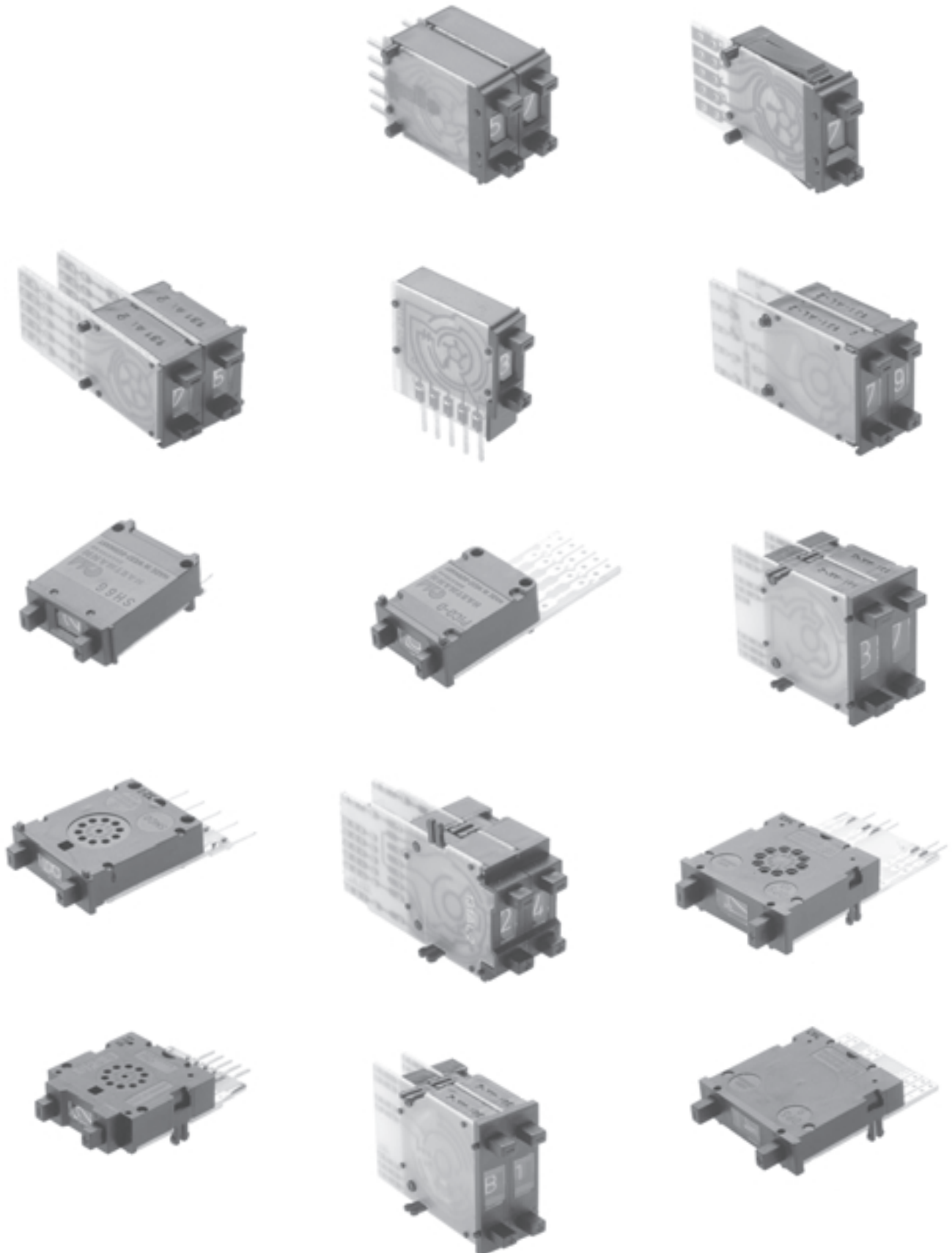


PUSHWHEEL SWITCHES

SEE PUSHWHEEL SWITCH SELECTION GUIDE ON NEXT PAGE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



PUSHWHEEL SWITCHES

PUSHWHEEL SWITCH SELECTION GUIDE: This section contains an extensive variety of pushwheel switches with numerous options and accessories. To facilitate easy selection of the desired switch for your application, this guide lists the various Series with some key selection parameters.

New!

| SERIES | SCSI | SH6/6G/6S | PICOD | SMCD | DPS8 | DPS9 | DPS10 |
|--|--------------|------------------|---------------|----------------|----------------|----------------|----------------|
| PAGE(S) | J3-J4 | J5-J7 | J8-J10 | J11-J13 | J14-J16 | J17-J19 | J20-J22 |
| Panel mounting hole: Height | .562" | .590" | .590" | .945" | .709" | 1.300" | 1.300" |
| Width | .425" | .236" | .300" | .315" | .315" | .315" | .394" |
| Insertion from front | x | x | x | x | | x | x |
| Insertion from rear | | x | x | x | x | | |
| CODES positions | | | | | | | |
| 111 decimal 10 | | | x | x | x | x | x |
| 131 BCD 8 | x | | | | | | |
| 131 BCD 10 | x | x | x | x | x | x | x |
| 137 BCD comp 10 | | x | x | x | x | x | |
| 141 BCD+comp 10 | | | | x | x | x | |
| 301 hexadecimal 16 | | | x | x | x | x | x |
| 307 hex.comp. 16 | x | | x | | | x | x |
| 400 change-over 10 | | x | x | x | x | x | x |
| MISC. ELECTRICAL | | | | | | | |
| Contact load, static (max.): | 0.5 A | 0.5 A | 0.5 A | 1 A | 1 A | 1 A | 1 A |
| Electric life, min. switching cycles: | 10,000 | 100,000 | 100,000 | 1,000,000 | 1,000,000 | 1,000,000 | 1,000,000 |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Sockets for pushwheel switches - see page J23.

New! SCSI SERIES SUBMINIATURE PUSHWHEEL SWITCHES



FEATURES

- The smallest panel mounting pushwheel switches available .
- Designed for SCSI applications.
- ESD protection up to 8KV.
- Integrated front mounting models.
- Recessed actuator buttons.
- P.C. board options include solderable lands or a selection of headers.

SCSI SPECIFICATIONS

| | |
|----------------------------------|---------------|
| Panel mounting hole: | |
| Height | .562"(14.3mm) |
| Width | .425"(10.8mm) |
| Installed depth with p.c. board: | .906"(23mm) |
| Insertion from front | yes |
| Insertion from rear | no |

CODES

| Code | positions | marking | |
|---------|-----------|---------|------------------|
| 131 BCD | 8 | 0-7 | see truth tables |
| 131 BCD | 10 | 0-9 | see truth tables |
| 301 | 16 | 0-9,A-F | see truth tables |

ELECTRICAL DATA

| | |
|-------------------------------|--------------------|
| Operating voltage: | 40 V max. |
| Contact load, static: | 0.5 A max. |
| Contact load, dynamic: | 100 mA max. |
| Contact resistance (type AK): | less than 120 mOhm |
| ESD protection: | 8KV max. |

TECHNICAL DATA

| | |
|--------------------------------------|---------------|
| Operating temperature range: | -20°C to 80°C |
| Electric life, min. switching cycles | 10,000 |
| Actuation force, approx (oz.): | 18 |
| Character height, 10 position: | .122"(3.1mm) |
| Character height, 16 position: | .094"(2.4mm) |
| Audible click | yes |

MATERIALS

| | |
|------------------|---|
| Body: | PPO |
| PC board: | FR 4 DIN 40802 IEC 249-2, Contact surface gold over nickel on copper |
| Sliding contact: | Gold over nickel on copper alloy |

STANDARD COLORS

| | |
|-------------------------|-------|
| Housing, Drum, Printing | |
| 2 = black 3 = white | 2,2,3 |

Other special features are available upon request including:

- Factory or customer set stops
- Cable harnessing
- Red digits
- Decimal point
- Special codes or printing

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

New! SCSI SERIES SUBMINIATURE PUSHWHEEL SWITCHES

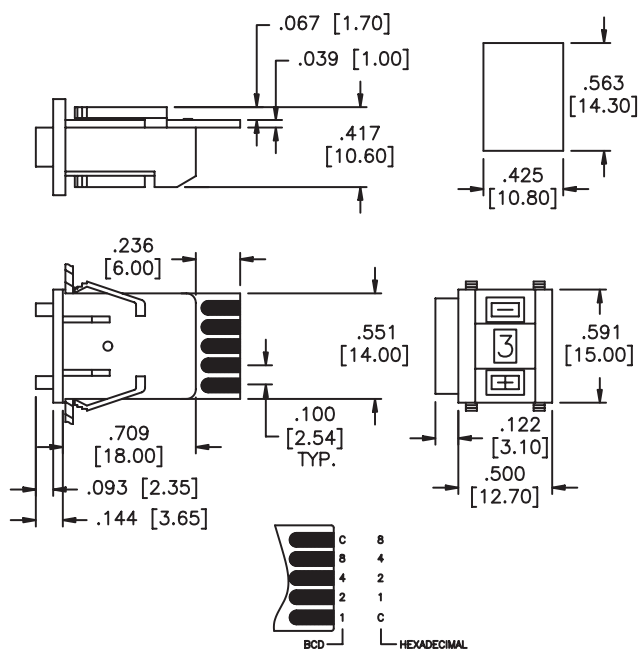
TRUTH TABLES

| CODE 131 BCD (10 positions) | | | | | |
|--------------------------------|---|---|---|---|---|
| | C | 1 | 2 | 4 | 8 |
| 0 | ● | | | | |
| 1 | ● | ● | | | |
| 2 | ● | | ● | | |
| 3 | ● | ● | ● | | |
| 4 | ● | | | ● | |
| 5 | ● | ● | | ● | |
| 6 | ● | ● | ● | ● | |
| 7 | ● | ● | ● | ● | |
| 8 | ● | | | | ● |
| 9 | ● | ● | | | ● |

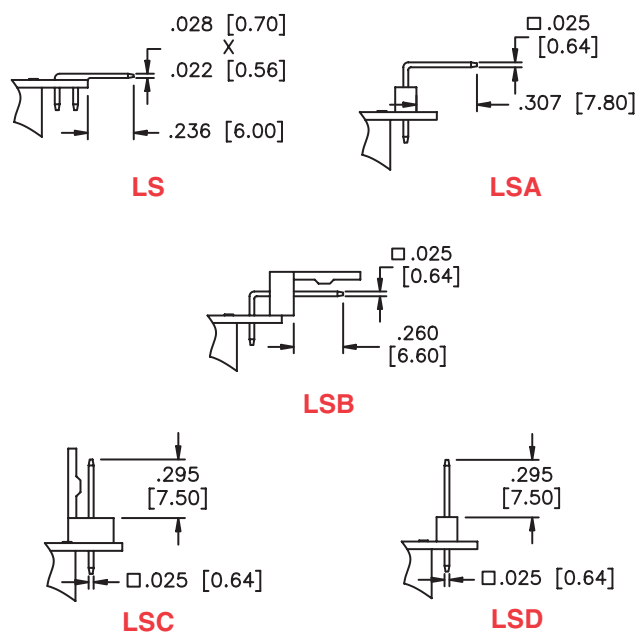
| CODE 131 BCD (8 positions) | | | | | |
|-------------------------------|---|---|---|---|---|
| | C | 1 | 2 | 4 | 8 |
| 0 | ● | | | | |
| 1 | ● | ● | | | |
| 2 | ● | | ● | | |
| 3 | ● | ● | ● | | |
| 4 | ● | | | ● | |
| 5 | ● | ● | | ● | |
| 6 | ● | ● | ● | ● | |
| 7 | ● | ● | ● | ● | |

| CODE 301 HEXADECIMAL | | | | | |
|-------------------------|---|---|---|---|---|
| | 1 | 2 | 4 | 8 | C |
| 0 | | | | | ● |
| 1 | ● | | | | ● |
| 2 | | ● | | | ● |
| 3 | ● | ● | | | ● |
| 4 | | | ● | | ● |
| 5 | ● | ● | ● | | ● |
| 6 | ● | ● | ● | ● | ● |
| 7 | ● | ● | ● | ● | ● |
| 8 | | | | ● | ● |
| 9 | ● | | | ● | ● |
| A | | ● | ● | ● | ● |
| B | ● | ● | | ● | ● |
| C | | | ● | ● | ● |
| D | ● | ● | ● | ● | ● |
| E | ● | ● | ● | ● | ● |
| F | ● | ● | ● | ● | ● |

MECHANICAL OUTLINE WITH PANEL CUT-OUT

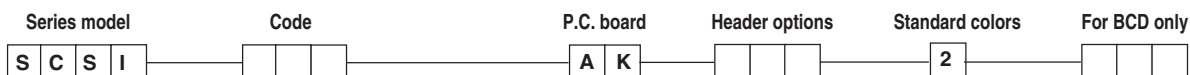


HEADER OPTIONS



Ordering information: Below is an order format that enables you to 'build your own switch' and specify the correct switch model number by simply selecting from available options shown and filling in the boxes.

