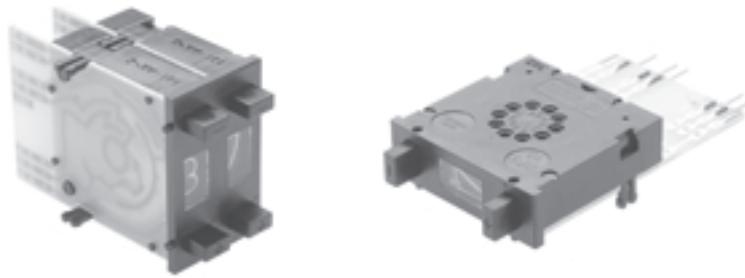


# DPS10 SERIES PUSHWHEEL SWITCHES



## 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<br>IEC 249-2, Contact<br>surface gold over<br>nickel on copper |
| Sliding contact: | Gold over nickel<br>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<br>BCD |   |   |   |   |   |
|-----------------|---|---|---|---|---|
|                 | C | 1 | 2 | 4 | 8 |
| 0               | ● |   |   |   |   |
| 1               | ● | ● |   |   |   |
| 2               | ● |   | ● |   |   |
| 3               | ● | ● | ● |   |   |
| 4               | ● |   |   | ● |   |
| 5               | ● | ● |   | ● |   |
| 6               | ● |   | ● | ● |   |
| 7               | ● | ● | ● | ● |   |
| 8               | ● |   |   |   | ● |
| 9               | ● | ● |   |   | ● |

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

| CODE 400<br>CHANGE-OVER |   |    |    |
|-------------------------|---|----|----|
|                         | C | A+ | A- |
| +                       | ● | ●  |    |
| -                       | ● |    | ●  |
| +                       | ● | ●  |    |
| -                       | ● |    | ●  |
| +                       | ● | ●  |    |
| -                       | ● |    | ●  |
| +                       | ● | ●  |    |
| -                       | ● |    | ●  |

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

| CODE 307<br>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                          | ● |           |           |           |           |

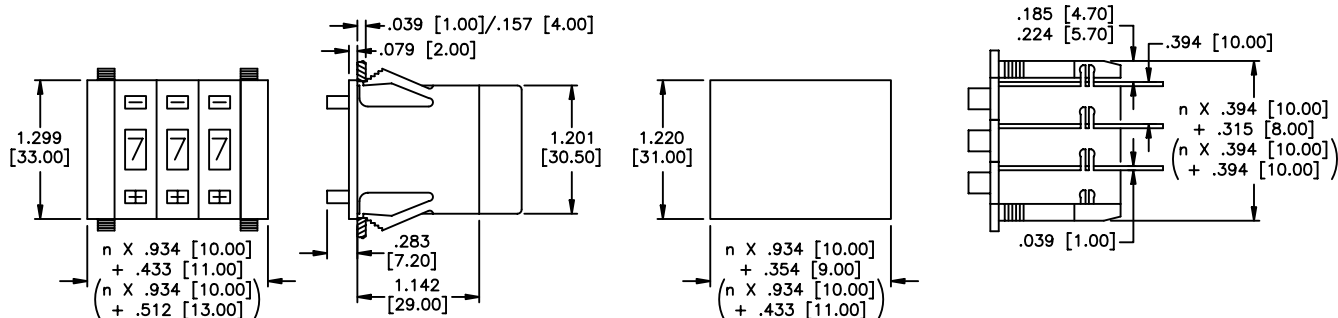
| CODE 111<br>DECIMAL |   |   |   |   |   |   |   |   |   |     |
|---------------------|---|---|---|---|---|---|---|---|---|-----|
|                     | C | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 9 |
| 0                   | ● | ● |   |   |   |   |   |   |   |     |
| 1                   | ● |   | ● | 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

| CODE 141<br>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.

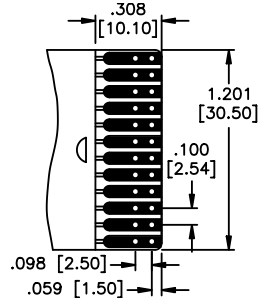
|    | 131 | 137       | 141       | 301 | 307       | 400       | 111 |
|----|-----|-----------|-----------|-----|-----------|-----------|-----|
| AK | +   | +         | +         | +   | +         | +         | +   |
|    | 1   | $\bar{1}$ | 2         | 1   | $\bar{1}$ | C         | 0   |
|    | 2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

Pitch .079"(2mm)

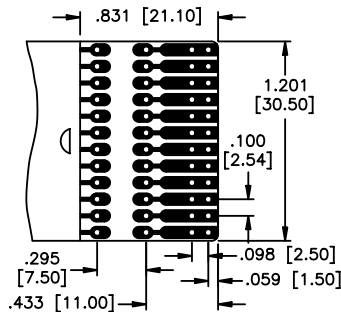
# DPS10 SERIES PUSHWHEEL SWITCHES

## PRINTED CIRCUIT OPTIONS

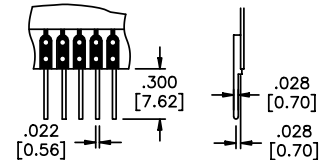
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



