
 - S-1131A
- Side setting



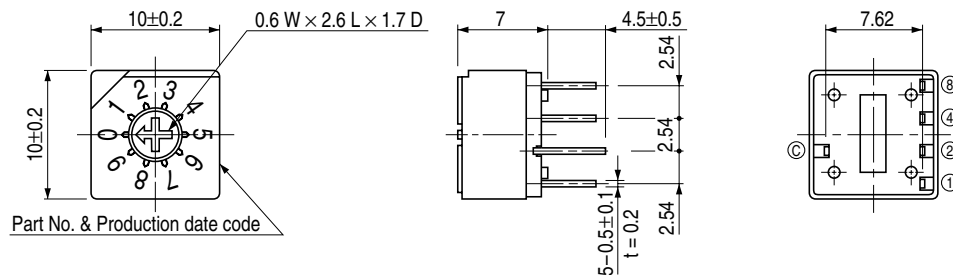
S-1000A/2000A ROTARY CODED SWITCHES

OUTLINE DIMENSIONS

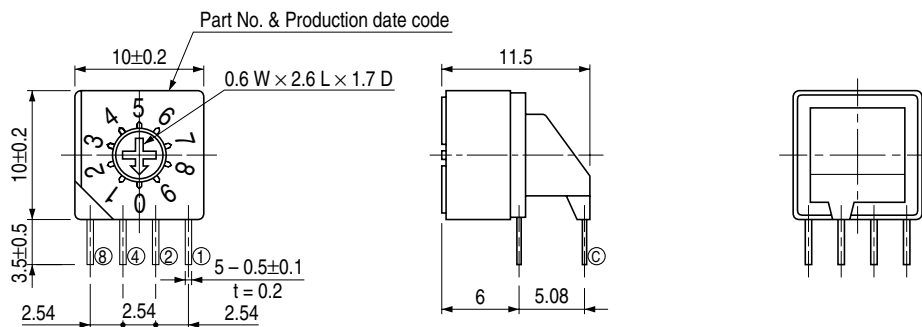
Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

(S-2000A series)