'BUILD YOUR OWN SWITCH' ORDER FORMAT



1 3 1 BCD (all models)
3 0 1 Hexadecimal

Short

(NONE)

L S
L S A
L S B
L S C
L S D

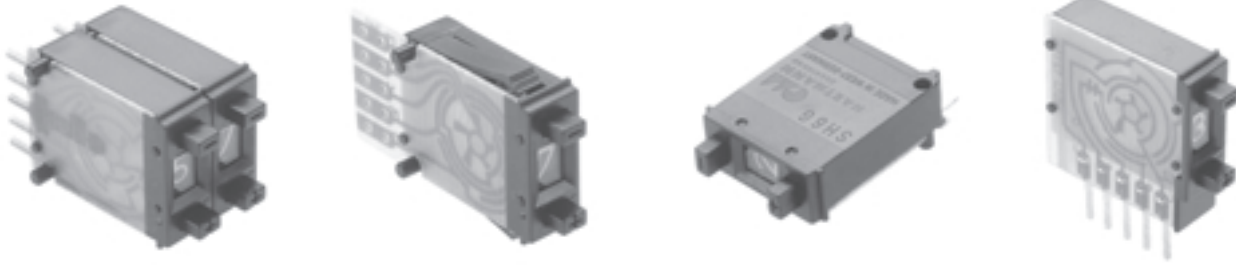
Black housing and drum.
White lettering

(NONE)
B 0 7 Specify for 8 position BCD model

Example of complete model no.: SCS1131AKLS2B07

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

SH6 SERIES SUBMINIATURE PUSHWHEEL SWITCHES



FEATURES

- The smallest panel mounting pushwheel switches available .
- Snap action detent with audible click.
- Black housing & drum with white printing.
- Gangable front and rear mounting models.
- Gold wiping action contacts.
- P.C. board options include solderable lands, fingers or p.c. solder pins.

SH6, SH6G & SH6S SPECIFICATIONS

| | |
|----------------------------------|----------------|
| Panel mounting hole: | |
| Height | .590"(15mm) |
| Width | .236"(6mm) |
| Installed depth with p.c. board: | |
| Short | .925"(23.5mm) |
| Long | 1.213"(30.8mm) |
| Insertion from front | yes |
| Insertion from rear | yes |

CODES

| Code | positions | marking | |
|-----------------|-----------|---------------|------------------|
| 131 BCD | 10 | 0-9 | see truth tables |
| 137 BCD comp | 10 | 0-9 | see truth tables |
| 400 change-over | 10 | +,-,+,-,etc.. | see truth tables |

ELECTRICAL DATA

| | |
|-------------------------------|--------------------|
| Operating voltage: | 40 V max. |
| Contact load, static: | 0.5 A max. |
| Contact load, dynamic: | 100 mA max. |
| Contact resistance (type AK): | less than 100 mOhm |

TECHNICAL DATA

| | |
|--------------------------------------|---------------|
| Operating temperature range: | -20°C to 80°C |
| Electric life, min. switching cycles | 100,000 |
| Actuation force, approx (oz.): | 14 |
| Weight, approx. (grams): | 1.5 |
| Character height: | .122"(3.1mm) |
| Audible click | yes |
| Vibration DIN IEC 68, parts 2-6 | yes |
| Shock DIN 40046, part 7 | yes |

MATERIALS

| | |
|------------------|---|
| Body: | PPO |
| PC board: | FR 4 DIN 40802 IEC 249-2, Contact surface gold over nickel on copper |
| Sliding contact: | Gold over nickel on copper alloy |

STANDARD COLORS

| | |
|-----------------------|-------|
| Housing,Drum,Printing | |
| 2 = black 3 = white | 2,2,3 |

Other special features are available upon request including:
 Factory or customer set stops
 Red digits
 Decimal point
 Special codes or printing

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

J

SH6 SERIES SUBMINIATURE PUSHWHEEL SWITCHES

TRUTH TABLES

ALL MODELS CODE 131 BCD

| | C | 1 | 2 | 4 | 8 |
|---|---|---|---|---|---|
| 0 | ● | | | | |
| 1 | ● | ● | | | |
| 2 | ● | | ● | | |
| 3 | ● | ● | ● | | |
| 4 | ● | | | ● | |
| 5 | ● | ● | | ● | |
| 6 | ● | | ● | ● | |
| 7 | ● | ● | ● | ● | |
| 8 | ● | | | | ● |
| 9 | ● | ● | | | ● |

SH6 & SH6G CODE 137 BCD COMP.

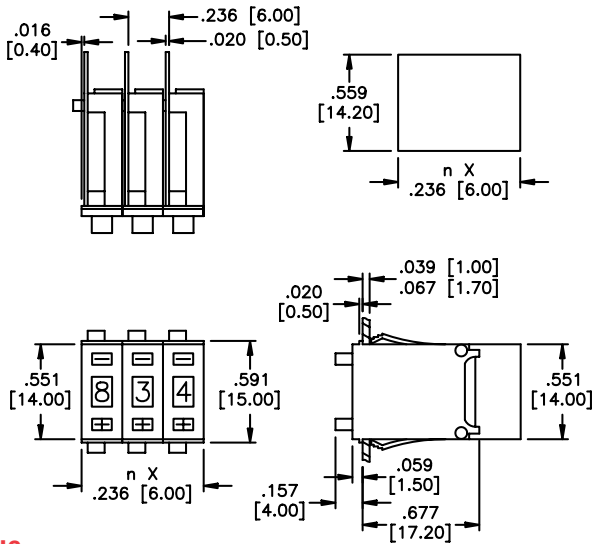
| | C | 1 | 2 | 4 | 8 |
|---|---|---|---|---|---|
| 0 | ● | ● | ● | ● | |
| 1 | ● | | ● | ● | ● |
| 2 | ● | ● | | ● | ● |
| 3 | ● | | | ● | ● |
| 4 | ● | ● | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | ● | ● | | | ● |
| 7 | ● | | | | ● |
| 8 | ● | ● | ● | ● | |
| 9 | ● | ● | ● | | |

SH6 & SH6G CODE 400 CHANGE-OVER

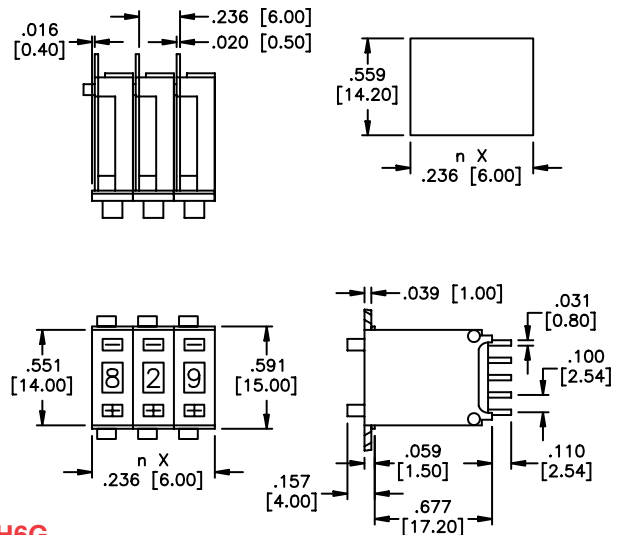
| | C | A+ | A- |
|---|---|----|----|
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |

MECHANICAL OUTLINES WITH PANEL CUT-OUTS

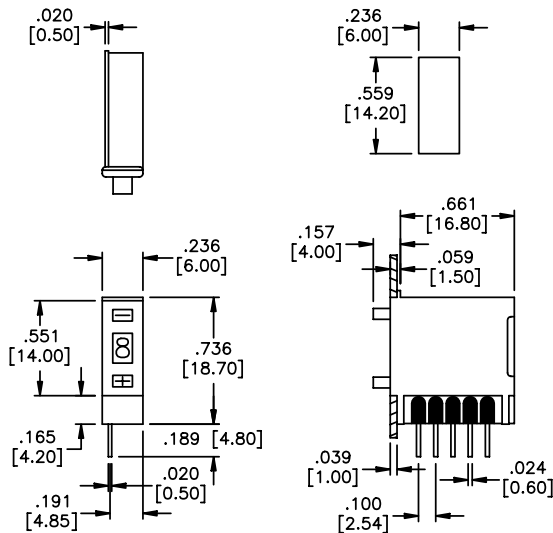
n = number of switches



SH6



SH6G

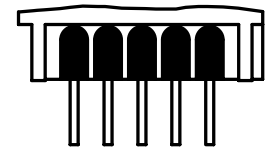


SH6S131AKULS2

PIN CONNECTIONS



| | | | | | |
|-------|---|---|---|---|---|
| ● 131 | 1 | 2 | 4 | 8 | C |
| ● 137 | 2 | 8 | C | 1 | 4 |
| ● 400 | - | + | | | C |



131/1 C 8 1 4 2

- The switching mode is shorting - i.e. - even during actuation, at least one output is connected to input C.

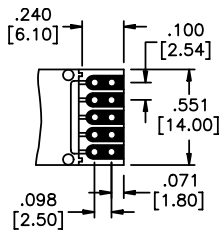
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

J

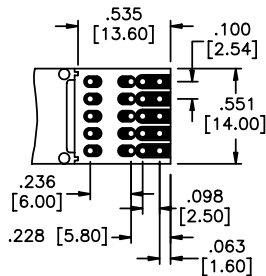
SH6 SERIES SUBMINIATURE PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

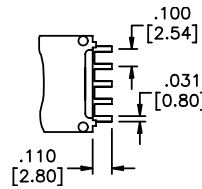
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection.



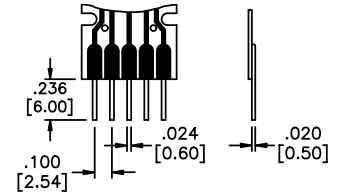
AK
short p.c. board



AL
long p.c. board
(Allows customer to add resistors, diodes, ect.)

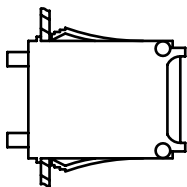


AKK
p.c. board w/fingers

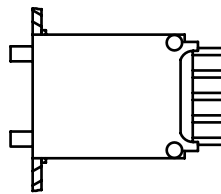


AKLS or ALLS
p.c. board w/solder pins

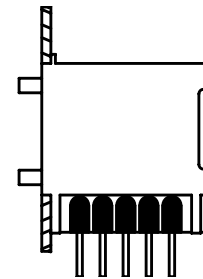
MOUNTING INFORMATION



Front mounting (**SH6**)



Rear mounting (**SH6** and **SH6G**)



Rear mounting (**SH6S**)

Ordering information: Below is an order format that enables you to 'build your own switch' and specify the correct switch model number by simply selecting from available options shown and filling in the boxes. Consult factory for fully assembled switches.

'BUILD YOUR OWN SWITCH' ORDER FORMAT

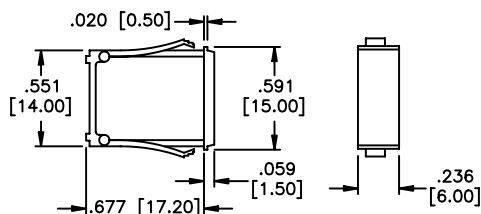
| Series model | Code | P.C. board | Standard colors |
|----------------------|--|--|-------------------------|
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| S H 6 | 1 3 1 BCD (all models) | A K Short | Black housing and drum. |
| S H 6 G | 1 3 7 BCD comp. (SH6 & SH6G only) | A L Long | White lettering |
| S H 6 S* | 4 0 0 Change-over (SH6 & SH6G only) | A K K w/fingers | |
| (see outline dwgs.) | | A K L S Short w/p.c. solder pins | |
| | | A L L S Long w/p.c. solder pins | |
| | | A K U L S Short w/rt. angle solder pins | |

* For this model, only **SH6S131AKULS2** available, see outline drawing.

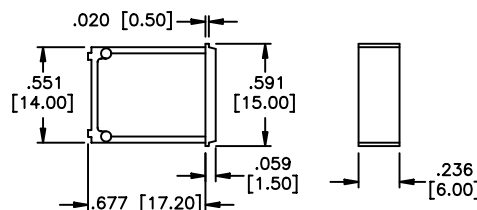
Example of complete model no.: **SH6131AK2**

ACCESSORIES

Order separately



SH6L2 Dummy housing



SH6GL2 Dummy housing

SH6L2 or SH6GL2

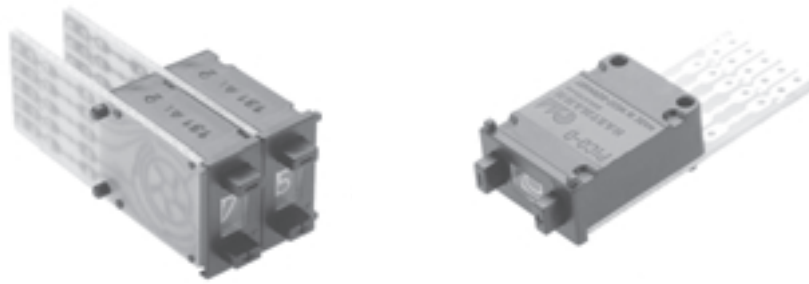
Dummy switches

These are empty plastic housings with the same dimensions as SH6 & SH6G models (see outlines). Use to fill hole where switch is not needed.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

J

PICOD SERIES SUBMINIATURE PUSHWHEEL SWITCHES



FEATURES

- Small panel mounting pushwheel switches.
- Models available with ESD protection - consult factory.
- Snap action detent with audible click.
- Black housing and drum with white printing.
- Gangable front mounting models with spacers and side covers.
- Gold wiping action contacts.
- P.C. board options include solderable lands.