**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.

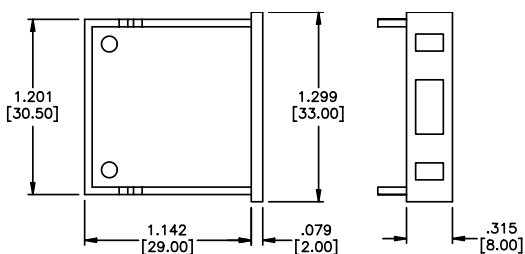
## 'BUILD YOUR OWN SWITCH' ORDER FORMAT

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

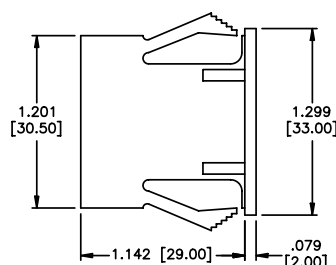
Example of complete model no.: **DPS10141AKLS2**  
Order SP15 as a separate line item for limit stop pin (for 10 position models only).

## ACCESSORIES

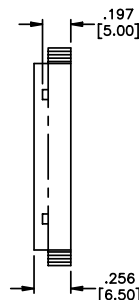
Order separately



**DPS10L2** Dummy housing

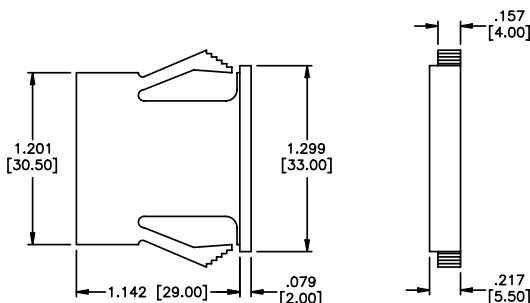


**DPS910P2** Pair of side covers

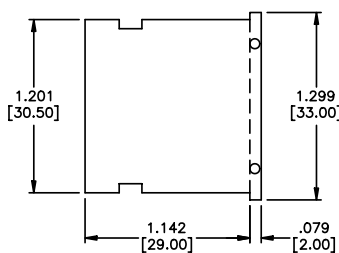


**DPS10L2**  
Dummy switches

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

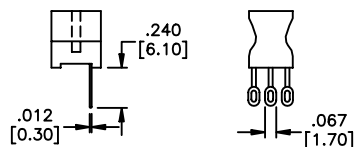
Operating temperature: -40°C to 100°C

Insertion force/contact: Approx. 7.2 oz.

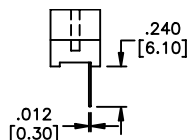
Withdrawal force/contact: Approx. 6.5 oz.

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

## TERMINATIONS



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



**LS** Printed circuit

## ORDER FORMAT:

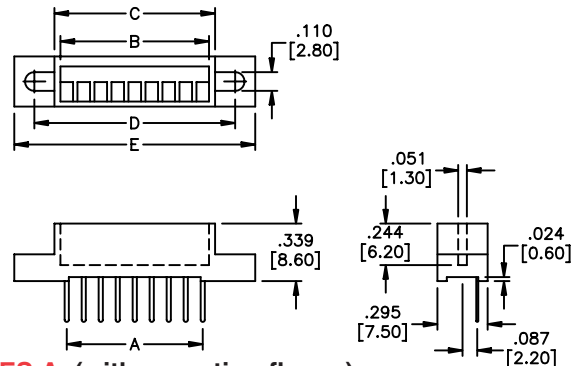
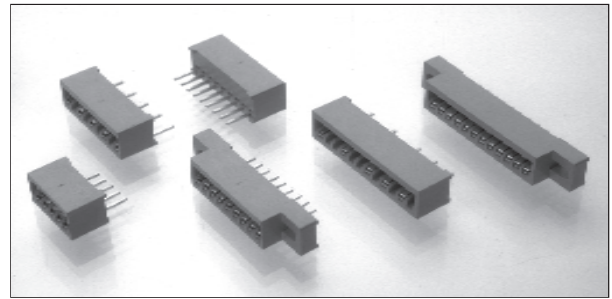
Make selections shown below boxes for complete connector model number.

Series: ☐ A or B

No. of poles: ☐ 9 or 12 for Series A, ☐ 5, 9, 11 or 12 for Series B

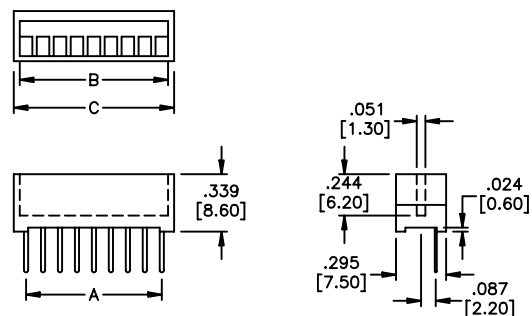
Terminations: ☐ L for solder lug, ☐ LS for printed circuit

Example of complete model no.: B11LS



**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)  |