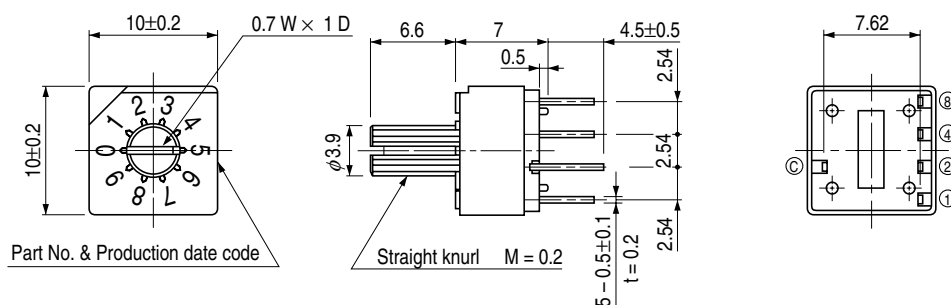
- S-2010A
 - S-2030A
- Top setting



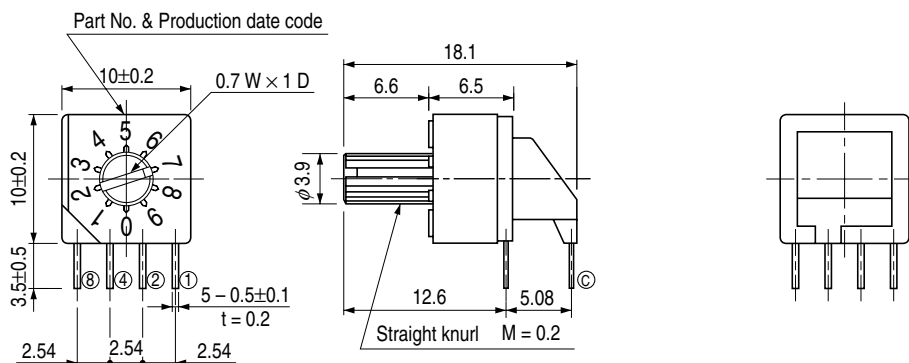
- S-2011A
 - S-2031A
- Side setting



- S-2110A
 - S-2130A
- Top setting



- S-2111A
 - S-2131A
- Side setting

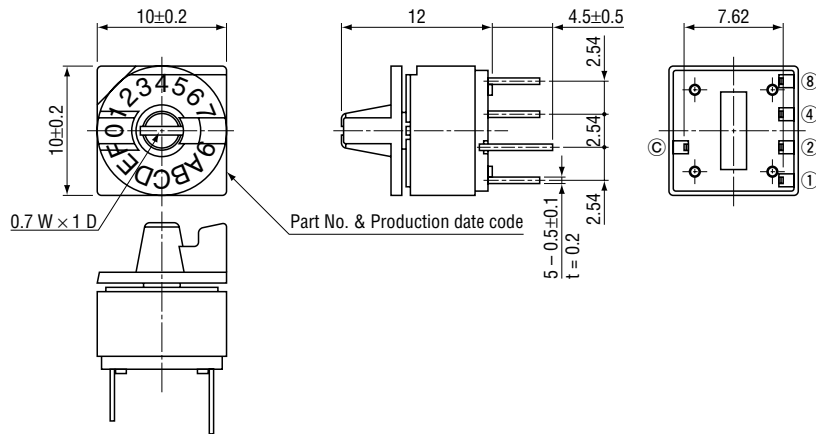


OUTLINE DIMENSIONS

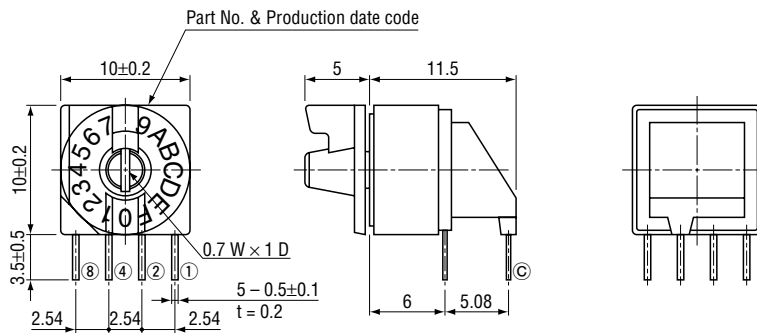
(S-1200A/2200A series)

Unless otherwise specified, tolerance: ± 0.3 (Unit: mm)