PICOD SPECIFICATIONS

| | |
|----------------------------------|----------------|
| Panel mounting hole: | |
| Height | .590"(15mm) |
| Width | .300"(7.62mm) |
| Installed depth with p.c. board: | |
| Short | .945"(24mm) |
| Long | 1.358"(34.5mm) |
| Insertion from front | yes |
| Insertion from rear | no |

CODES

| Code | positions | marking | |
|-------------------|-----------|----------------|------------------|
| 111 Decimal | 10 | 0-9 | see truth tables |
| 131 BCD | 10 | 0-9 | see truth tables |
| 137 BCD comp | 10 | 0-9 | see truth tables |
| 301 Hexadecimal | 16 | 0-9, A-F(0-15) | see truth tables |
| 307 Hexadec.Comp. | 16 | 0-9, A-F(0-15) | see truth tables |
| 400 change-over | 10 | +,-,+,-,etc.. | see truth tables |

ELECTRICAL DATA

| | |
|-------------------------------|--------------------|
| Operating voltage: | 40 V max. |
| Contact load, static: | 0.5 A max. |
| Contact load, dynamic: | 100 mA max. |
| Contact resistance (type AK): | less than 100 mOhm |

TECHNICAL DATA

| | |
|--------------------------------------|------------------------|
| Operating temperature range: | -20°C to 60°C |
| Electric life, min. switching cycles | 100,000 |
| Actuation force, approx (oz.): | 11 |
| Weight, approx. (grams): | 2 |
| Character height: | 10 digit .122" (3.1mm) |
| | 16 digit .094" (2.4mm) |
| Audible click | yes |
| Vibration DIN IEC 68, parts 2-6 | yes |
| Shock DIN 40046, part 7 | yes |

MATERIALS

| | |
|------------------|---|
| Body: | PPO |
| PC board: | FR 4 DIN 40802 IEC 249-2, Contact surface gold over nickel on copper |
| Sliding contact: | Gold over nickel on copper alloy |

STANDARD COLORS

| | |
|-------------------------|-------|
| Housing, Drum, Printing | 2,2,3 |
| 2 = black 3 = white | |

Other special features are available upon request including:

- Factory set stops
- Red digits
- Decimal point
- Special codes or printing
- Gray housing
- See sockets at end of Pushwheel section.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

J

PICOD SERIES SUBMINIATURE PUSHWHEEL SWITCHES

TRUTH TABLES

| CODE 131 BCD | | | | | |
|-----------------|---|---|---|---|---|
| | C | 1 | 2 | 4 | 8 |
| 0 | ● | | | | |
| 1 | ● | ● | | | |
| 2 | ● | | ● | | |
| 3 | ● | ● | ● | | |
| 4 | ● | | | ● | |
| 5 | ● | ● | | | ● |
| 6 | ● | ● | ● | ● | |
| 7 | ● | ● | ● | ● | ● |
| 8 | ● | | | | ● |
| 9 | ● | ● | | | ● |

| CODE 137 BCD COMP. | | | | | |
|-----------------------|---|-----------|-----------|-----------|-----------|
| | C | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ |
| 0 | ● | ● | ● | ● | ● |
| 1 | ● | | ● | ● | ● |
| 2 | ● | ● | | ● | ● |
| 3 | ● | | | ● | ● |
| 4 | ● | ● | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | ● | ● | | | ● |
| 7 | ● | | | | ● |
| 8 | ● | ● | ● | ● | |
| 9 | ● | ● | ● | ● | |

| CODE 400 CHANGE-OVER | | | |
|-------------------------|---|----|----|
| | C | A+ | A- |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |

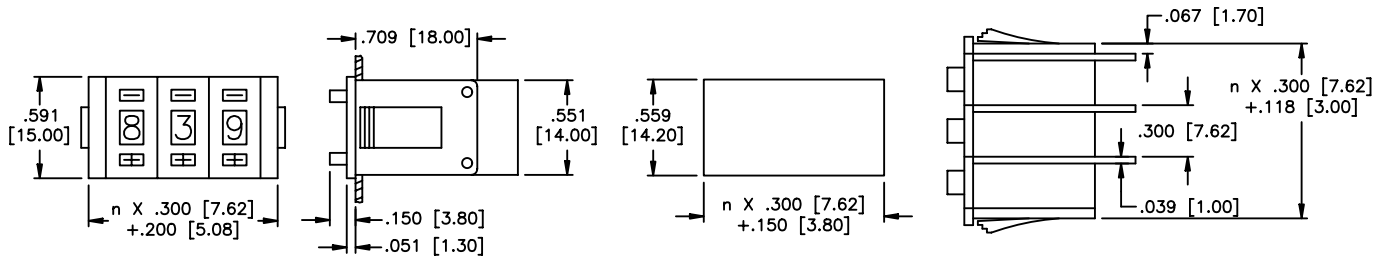
| CODE 301 HEXADECIMAL | | | | | |
|-------------------------|---|---|---|---|---|
| | 1 | 2 | 4 | 8 | C |
| 0 | | | | | ● |
| 1 | ● | | | | ● |
| 2 | | ● | | | ● |
| 3 | ● | ● | | | ● |
| 4 | | | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | | ● | ● | | ● |
| 7 | ● | ● | ● | | ● |
| 8 | | | | ● | ● |
| 9 | ● | | | ● | ● |
| A | | ● | ● | ● | ● |
| B | ● | ● | ● | ● | ● |
| C | | | ● | ● | ● |
| D | ● | ● | ● | ● | ● |
| E | | ● | ● | ● | ● |
| F | ● | ● | ● | ● | ● |

| CODE 307 HEXADEC. COMP. | | | | | |
|----------------------------|---|-----------|-----------|-----------|-----------|
| | C | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ |
| 0 | ● | ● | ● | ● | ● |
| 1 | ● | | ● | ● | ● |
| 2 | ● | ● | | ● | ● |
| 3 | ● | | | ● | ● |
| 4 | ● | ● | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | ● | ● | | | ● |
| 7 | ● | | | | ● |
| 8 | ● | ● | ● | ● | |
| 9 | ● | ● | ● | ● | |
| A | ● | ● | | ● | |
| B | ● | | ● | | |
| C | ● | ● | ● | | |
| D | ● | | ● | | |
| E | ● | ● | | | |
| F | ● | | | | |

| CODE 111 DECIMAL | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|
| | C | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0 | ● | ● | | | | | | | | | |
| 1 | ● | | ● | | | | | | | | |
| 2 | ● | | | ● | | | | | | | |
| 3 | ● | | | | ● | | | | | | |
| 4 | ● | | | | | ● | | | | | |
| 5 | ● | | | | | | ● | | | | |
| 6 | ● | | | | | | | ● | | | |
| 7 | ● | | | | | | | | ● | | |
| 8 | ● | | | | | | | | | ● | |
| 9 | ● | | | | | | | | | | ● |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

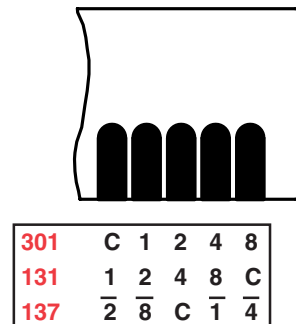
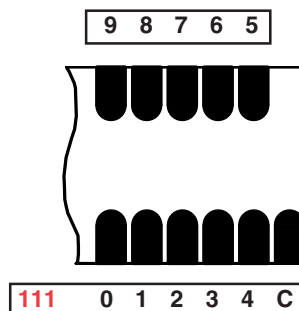
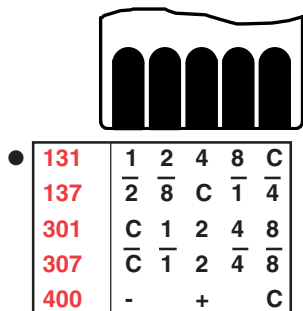
MECHANICAL OUTLINE WITH PANEL CUT-OUT & MOUNTING n = number of switches



PIN CONNECTIONS

307 code available with **AK** p.c. option only.
111 code available with **AL** p.c. option only.

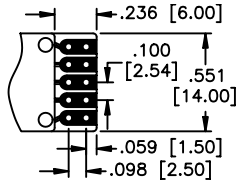
● The switching mode is shorting - i.e. - even during actuation, at least one output is connected to input C.



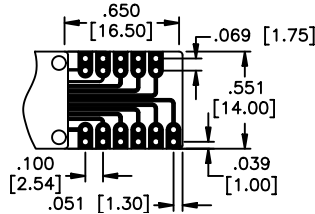
PICOD SERIES SUBMINIATURE PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

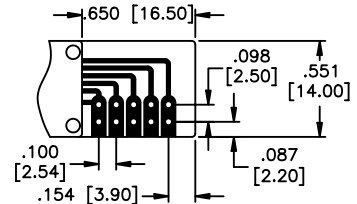
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



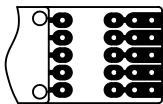
AK short p.c. board



AL long p.c. board for decimal version (solder terminal)

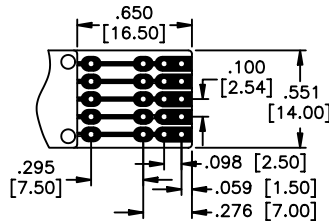


ALU long p.c. board

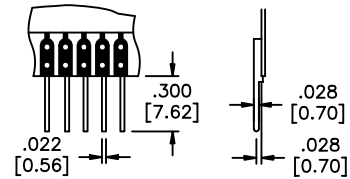


ALD long (interrupted) p.c. board

Dimensions are the same as **AL**.
Space allows customer to add resistors, diodes, ect.



AL long p.c. board



LS p.c. board w/solder pins

Ordering information: Below is an order format that enables you to 'build your own switch' and specify the correct switch model number by simply selecting from available options shown and filling in the boxes. Consult factory for fully assembled switches.

'BUILD YOUR OWN SWITCH' ORDER FORMAT

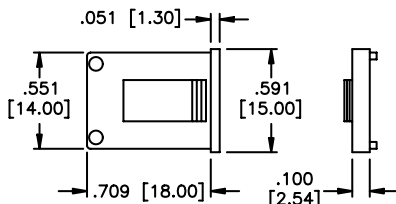
| Series model | Code | P.C. board | Terminations | Standard colors |
|--------------|-------------------------|--------------------------|---------------------------|--|
| P I C O D | <input type="text"/> | <input type="text"/> | <input type="text"/> | 2 |
| | 1 1 1 Decimal | A K Short | (NONE) | Black housing & drum, white lettering. |
| | 1 3 1 BCD | A L Long | L S with p.c. solder pins | |
| | 1 3 7 BCD comp. | A L U Long (rt. angle) | | |
| | 3 0 1 Hexadecimal | A L D Long (interrupted) | | |
| | 3 0 7 Hexadecimal comp. | | | |
| | 4 0 0 Change-over | | | |

Note: For code 111, only model **PICOD111AL2** is available.

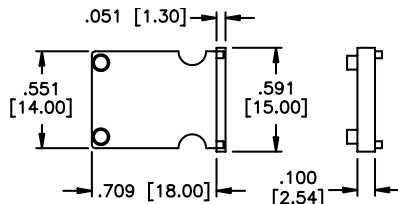
Example of complete model no.: **PICOD131AL2**

ACCESSORIES

Order separately



PICODP2 Pair of side covers

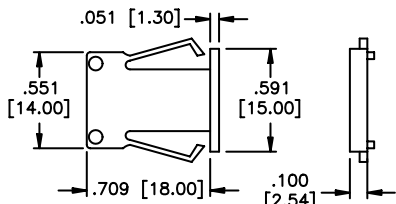


PICODA2 Spacer

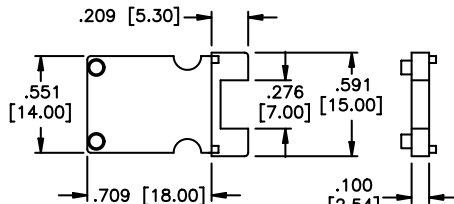
PICODL2 Dummy switches

These are empty plastic housings with the same dimensions as PICOD model (see outline). Use to fill hole where switch is not needed.

