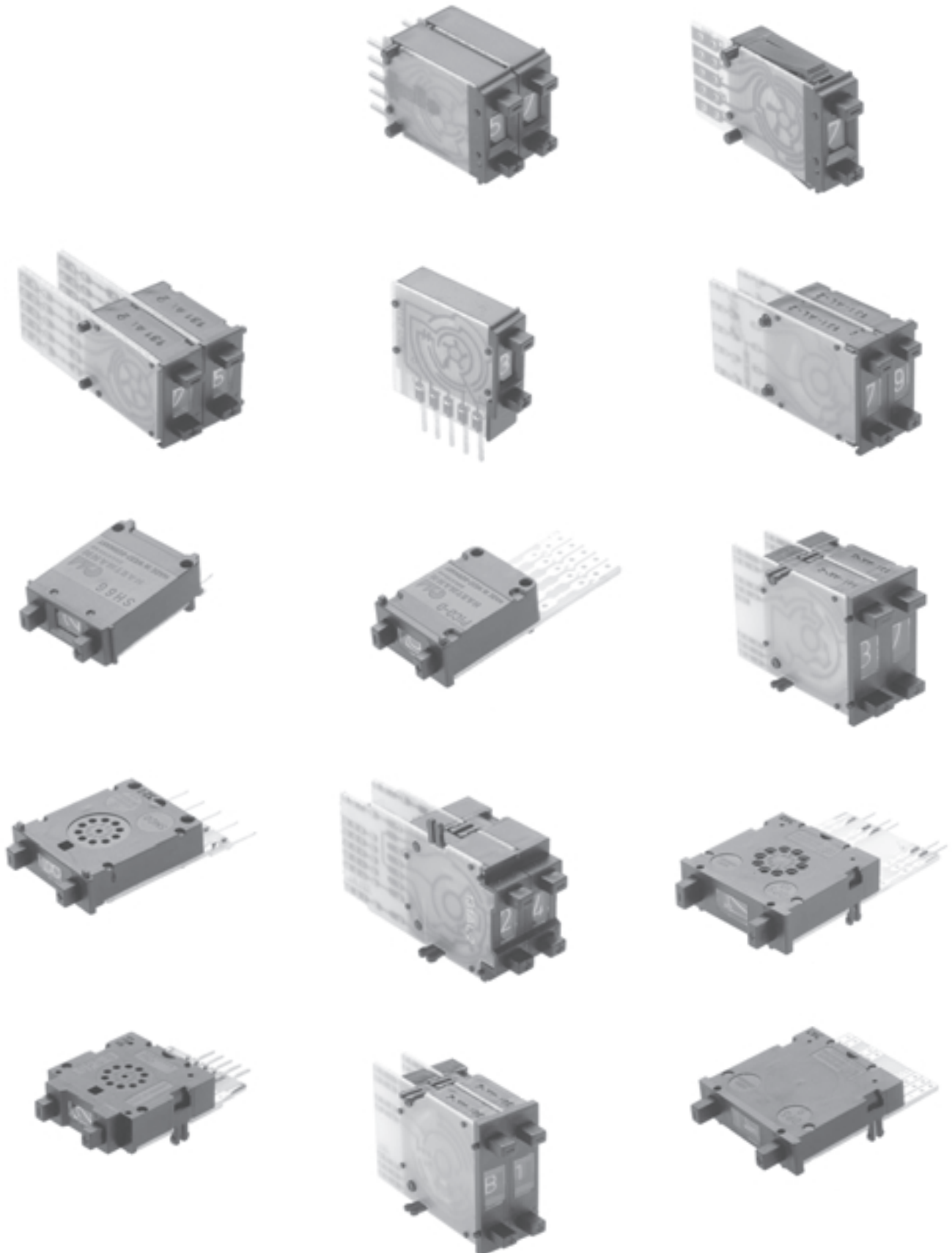


PUSHWHEEL SWITCHES

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



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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