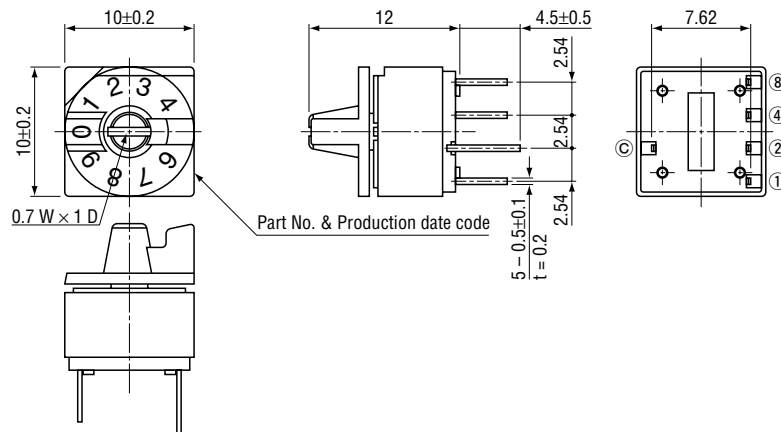
- S-1210A
 - S-1230A
- Top setting



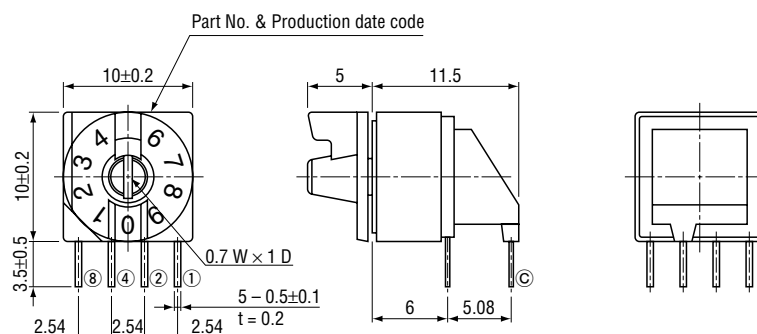
- S-1211A
 - S-1231A
- Side setting



- S-2210A
 - S-2230A
- Top setting



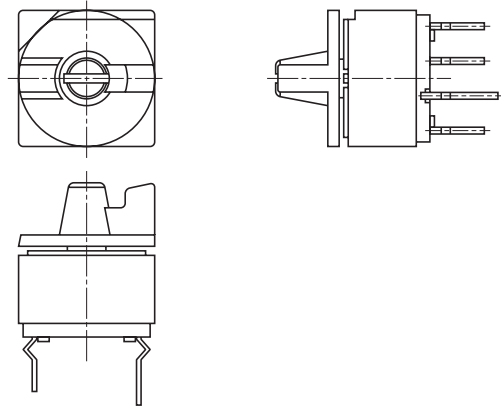
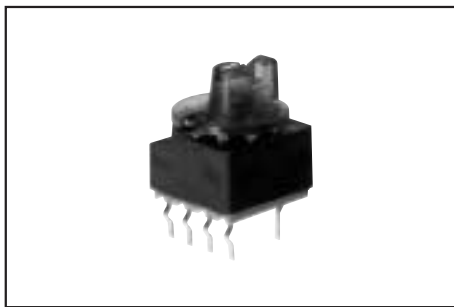
- S-2211A
 - S-2231A
- Side setting



S-1000A/2000A ROTARY CODED SWITCHES

■ OUTLINE DIMENSIONS

- Snap-in terminal pin with translucent knob with flange, are available as semi-standard on made-to-order basis.
S-1200AK and S-2200AK



■ PACKAGING SPECIFICATIONS

<Vinyl pack specifications>

- The smallest unit of bulk in vinyl bag packaging is 10 pcs. per pack.
Orders will be accepted for unit of minimum 10 pcs., i.e., 10, 20, 30 pcs. , etc.
- Boxing of bulk in vinyl bags is performed with 25 pcs. (standard 50 pcs.) per box.

<Plastic magazine specifications>

- Plastic magazine is packed 25 pcs. per stick, but the top setting and without knob types are packed 50 pcs. per stick.
Orders will be accepted for units of 50 pcs., i.e., 50, 100, 150 pcs. , etc.

- Plastic magazine are packed 4000 pcs. per box for the top adjustment version without a knob and 2000 pcs. per box for the side adjustment version and those with a knob (extended shaft).

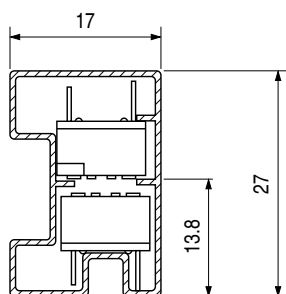
<Tray packaging specifications>

- Tray packaging is available from Apr., 2002.
For more information, please contact us.

● Plastic magazine dimensions

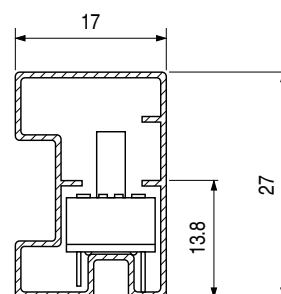
(Unit: mm)

- S-1010A (P) / S-1030A (P)
- S-2010A (P) / S-2030A (P)



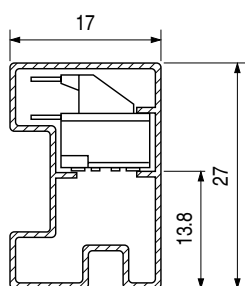
Pieces per stick = 50 pcs.

- S-1110A (P) / S-1130A (P)
- S-2110A (P) / S-2130A (P)



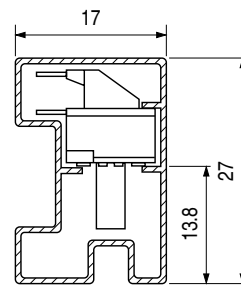
Pieces per stick = 25 pcs.

- S-1011A (P) / S-1031A (P)
- S-2011A (P) / S-2031A (P)



Pieces per stick = 25 pcs.

- S-1111A (P) / S-1131A (P)
- S-2111A (P) / S-2131A (P)



Pieces per stick = 25 pcs.

※ Plastic magazine length = 285 ± 2 mm

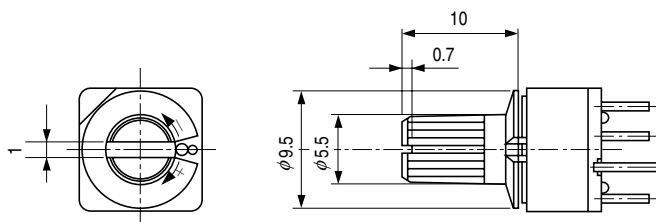
<Bulk packaging specifications>

- Bulk packing is made by a small packing box and vinyl bags.

- One vinyl bag contains 25 pcs. and the small packing box contains 2 vinyl bags or 50 pcs.

■ LARGE KNOB 'K1'

(Unit: mm)



The large knob is common to S-1000A, S-2000A, SA-5000 and SS-10 series.

Note : The switch with a large knob for manual adjustment is available as a semi standard item.