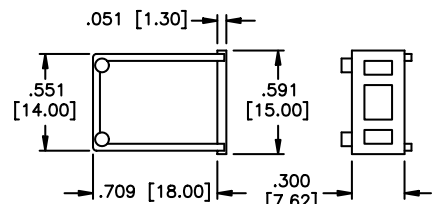
PICORD Switches for rear mounting available on request.



PICODPK2 Pair of side covers

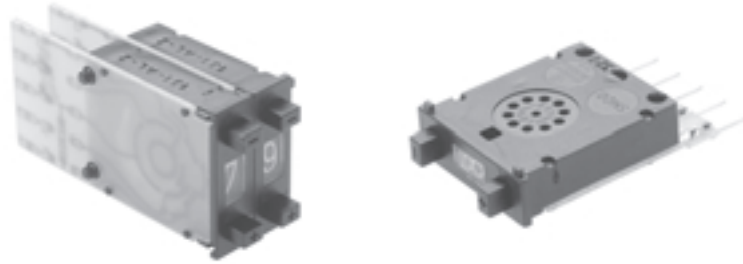


PICODAH2 Spacer



PICODL2 Dummy housing

SMCD SERIES MINIATURE PUSHWHEEL SWITCHES



FEATURES

- Miniature pushwheel switches with large visible readout characters.
- Models available with ESD protection - consult factory.
- Bi-directional snap action detent pushbutton mechanism.
- Black housing and drum with white printing.
- Gangable front and rear mounting models with spacers and side covers.
- Gold wiping action contacts.
- P.C. board options include solderable lands.

SMCD SPECIFICATIONS

| | |
|----------------------------------|--------------|
| Panel mounting hole: | |
| Height | .945"(24mm) |
| Width | .315"(8mm) |
| Installed depth with p.c. board: | |
| Short | 1.260"(32mm) |
| Long | 1.654"(42mm) |
| Insertion from front | yes |
| Insertion from rear | yes |

CODES

| Code | positions | marking | |
|-----------------|-----------|----------------|------------------|
| 111 Decimal | 10 | 0-9 | see truth tables |
| 131 BCD | 10 | 0-9 | see truth tables |
| 137 BCD comp | 10 | 0-9 | see truth tables |
| 301 Hexadecimal | 16 | 0-9, A-F(0-15) | see truth tables |
| 400 change-over | 10 | +,-,+,-,etc.. | see truth tables |

ELECTRICAL DATA

| | |
|-------------------------------|--------------------|
| Operating voltage: | 40 V max. |
| Contact load, static: | 1 A max. |
| Contact load, dynamic: | 100 mA max. |
| Contact resistance (type AK): | less than 100 mOhm |

TECHNICAL DATA

| | |
|--------------------------------------|--|
| Operating temperature range: | -20°C to 80°C |
| Electric life, min. switching cycles | 1,000,000 |
| Actuation force, approx (oz.): | 14 |
| Weight, approx. (grams): | 4 |
| Character height: | 10 digit .193" (4.9mm) 16 digit .134" (3.4mm) |
| Audible click | yes |
| Vibration DIN IEC 68, parts 2-6 | yes |
| Shock DIN 40046, part 7 | yes |

MATERIALS

| | |
|------------------|---|
| Body: | PPO |
| PC board: | FR 4 DIN 40802 IEC 249-2, Contact surface gold over nickel on copper |
| Sliding contact: | Gold over nickel on copper alloy |

STANDARD COLORS

| | |
|-------------------------|-------|
| Housing, Drum, Printing | |
| 2 = black 3 = white | 2,2,3 |

Other special features are available upon request including:
 Factory or customer set stops (10 digit models)
 L.E.D. illumination (transparent wheel)
 Red digits
 Decimal point
 Special codes or printing
 Gray housing
 See sockets at end of Pushwheel section.

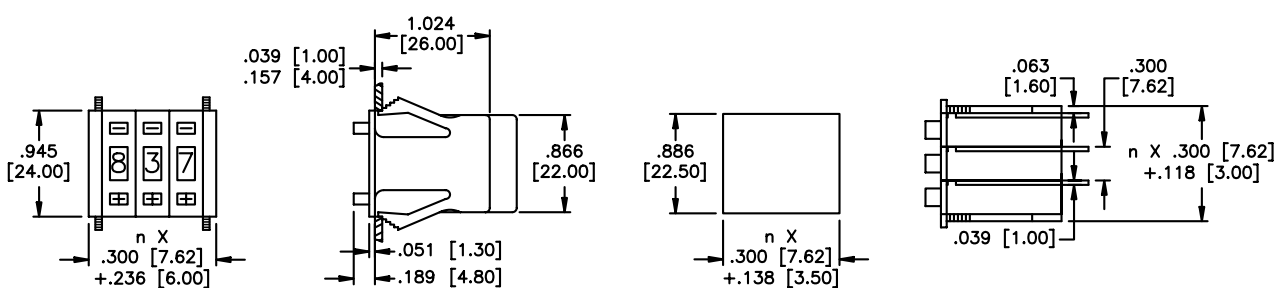
SMCD SERIES MINIATURE PUSHWHEEL SWITCHES

TRUTH TABLES

| CODE 131 BCD | | | | | | CODE 137 BCD COMP. | | | | | | CODE 400 CHANGE-OVER | | | | CODE 301 HEXADECIMAL | | | | | | CODE 111 DECIMAL | | | | | | | | | | | | |
|--------------|---|---|---|---|---|--------------------|---|-----------|-----------|-----------|-----------|----------------------|---|----|----|----------------------|---|---|---|---|---|------------------|---|---|---|---|---|---|---|---|---|---|---|--|
| | C | 1 | 2 | 4 | 8 | | C | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ | | C | A+ | A- | | 1 | 2 | 4 | 8 | C | | C | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| 0 | ● | | | | | ● | ● | ● | ● | ● | | + | ● | ● | | 0 | | | | | ● | 0 | ● | ● | | | | | | | | | | |
| 1 | ● | ● | | | | ● | | ● | ● | ● | | - | ● | | ● | 1 | ● | | | | ● | 1 | ● | | | | | | | | | | | |
| 2 | ● | | ● | | | ● | ● | | ● | ● | | + | ● | ● | | 2 | | ● | | | ● | 2 | | ● | | | | | | | | | | |
| 3 | ● | ● | ● | | | ● | | | ● | ● | | - | ● | | ● | 3 | ● | ● | | | ● | 3 | | ● | | | | | | | | | | |
| 4 | ● | | | ● | | ● | ● | ● | | ● | | + | ● | ● | | 4 | | | ● | | ● | 4 | | | ● | | | | | | | | | |
| 5 | ● | ● | | | ● | ● | | ● | | ● | | - | ● | | ● | 5 | ● | | ● | ● | ● | 5 | ● | | | ● | | | | | | | | |
| 6 | ● | | ● | ● | | ● | ● | | | ● | | + | ● | ● | | 6 | | ● | ● | ● | ● | 6 | ● | | | | | ● | | | | | | |
| 7 | ● | ● | ● | ● | | ● | ● | | | ● | | - | ● | | ● | 7 | ● | ● | ● | ● | ● | 7 | ● | | | | | | ● | | | | | |
| 8 | ● | | | | ● | ● | ● | ● | ● | ● | | + | ● | ● | | 8 | | | | ● | ● | 8 | ● | | | | | | | | ● | | | |
| 9 | ● | ● | | | ● | ● | | ● | ● | ● | | - | ● | | ● | 9 | ● | | | ● | ● | 9 | ● | | | | | | | | | ● | | |
| A | | | ● | | | | | | | | | | | | | A | | ● | | ● | ● | | | | | | | | | | | | | |
| B | | ● | ● | | | | | | | | | | | | | B | ● | ● | | ● | ● | | | | | | | | | | | | | |
| C | | | | ● | | | | | | | | | | | | C | | | ● | ● | ● | | | | | | | | | | | | | |
| D | | | | | ● | | | | | | | | | | | D | ● | | ● | ● | ● | | | | | | | | | | | | | |
| E | | | ● | ● | | | | | | | | | | | | E | | ● | ● | ● | ● | | | | | | | | | | | | | |
| F | | ● | ● | ● | ● | | | | | | | | | | | F | ● | ● | ● | ● | ● | | | | | | | | | | | | | |

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

MECHANICAL OUTLINE WITH PANEL CUT-OUT & MOUNTING n = number of switches



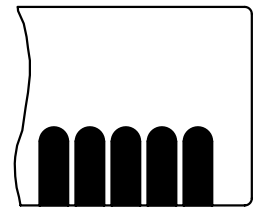
PIN CONNECTIONS

● The switching mode is shorting - i.e. - even during actuation, at least one output is connected to input C.

● "bl" is used for models ordered with L.E.D. illumination only.

| | | | | | | |
|---|--------------|-------------|-----------|-----------|-----------|-----|
| ● | 131 | 1 | 2 | 4 | 8 | C |
| | 131bl | + 1 | 8 | 4 | 2 | C - |
| | 137 | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ | C |
| | 137bl | + $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ | C - |
| | 301 | 1 | 2 | 4 | 8 | C |
| | 301bl | + 1 | 2 | 4 | 8 | C - |
| | 400 | + | A+ | C | A- | - |

| | | | | | | | | | | | | | |
|----|--------------|-----|---|---|---|---|---|---|---|---|---|---|--------------------|
| | 111 | 0 | 1 | 2 | 3 | 4 | C | 5 | 6 | 7 | 8 | 9 | Pitch .079"(2mm) |
| AK | 111bl | + 0 | 1 | 2 | 3 | 4 | C | 5 | 6 | 7 | 8 | 9 | Pitch .067"(1.7mm) |
| | | + | | | | | | | | | | | |
| AL | 111bl | 0 | 1 | 2 | 3 | 4 | C | 5 | 6 | 7 | 8 | 9 | Pitch .079"(2mm) |

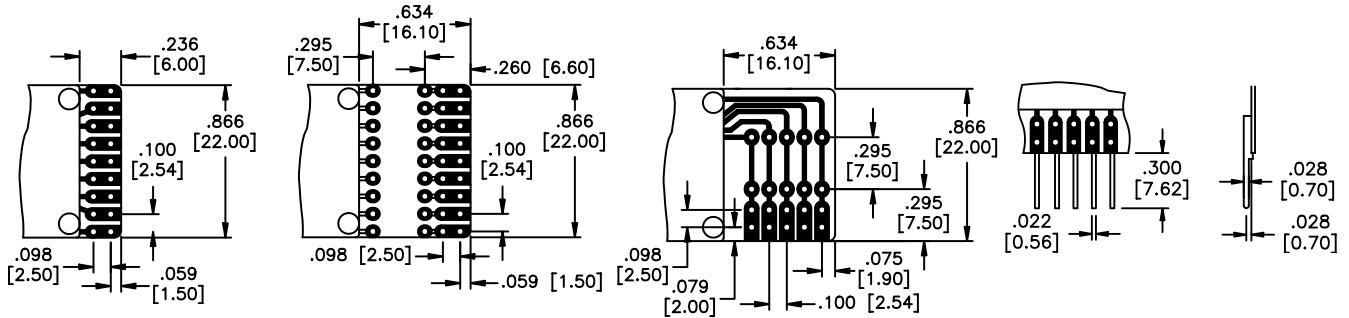


| | | | | | | |
|---|------------|---|---|---|---|---|
| ● | 131 | 1 | 2 | 4 | 8 | C |
| | 301 | 1 | 2 | 4 | 8 | C |

SMCD SERIES MINIATURE PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



AK short p.c. board

AL long p.c. board

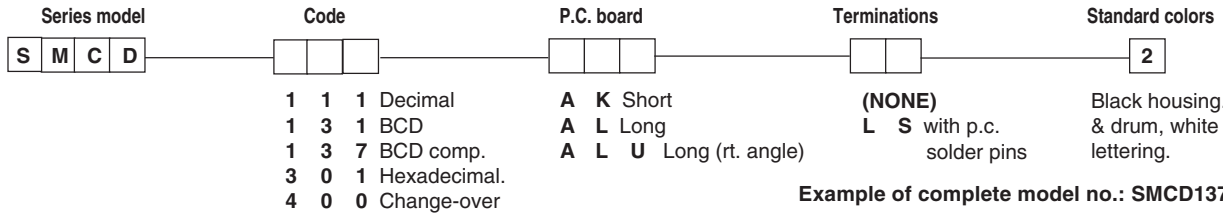
Allows customer to add resistors, diodes, ect.

ALU long p.c. board

LS p.c. board w/solder pins

Ordering information: Below is an order format that enables you to 'build your own switch' and specify the correct switch model number by simply selecting from available options shown and filling in the boxes. Consult factory for fully assembled switches.

'BUILD YOUR OWN SWITCH' ORDER FORMAT

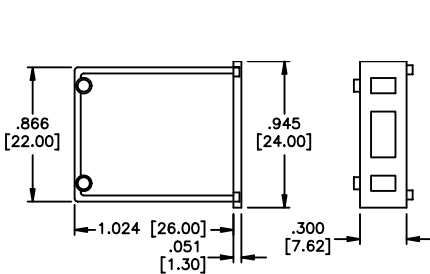


Example of complete model no.: SMCD137ALLS2
Order SP12 as a separate line item for limit stop pin (for 10 position models only).

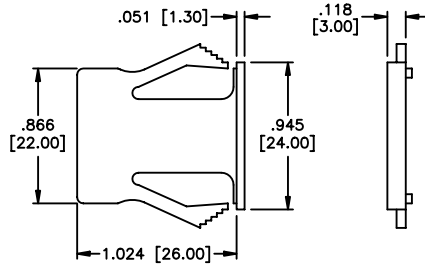
ACCESSORIES

Order separately

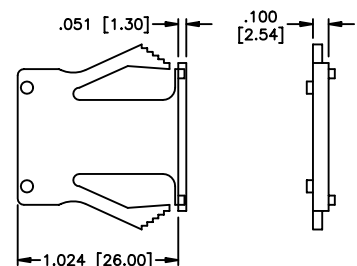
SMCL2 Dummy switches - These are empty plastic housings with the same dimensions as SMCD model (see outline). Use to fill hole where switch is not needed. **SMCRD2 & SMCRND2** switches for rear mounting available on request.



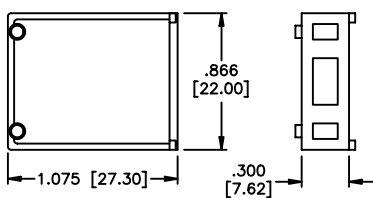
SMCL2 Dummy housing



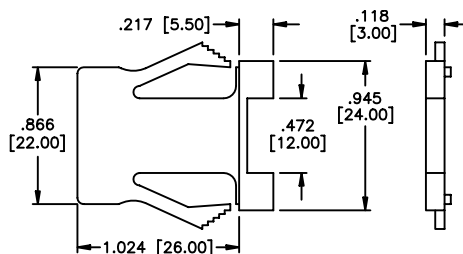
SMCPK2 Pair of side covers



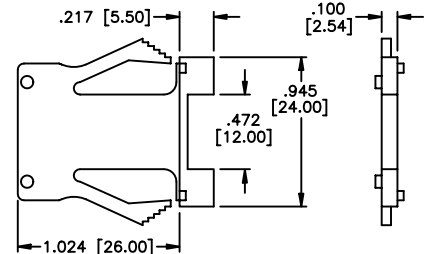
SMCA2 Spacer



SMCL2 Dummy housing

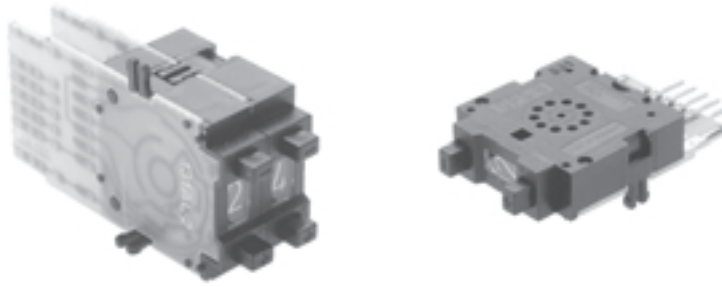


SMCPK2 Pair of side covers



SMCA2 Spacer

DPS8 SERIES MINIATURE PUSHWHEEL SWITCHES



FEATURES

- Lower cost miniature pushwheel switches with large visible readout characters .
- Bi-directional snap action detent pushbutton mechanism.
- Black housing and drum with white printing.
- Gangable rear mounting models with spacers and side covers.
- Gold wiping action contacts.
- P.C. board options include solderable lands.

DPS8 SPECIFICATIONS

| | |
|----------------------------------|--------------|
| Panel mounting hole: | |
| Height | .709"(18mm) |
| Width | .315"(8mm) |
| Installed depth with p.c. board: | |
| Short | 1.260"(32mm) |
| Long | 1.614"(41mm) |
| Insertion from front | no |
| Insertion from rear | yes |

CODES

| Code | positions | marking | |
|-----------------|-----------|-------------------|------------------|
| 111 Decimal | 10 | 0-9 | see truth tables |
| 131 BCD | 10 | 0-9 | see truth tables |
| 137 BCD comp | 10 | 0-9 | see truth tables |
| 141 BCD + comp | 10 | 0-9 | see truth tables |
| 301 Hexadecimal | 16 | 0-9, A-F(0-15) | see truth tables |
| 400 change-over | 10 | +, -, +, -, etc.. | see truth tables |

ELECTRICAL DATA

| | |
|-------------------------------|--------------------|
| Operating voltage: | 40 V max. |
| Contact load, static: | 1 A max. |
| Contact load, dynamic: | 100 mA max. |
| Contact resistance (type AK): | less than 100 mOhm |

TECHNICAL DATA

| | |
|--------------------------------------|------------------------|
| Operating temperature range: | -20°C to 80°C |
| Electric life, min. switching cycles | 1,000,000 |
| Actuation force, approx (oz.): | 14 |
| Weight, approx. (grams): | 4 |
| Character height: | 10 digit .193" (4.9mm) |
| | 16 digit .134" (3.4mm) |
| Audible click | yes |
| Vibration DIN IEC 68, parts 2-6 | yes |
| Shock DIN 40046, part 7 | yes |

MATERIALS

| | |
|------------------|---|
| Body: | PPO |
| PC board: | FR 4 DIN 40802 IEC 249-2, Contact surface gold over nickel on copper |
| Sliding contact: | Gold over nickel on copper alloy |

STANDARD COLORS

| | |
|-------------------------|-------|
| Housing, Drum, Printing | |
| 2 = black 3 = white | 2,2,3 |

Other special features are available upon request including:

- Factory or customer set stops (10 digit models)
- L.E.D. illumination (transparent drum)
- Red digits
- Decimal point
- Special codes or printing
- Gray housing
- See sockets at end of Pushwheel section.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

J

DPS8 SERIES MINIATURE PUSHWHEEL SWITCHES

TRUTH TABLES

**CODE 131
BCD**

| | C | 1 | 2 | 4 | 8 |
|---|---|---|---|---|---|
| 0 | ● | | | | |
| 1 | ● | ● | | | |
| 2 | ● | | ● | | |
| 3 | ● | ● | ● | | |
| 4 | ● | | | ● | |
| 5 | ● | ● | | | ● |
| 6 | ● | | ● | ● | |
| 7 | ● | ● | ● | ● | |
| 8 | ● | | | | ● |
| 9 | ● | ● | | | ● |

**CODE 137
BCD COMP.**

| | C | 1 | 2 | 4 | 8 |
|---|---|---|---|---|---|
| 0 | ● | ● | ● | ● | ● |
| 1 | ● | | ● | ● | ● |
| 2 | ● | ● | | ● | ● |
| 3 | ● | | | ● | ● |
| 4 | ● | ● | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | ● | ● | | | ● |
| 7 | ● | ● | | | ● |
| 8 | ● | ● | ● | ● | |
| 9 | ● | | ● | ● | |

**CODE 400
CHANGE-OVER**

| | C | A+ | A- |
|---|---|----|----|
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |

**CODE 301
HEXADECIMAL**

| | 1 | 2 | 4 | 8 | C |
|---|---|---|---|---|---|
| 0 | | | | | ● |
| 1 | ● | | | | ● |
| 2 | | ● | | | ● |
| 3 | ● | ● | | | ● |
| 4 | | | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | | ● | ● | | ● |
| 7 | ● | ● | ● | | ● |
| 8 | | | | ● | ● |
| 9 | ● | | | ● | ● |
| A | | ● | | ● | ● |
| B | ● | ● | | ● | ● |
| C | | | ● | ● | ● |
| D | ● | | ● | ● | ● |
| E | | ● | ● | ● | ● |
| F | ● | ● | ● | ● | ● |

**CODE 111
DECIMAL**

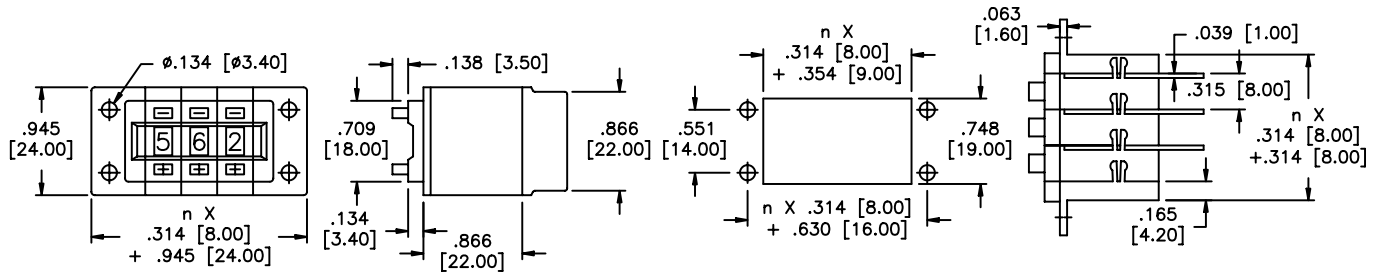
| | C | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | ● | ● | | | | | | | | | |
| 1 | ● | | ● | | | | | | | | |
| 2 | ● | | | ● | | | | | | | |
| 3 | ● | | | | ● | | | | | | |
| 4 | ● | | | | | ● | | | | | |
| 5 | ● | | | | | | ● | | | | |
| 6 | ● | | | | | | | ● | | | |
| 7 | ● | | | | | | | | ● | | |
| 8 | ● | | | | | | | | | ● | |
| 9 | ● | | | | | | | | | | ● |

**CODE 141
BCD + COMP.**

| | C | 1 | 2 | 4 | 8 | 1 | 2 | 4 | 8 |
|---|---|---|---|---|---|---|---|---|---|
| 0 | ● | | | | | ● | ● | ● | ● |
| 1 | ● | ● | | | | ● | ● | ● | ● |
| 2 | ● | | ● | | | ● | ● | ● | ● |
| 3 | ● | ● | ● | | | ● | ● | ● | ● |
| 4 | ● | | | ● | | ● | ● | ● | ● |
| 5 | ● | ● | | ● | | ● | ● | ● | ● |
| 6 | ● | | ● | ● | | ● | ● | ● | ● |
| 7 | ● | ● | ● | ● | | ● | ● | ● | ● |
| 8 | ● | | | ● | ● | ● | ● | ● | ● |
| 9 | ● | ● | | ● | ● | ● | ● | ● | ● |

MECHANICAL OUTLINE WITH PANEL CUT-OUT & MOUNTING

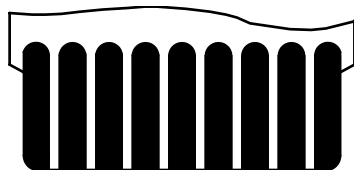
n = number of switches



PIN CONNECTIONS

● The switching mode is shorting - i.e. - even during actuation, at least one output is connected to input C.

● "bl" is used for models ordered with L.E.D. illumination only.



●

| | | | | | | | | | |
|------------|---|---|----|----|---|---|---|---|---|
| 131 | + | C | 1 | 2 | 4 | 8 | - | | |
| 137 | + | C | 1 | 2 | 4 | 8 | - | | |
| 141 | 1 | 1 | 2 | 2 | 4 | 4 | 8 | 8 | C |
| 301 | + | 1 | 2 | C | 8 | 4 | - | | |
| 400 | + | C | A+ | A- | - | | | | |

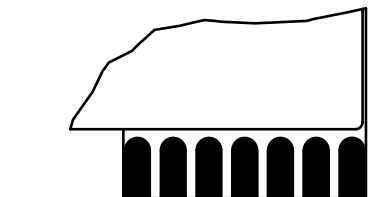
●

| | 0 | 1 | 2 | 3 | 4 | C | 5 | 6 | 7 | 8 | 9 | | |
|--------------|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 111 | 0 | 1 | 2 | 3 | 4 | C | 5 | 6 | 7 | 8 | 9 | | |
| 111bl | + | 0 | 1 | 2 | 3 | 4 | C | 5 | 6 | 7 | 8 | 9 | - |

Pitch .079"(2mm)

Pitch .067"(1.7mm)

| | | | | | |
|------------|---|---|---|---|---|
| 131 | C | 1 | 2 | 4 | 8 |
| 301 | C | 1 | 2 | 4 | 8 |



●

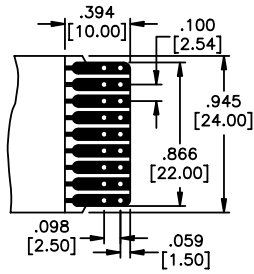
| | | | | | |
|------------|---|---|---|---|---|
| 131 | C | 1 | 2 | 4 | 8 |
| 137 | C | 1 | 2 | 4 | 8 |
| 301 | C | 1 | 2 | 4 | 8 |
| 400 | C | + | - | | |

●

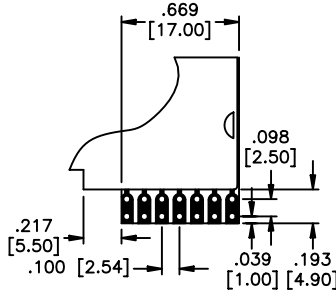
| | | | | | | | |
|--------------|---|---|---|---|---|---|---|
| 131bl | + | C | 1 | 2 | 4 | 8 | - |
|--------------|---|---|---|---|---|---|---|

DPS8 SERIES MINIATURE PUSHWHEEL SWITCHES

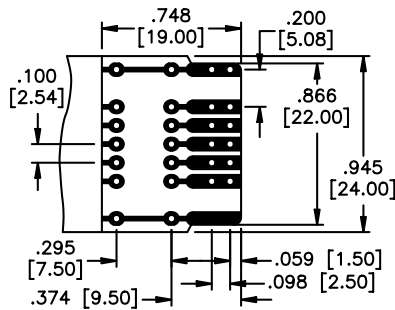
PRINTED CIRCUIT OPTIONS



AK short p.c. board

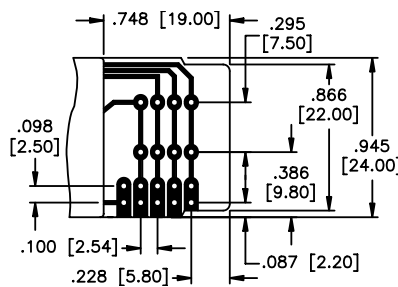


AKU short p.c. board

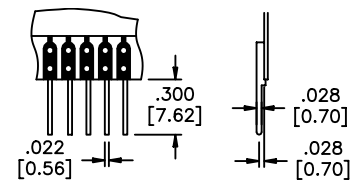


AL long p.c. board

For BCD models, the output traces are supplied disconnected



ALU long p.c. board



LS p.c. board w/solder pins

P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Ordering information: Below is an order format that enables you to 'build your own switch' and specify the correct switch model number by simply selecting from available options shown and filling in the boxes. Consult factory for fully assembled switches.

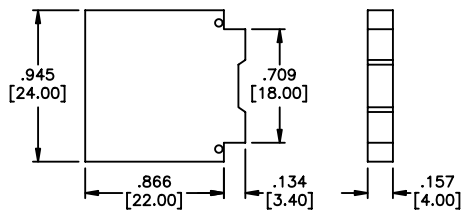
'BUILD YOUR OWN SWITCH' ORDER FORMAT

| Series model | Code | P.C. board | Terminations | Standard colors |
|--------------|----------------------|-------------------------|---------------------------|--------------------------|
| D P S 8 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| | 1 1 1 Decimal | A K Short | (NONE) | Black housing. |
| | 1 3 1 BCD | A K U Short (rt. angle) | L S With p.c. solder pins | & drum, white lettering. |
| | 1 3 7 BCD comp. | A L Long | | |
| | 1 4 1 BCD +comp. | A L U Long (rt. angle) | | |
| | 3 0 1 Hexadecimal. | | | |
| | 4 0 0 Change-over | | | |

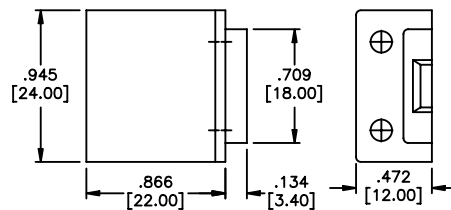
Example of complete model no.: DPS8131ALLS2
Order SP12 as a separate line item for limit stop pin (for 10 position models only).

ACCESSORIES

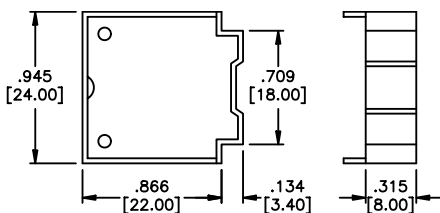
Order separately



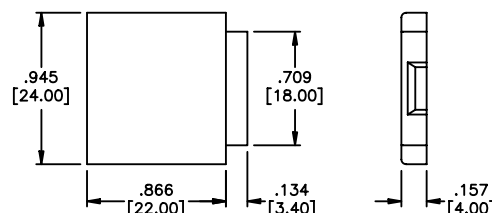
DPS8A2 Spacer



DPS8PW2 Pair of side covers



DPS8L2 Dummy housing



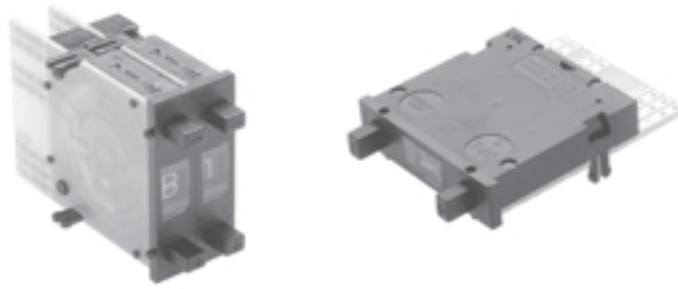
DPS8P2 Pair of side covers

DPS8L2

Dummy switches

These are empty plastic housings with the same dimensions as DPS8 model (see outline). Use to fill hole where switch is not needed.

DPS9 SERIES PUSHWHEEL SWITCHES



FEATURES

- **.315"(8mm) wide pushwheel switches with extra large visible readout characters .**
- **Bi-directional snap action detent pushbutton mechanism.**
- **Black housing and drum with white printing.**
- **Gangable front mounting models with spacers and side covers.**
- **Gold wiping action contacts.**
- **P.C. board options include solderable lands.**

DPS9 SPECIFICATIONS

| | |
|----------------------------------|--------------|
| Panel mounting hole: | |
| Height | 1.300"(33mm) |
| Width | .315"(8mm) |
| Installed depth with p.c. board: | |
| Short | 1.535"(39mm) |
| Long | 1.968"(50mm) |
| Insertion from front | yes |
| Insertion from rear | no |

CODES

| Code | positions | marking | |
|------------------|-----------|----------------|------------------|
| 111 Decimal | 10 | 0-9 | see truth tables |
| 131 BCD | 10 | 0-9 | see truth tables |
| 137 BCD comp | 10 | 0-9 | see truth tables |
| 141 BCD + comp | 10 | 0-9 | see truth tables |
| 301 Hexadecimal | 16 | 0-9, A-F(0-15) | see truth tables |
| 307 Hexadec comp | 16 | 0-9, A-F(0-15) | see truth tables |
| 400 change-over | 10 | +,-,+,etc.. | see truth tables |

ELECTRICAL DATA

| | |
|-------------------------------|--------------------|
| Operating voltage: | 40 V max. |
| Contact load, static: | 1 A max. |
| Contact load, dynamic: | 100 mA max. |
| Contact resistance (type AK): | less than 100 mOhm |

TECHNICAL DATA

| | |
|--|--------------------------|
| Operating temperature range: | -20°C to 80°C |
| Electric life, min. switching cycles | greater than 1,000,000 |
| Actuation force, approx (oz.): | 16 |
| Weight, approx. (grams): | 6.5 |
| Character ht: 10 digit - .268" (6.8mm) | 16 digit - .169" (4.3mm) |
| Audible click | yes |
| Vibration DIN IEC 68, parts 2-6 | yes |
| Shock DIN 40046, part 7 | yes |

MATERIALS

| | |
|------------------|---|
| Body: | PPO |
| PC board: | FR 4 DIN 40802 IEC 249-2, Contact surface gold over nickel on copper |
| Sliding contact: | Gold over nickel on copper alloy |

STANDARD COLORS

| | |
|-------------------------|-------|
| Housing, Drum, Printing | |
| 2 = black 3 = white | 2,2,3 |

Other special features are available upon request including:
 Factory or customer set stops (10 digit models)
 L.E.D. illumination (transparent drum)
 Red digits
 Decimal point
 Special codes or printing
 Gray housing
 See sockets at end of Pushwheel section.

DPS9 SERIES PUSHWHEEL SWITCHES

TRUTH TABLES

| CODE 131 BCD | | | | | |
|-----------------|---|---|---|---|---|
| | C | 1 | 2 | 4 | 8 |
| 0 | ● | | | | |
| 1 | ● | ● | | | |
| 2 | ● | | ● | | |
| 3 | ● | ● | ● | | |
| 4 | ● | | | ● | |
| 5 | ● | ● | | ● | |
| 6 | ● | | ● | ● | |
| 7 | ● | ● | ● | ● | |
| 8 | ● | | | | ● |
| 9 | ● | ● | | | ● |

| CODE 137 BCD COMP. | | | | | |
|-----------------------|---|-----------|-----------|-----------|-----------|
| | C | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ |
| 0 | ● | ● | ● | ● | ● |
| 1 | ● | | ● | ● | ● |
| 2 | ● | ● | | ● | ● |
| 3 | ● | | | ● | ● |
| 4 | ● | ● | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | ● | ● | | | ● |
| 7 | ● | | | | ● |
| 8 | ● | ● | ● | ● | |
| 9 | ● | | ● | ● | |

| CODE 400 CHANGE-OVER | | | |
|-------------------------|---|----|----|
| | C | A+ | A- |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |

| CODE 301 HEXADECIMAL | | | | | |
|-------------------------|---|---|---|---|---|
| | 1 | 2 | 4 | 8 | C |
| 0 | | | | | ● |
| 1 | ● | | | | ● |
| 2 | | ● | | | ● |
| 3 | ● | ● | | | ● |
| 4 | | | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | | ● | ● | | ● |
| 7 | ● | ● | ● | | ● |
| 8 | | | | ● | ● |
| 9 | ● | | | ● | ● |
| A | | ● | ● | ● | ● |
| B | ● | ● | ● | ● | ● |
| C | | | ● | ● | ● |
| D | ● | | ● | ● | ● |
| E | | ● | ● | ● | ● |
| F | ● | ● | ● | ● | ● |

| CODE 307 HEXADEC. COMP. | | | | | |
|----------------------------|---|-----------|-----------|-----------|-----------|
| | C | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ |
| 0 | ● | ● | ● | ● | ● |
| 1 | ● | | ● | ● | ● |
| 2 | ● | ● | | ● | ● |
| 3 | ● | | | ● | ● |
| 4 | ● | ● | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | ● | ● | | | ● |
| 7 | ● | | | | ● |
| 8 | ● | ● | ● | ● | |
| 9 | ● | | ● | ● | |
| A | ● | ● | | ● | |
| B | ● | | ● | ● | |
| C | ● | ● | ● | | |
| D | ● | | ● | | |
| E | ● | ● | | | |
| F | ● | | | | |

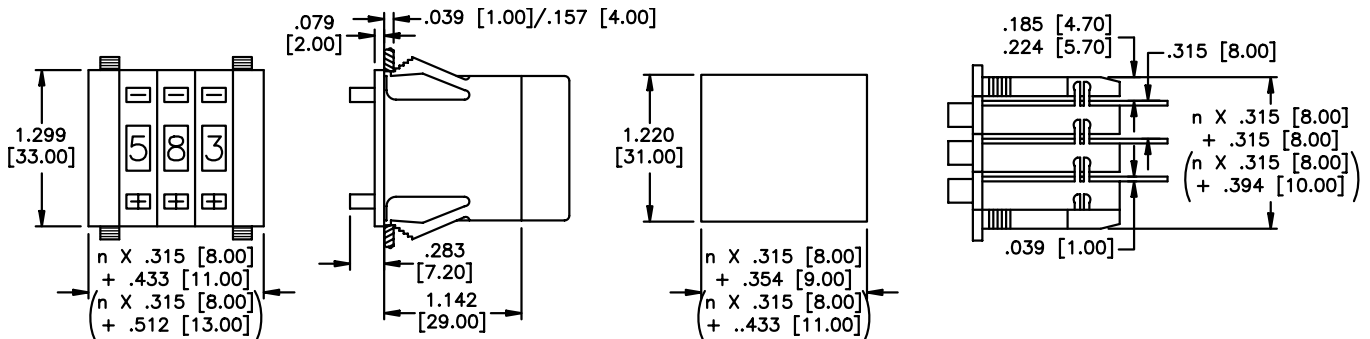
| CODE 111 DECIMAL | | | | | | | | | | | |
|---------------------|---|---|---|---|---|---|---|---|---|---|---|
| | C | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 0 | ● | ● | | | | | | | | | |
| 1 | ● | | ● | | | | | | | | |
| 2 | ● | | | ● | | | | | | | |
| 3 | ● | | | | ● | | | | | | |
| 4 | ● | | | | | ● | | | | | |
| 5 | ● | | | | | | ● | | | | |
| 6 | ● | | | | | | | ● | | | |
| 7 | ● | | | | | | | | ● | | |
| 8 | ● | | | | | | | | | ● | |
| 9 | ● | | | | | | | | | | ● |

| CODE 141 BCD + COMP. | | | | | | | | | |
|-------------------------|---|---|---|---|---|-----------|-----------|-----------|-----------|
| | C | 1 | 2 | 4 | 8 | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ |
| 0 | ● | | | | | ● | ● | ● | ● |
| 1 | ● | ● | | | | ● | ● | ● | ● |
| 2 | ● | | ● | | | ● | ● | ● | ● |
| 3 | ● | ● | ● | | | ● | ● | ● | ● |
| 4 | ● | | | ● | | ● | ● | ● | ● |
| 5 | ● | ● | ● | ● | | ● | ● | ● | ● |
| 6 | ● | | ● | | | ● | ● | ● | ● |
| 7 | ● | ● | ● | ● | | ● | ● | ● | ● |
| 8 | ● | | | | ● | ● | ● | ● | ● |
| 9 | ● | ● | | | ● | ● | ● | ● | ● |

MECHANICAL OUTLINE WITH PANEL CUT-OUT & MOUNTING

n = number of decades

Dimensions in brackets apply when **DPS910PB2** side covers are used.



PIN CONNECTIONS

● The switching mode is shorting - i.e. - even during actuation, at least one output is connected to input C.

| | + | 1 | 2 | | | C | 8 | 4 | - |
|-------|---|-----------|-----------|-----------|-----------|----|-----------|-----------|---|
| ● 131 | + | $\bar{1}$ | $\bar{2}$ | | | C | $\bar{8}$ | $\bar{4}$ | - |
| ● 137 | + | $\bar{1}$ | $\bar{2}$ | | | C | $\bar{8}$ | $\bar{4}$ | - |
| ● 141 | + | | 2 | $\bar{4}$ | $\bar{2}$ | C | 8 | 1 | 8 |
| ● 301 | + | 1 | 2 | | | C | 8 | 4 | - |
| ● 307 | + | $\bar{1}$ | $\bar{2}$ | | | C | $\bar{8}$ | $\bar{4}$ | - |
| ● 400 | + | C | | | | A- | A+ | | - |
| ● 111 | | 0 | 1 | 2 | 3 | C | 4 | 5 | 6 |
| | | 7 | 8 | 9 | | | | | |

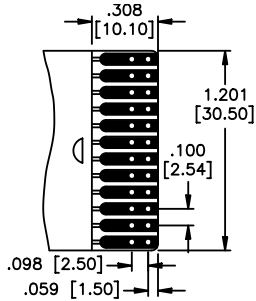
111bi + C 0 1 2 3 4 5 6 7 8 9 - Pitch .079" (2mm)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

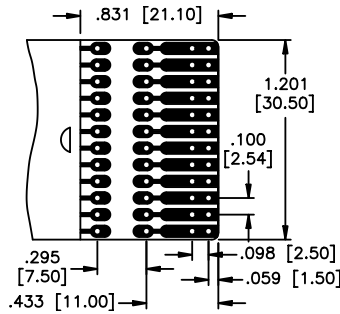
DPS9 SERIES PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

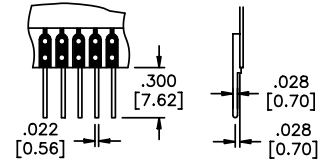
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



AK short p.c. board



AL long p.c. board
Allows customer to add resistors, diodes, ect.



LS p.c. board w/solder pins

Ordering information: Below is an order format that enables you to 'build your own switch' and specify the correct switch model number by simply selecting from available options shown and filling in the boxes. Consult factory for fully assembled switches.

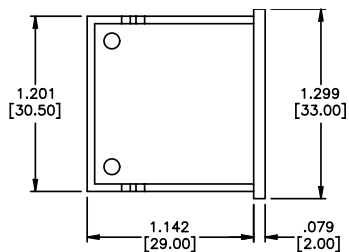
'BUILD YOUR OWN SWITCH' ORDER FORMAT

| Series model | Code | P.C. board | Terminations | Standard colors |
|--------------|--|-----------------------|-------------------------------------|---|
| D P S 9 | | | | 2 |
| | 1 1 1 Decimal 1 3 1 BCD 1 3 7 BCD comp. 1 4 1 BCD + comp. 3 0 1 Hexadecimal. 3 0 7 Hexadecimal comp. 4 0 0 Change-over | A K Short A L Long | (NONE) L S with p.c. solder pins | Black housing. & drum, white lettering. |

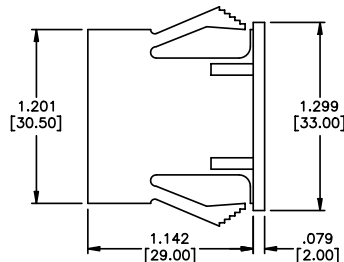
Example of complete model no.: DPS9141AKLS2
Order SP15 as a separate line item for limit stop pin (for 10 position models only).

ACCESSORIES

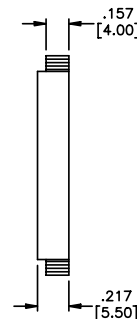
Order separately



DPS9L2 Dummy housing

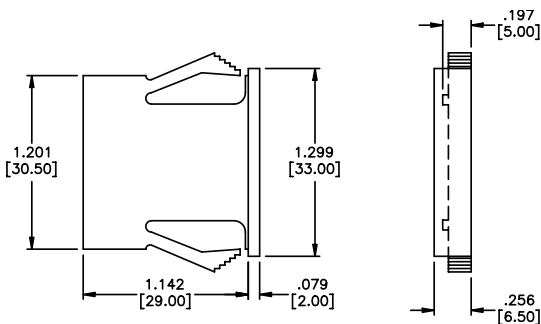


DPS910P2 Pair of side covers

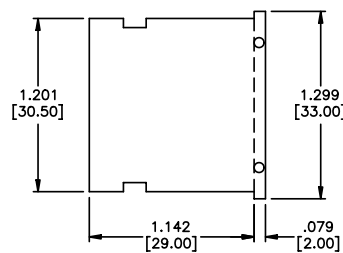


DPS9L2
Dummy switches

These are empty plastic housings with the same dimensions as DPS9 model (see outline). Use to fill hole where switch is not needed.

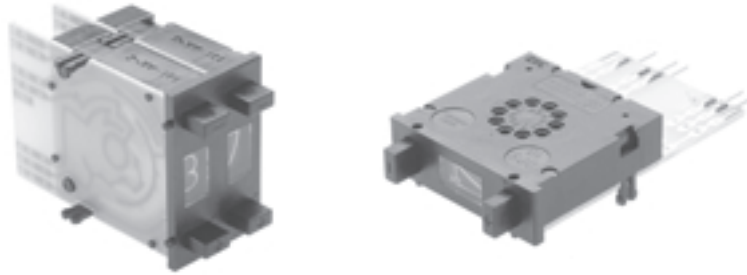


DPS910PB2 Pair of side covers



DPS910A2 Spacer

DPS10 SERIES PUSHWHEEL SWITCHES



FEATURES

- **.394"(10mm) wide pushwheel switches with large visible readout characters .**
- **Bi-directional snap action detent pushbutton mechanism.**
- **Black housing and drum with white printing.**
- **Gangable front mounting models with spacers and side covers.**
- **Gold wiping action contacts.**
- **P.C. board options include solderable lands.**

DPS10 SPECIFICATIONS

| | |
|----------------------------------|--------------|
| Panel mounting hole: | |
| Height | 1.300"(33mm) |
| Width | .394"(10mm) |
| Installed depth with p.c. board: | |
| Short | 1.535"(39mm) |
| Long | 1.968"(50mm) |
| Insertion from front | yes |
| Insertion from rear | no |

CODES

| Code | positions | marking | |
|------------------|-----------|-------------------|------------------|
| 111 Decimal | 10 | 0-9 | see truth tables |
| 131 BCD | 10 | 0-9 | see truth tables |
| 137 BCD comp | 10 | 0-9 | see truth tables |
| 141 BCD + comp | 10 | 0-9 | see truth tables |
| 301 Hexadecimal | 16 | 0-9, A-F(0-15) | see truth tables |
| 307 Hexadec comp | 16 | 0-9, A-F(0-15) | see truth tables |
| 400 change-over | 10 | +, -, +, -, etc.. | see truth tables |

ELECTRICAL DATA

| | |
|-------------------------------|--------------------|
| Operating voltage: | 40 V max. |
| Contact load, static: | 1 A max. |
| Contact load, dynamic: | 100 mA max. |
| Contact resistance (type AK): | less than 100 mOhm |

TECHNICAL DATA

| | |
|--------------------------------------|--------------------------|
| Operating temperature range: | -20°C to 80°C |
| Electric life, min. switching cycles | greater than 1,000,000 |
| Actuation force, approx (oz.): | 16 |
| Weight, approx. (grams): | 7.5 |
| Character ht: 10 digit - .276" (7mm) | 16 digit - .169" (4.3mm) |
| Audible click | yes |
| Vibration DIN IEC 68, parts 2-6 | yes |
| Shock DIN 40046, part 7 | yes |

MATERIALS

| | |
|------------------|---|
| Body: | PPO |
| PC board: | FR 4 DIN 40802 IEC 249-2, Contact surface gold over nickel on copper |
| Sliding contact: | Gold over nickel on copper alloy |

STANDARD COLORS

| | |
|-------------------------|-------|
| Housing, Drum, Printing | |
| 2 = black 3 = white | 2,2,3 |

Other special features are available upon request including:

- Factory or customer set stops (10 digit models)
- L.E.D. illumination (transparent drum)
- Red digits
- Decimal point
- Special codes or printing
- Gray housing
- See sockets at end of Pushwheel section.

DPS10 SERIES PUSHWHEEL SWITCHES

TRUTH TABLES

**CODE 131
BCD**

| | C | 1 | 2 | 4 | 8 |
|---|---|---|---|---|---|
| 0 | ● | | | | |
| 1 | ● | ● | | | |
| 2 | ● | | ● | | |
| 3 | ● | ● | ● | | |
| 4 | ● | | | ● | |
| 5 | ● | ● | | ● | |
| 6 | ● | | ● | ● | |
| 7 | ● | ● | ● | ● | |
| 8 | ● | | | | ● |
| 9 | ● | ● | | | ● |

**CODE 137
BCD COMP.**

| | C | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ |
|---|---|-----------|-----------|-----------|-----------|
| 0 | ● | ● | ● | ● | ● |
| 1 | ● | | ● | ● | ● |
| 2 | ● | ● | | ● | ● |
| 3 | ● | | | ● | ● |
| 4 | ● | ● | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | ● | ● | | | ● |
| 7 | ● | | | | ● |
| 8 | ● | ● | ● | ● | |
| 9 | ● | | ● | ● | |

**CODE 400
CHANGE-OVER**

| | C | A+ | A- |
|---|---|----|----|
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |
| + | ● | ● | |
| - | ● | | ● |

**CODE 301
HEXADECIMAL**

| | 1 | 2 | 4 | 8 | C |
|---|---|---|---|---|---|
| 0 | | | | | ● |
| 1 | ● | | | | ● |
| 2 | | ● | | | ● |
| 3 | ● | ● | | | ● |
| 4 | | | ● | | ● |
| 5 | ● | ● | ● | | ● |
| 6 | | ● | ● | | ● |
| 7 | ● | ● | ● | | ● |
| 8 | | | | ● | ● |
| 9 | ● | | | ● | ● |
| A | | ● | | ● | ● |
| B | ● | ● | | ● | ● |
| C | | | ● | ● | ● |
| D | ● | | ● | ● | ● |
| E | | ● | ● | ● | ● |
| F | ● | ● | ● | ● | ● |

**CODE 307
HEXADEC. COMP.**

| | C | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ |
|---|---|-----------|-----------|-----------|-----------|
| 0 | ● | ● | ● | ● | ● |
| 1 | ● | | ● | ● | ● |
| 2 | ● | ● | | ● | ● |
| 3 | ● | | | ● | ● |
| 4 | ● | ● | ● | | ● |
| 5 | ● | | ● | | ● |
| 6 | ● | ● | | | ● |
| 7 | ● | | | | ● |
| 8 | ● | ● | ● | ● | |
| 9 | ● | | ● | ● | |
| A | ● | ● | | ● | |
| B | ● | | | ● | |
| C | ● | ● | ● | | |
| D | ● | | ● | | |
| E | ● | ● | | | |
| F | ● | | | | |

**CODE 111
DECIMAL**

| | C | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | ● | ● | | | | | | | | | |
| 1 | ● | | ● | | | | | | | | |
| 2 | ● | | | ● | | | | | | | |
| 3 | ● | | | | ● | | | | | | |
| 4 | ● | | | | | ● | | | | | |
| 5 | ● | | | | | | ● | | | | |
| 6 | ● | | | | | | | ● | | | |
| 7 | ● | | | | | | | | ● | | |
| 8 | ● | | | | | | | | | ● | |
| 9 | ● | | | | | | | | | | ● |

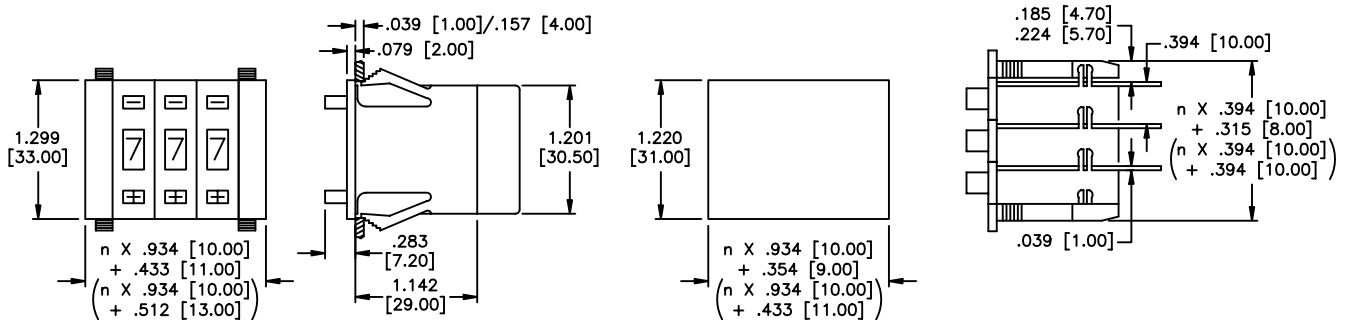
**CODE 141
BCD + COMP.**

| | C | 1 | 2 | 4 | 8 | $\bar{1}$ | $\bar{2}$ | $\bar{4}$ | $\bar{8}$ |
|---|---|---|---|---|---|-----------|-----------|-----------|-----------|
| 0 | ● | | | | | ● | ● | ● | ● |
| 1 | ● | ● | | | | | ● | ● | ● |
| 2 | ● | | ● | | | ● | | ● | ● |
| 3 | ● | ● | ● | | | | | ● | ● |
| 4 | ● | | | ● | | ● | ● | | ● |
| 5 | ● | ● | ● | ● | | | ● | | ● |
| 6 | ● | | ● | | | ● | | | ● |
| 7 | ● | ● | ● | ● | | | | | ● |
| 8 | ● | | | | ● | ● | ● | ● | |
| 9 | ● | ● | | | ● | | ● | ● | |

MECHANICAL OUTLINE WITH PANEL CUT-OUT & MOUNTING

n = number of decades

Dimensions in brackets apply when **DPS910PB2** side covers are used.



PIN CONNECTIONS

- The switching mode is shorting - i.e. - even during actuation, at least one output is connected to input C.

- "bl" is used for models ordered with L.E.D. illumination only.

●

| | + | 1 | 2 | | | C | 8 | 4 | - |
|------------|---|-----------|-----------|-----------|-----------|----|-----------|-----------|---|
| 131 | + | $\bar{1}$ | $\bar{2}$ | | | C | $\bar{8}$ | $\bar{4}$ | - |
| 137 | + | $\bar{1}$ | $\bar{2}$ | | | C | $\bar{8}$ | $\bar{4}$ | - |
| 141 | + | | 2 | $\bar{4}$ | $\bar{2}$ | C | $\bar{8}$ | 1 | 8 |
| 301 | + | 1 | 2 | | | C | 8 | 4 | - |
| 307 | + | $\bar{1}$ | $\bar{2}$ | | | C | $\bar{8}$ | $\bar{4}$ | - |
| 400 | + | C | | | | A- | A+ | | - |
| 111 | | 0 | 1 | 2 | 3 | C | 4 | 5 | 6 |
| | | 7 | 8 | 9 | | | | | |

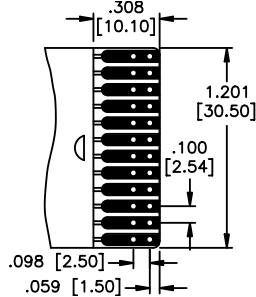
●

111bl + C 0 1 2 3 4 5 6 7 8 9 - Pitch .079"(2mm)

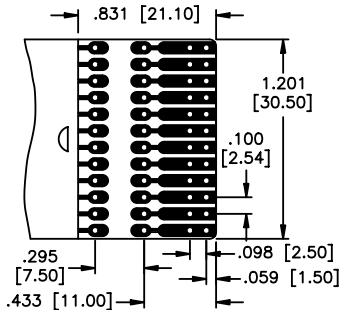
DPS10 SERIES PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

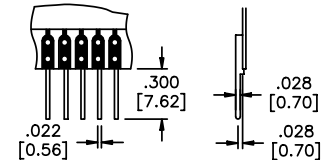
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



AK short p.c. board



AL long p.c. board
Allows customer to add resistors, diodes, ect.



LS p.c. board w/solder pins

Ordering information: Below is an order format that enables you to 'build your own switch' and specify the correct switch model number by simply selecting from available options shown and filling in the boxes. Consult factory for fully assembled switches.

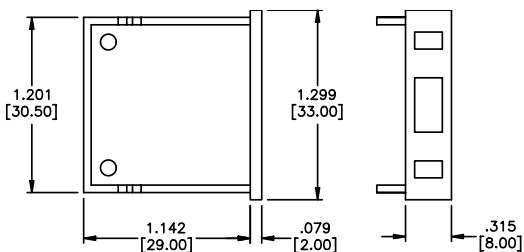
'BUILD YOUR OWN SWITCH' ORDER FORMAT

| Series model | Code | P.C. board | Terminations | Standard colors |
|--------------|-------------------------|----------------------|---------------------------|---|
| D P S 1 0 | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text" value="2"/> |
| | 1 1 1 Decimal | A K Short | (NONE) | Black housing. & drum, white lettering. |
| | 1 3 1 BCD | A L Long | L S with p.c. solder pins | |
| | 1 3 7 BCD comp. | | | |
| | 1 4 1 BCD + comp. | | | |
| | 3 0 1 Hexadecimal. | | | |
| | 3 0 7 Hexadecimal comp. | | | |
| | 4 0 0 Change-over | | | |

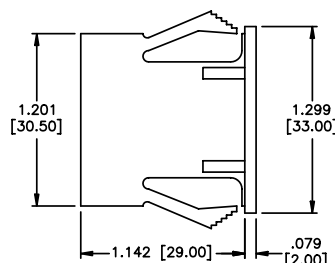
Example of complete model no.: **DPS10141AKLS2**
Order SP15 as a separate line item for limit stop pin (for 10 position models only).

ACCESSORIES

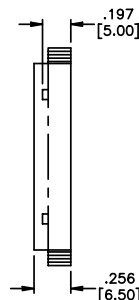
Order separately



DPS10L2 Dummy housing

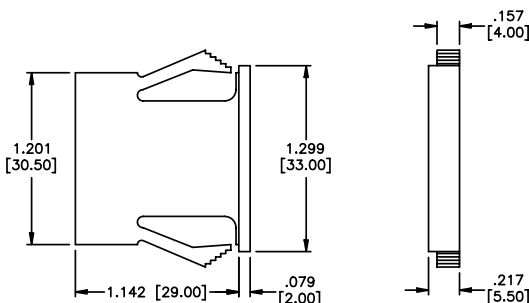


DPS910P2 Pair of side covers

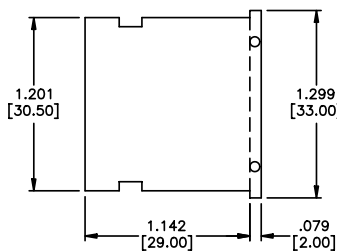


DPS10L2 Dummy switches

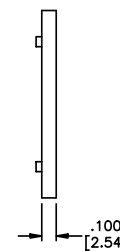
These are empty plastic housings with the same dimensions as DPS10 model (see outline). Use to fill hole where switch is not needed.



DPS910PB2 Pair of side covers



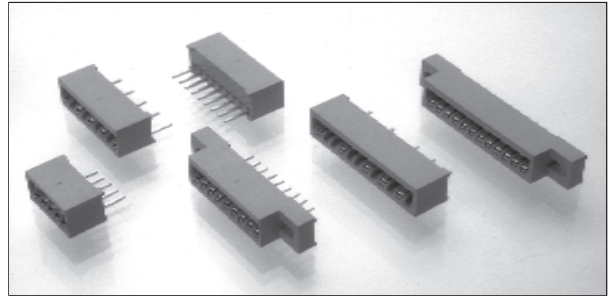
DPS910A2 Spacer



SOCKETS FOR PUSHWHEEL SWITCHES

FEATURES

- Glass fiber reinforced, self extinguishing body.
- Solder lug or p.c. terminals.
- Permanently marked terminals.
- High insertion/withdrawal force.



MATERIALS

Body: Glass fiber reinforced PPO (self-extinguishing, non drip group 1).

Contacts: Gold over nickel over phosphor bronze

SPECIFICATIONS

Contact spacing: .079" (2mm)

Contact rating: 40 V at 1 Amp

Contact resistance: Less than 15 milliohms

Insulation resistance: Greater than 10^{12} ohms

Test voltage: 500 V

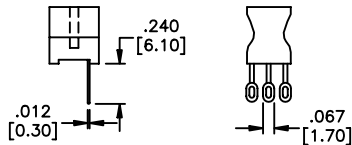
Operating temperature: -40°C to 100°C

Insertion force/contact: Approx. 7.2 oz.

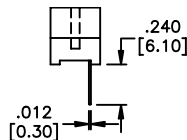
Withdrawal force/contact: Approx. 6.5 oz.

Socket integrity: 100 insertions min. with no change to above values

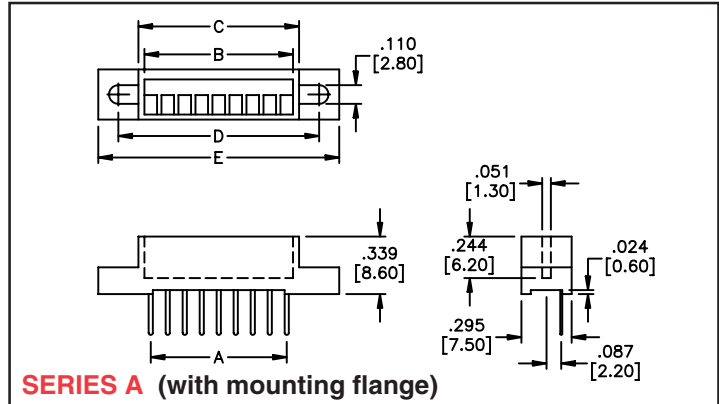
TERMINATIONS



L Solder lug (for .100" (2.54mm) spacing only).

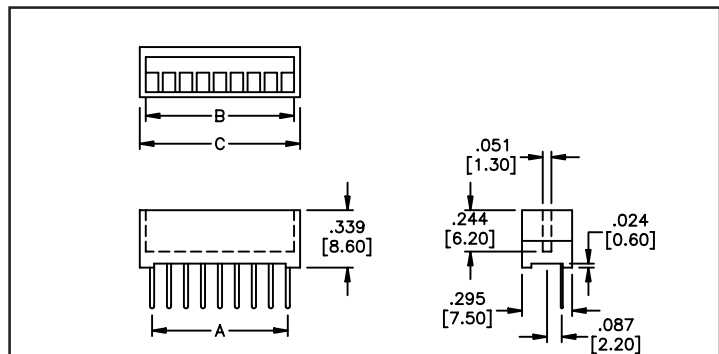


LS Printed circuit



SERIES A (with mounting flange)

| Poles/models | A | B | C | D | E |
|--------------------------------------|---------------------|-----------------|---------------|---------------|---------------|
| 9 poles for SMCD & DPS8 | 8 X .100" (2.54mm) | .874" (22.2mm) | .945" (24mm) | 1.180" (30mm) | 1.417" (36mm) |
| 12 poles for DPS9 & DPS10 | 11 x .100" (2.54mm) | 1.200" (30.5mm) | 1.300" (33mm) | 1.535" (39mm) | 1.772" (45mm) |

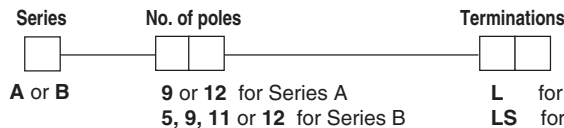


SERIES B (without mounting flange)

| Poles/models | A | B | C |
|--------------------------------------|---------------------|-----------------|----------------|
| 5 poles for PICOD | 4 X .100" (2.54mm) | .559" (14.2mm) | .598" (15.2mm) |
| 9 poles for SMCD & DPS8 | 8 X .100" (2.54mm) | .874" (22.2mm) | .945" (24mm) |
| 11 poles for SMCD & DPS8 | 10 X .079" (2.00mm) | .874" (22.2mm) | .945" (24mm) |
| 12 poles for DPS9 & DPS10 | 11 x .100" (2.54mm) | 1.200" (30.5mm) | 1.300" (33mm) |

ORDER FORMAT:

Make selections shown below boxes for complete connector model number.



Example of complete model no.: **B11LS**

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели,
кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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