New! SCSI SERIES SUBMINIATURE PUSHWHEEL SWITCHES

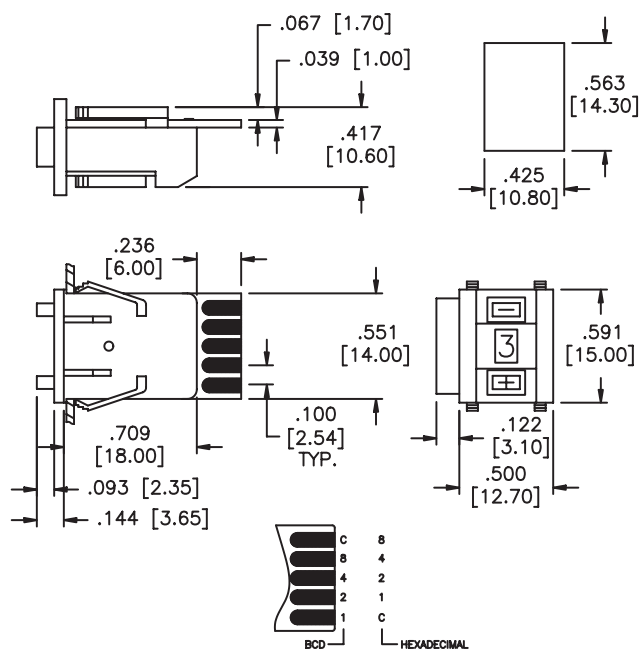
TRUTH TABLES

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

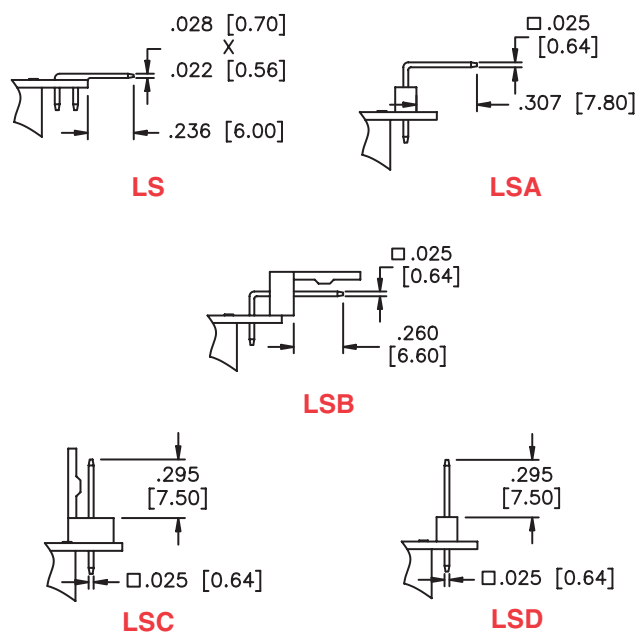
CODE 131 BCD (8 positions)					
	C	1	2	4	8
0	●				
1	●	●			
2	●		●		
3	●	●	●		
4	●			●	
5	●	●		●	
6	●	●	●	●	
7	●	●	●	●	

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

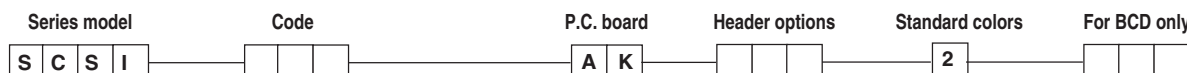


SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

J

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)

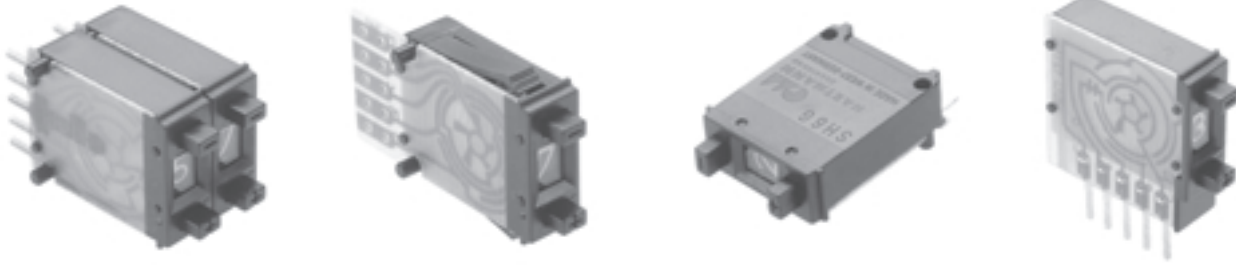
- L S
- L S A
- L S B
- L S C
- L S D

Black housing and drum.
White lettering

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

Example of complete model no.: SCS1131AKLS2B07

SH6 SERIES SUBMINIATURE PUSHWHEEL SWITCHES



SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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

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.

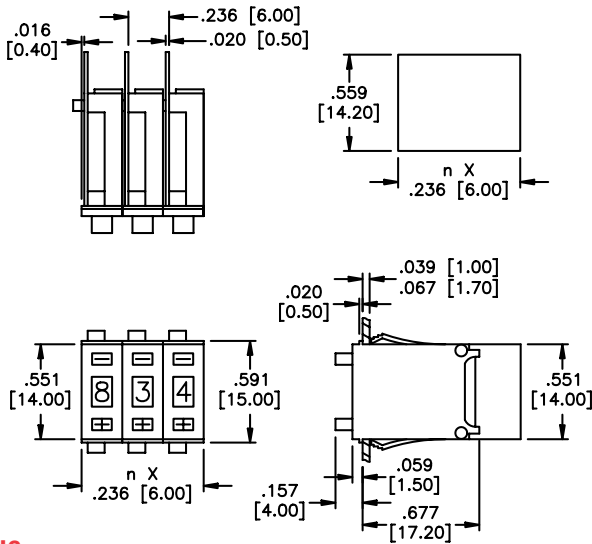
	C	1	2	4	8
0	●	●	●	●	
1	●		●	●	●
2	●	●		●	●
3	●			●	●
4	●	●	●		●
5	●		●		●
6	●	●			●
7	●				●
8	●	●	●	●	
9	●	●	●		

SH6 & SH6G CODE 400 CHANGE-OVER

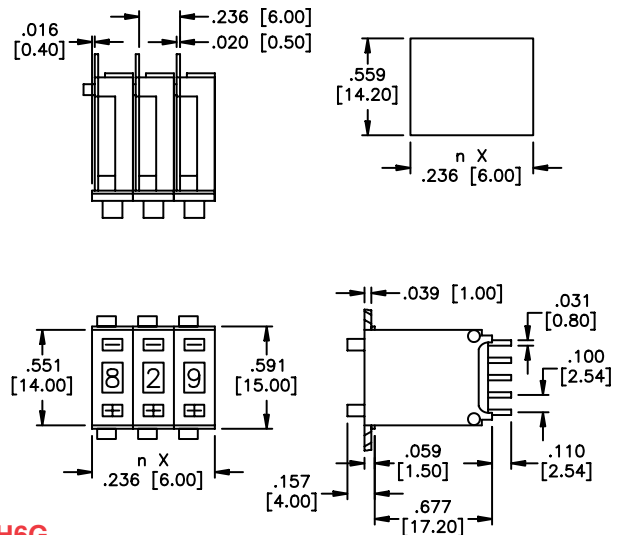
	C	A+	A-
+	●	●	
-	●		●
+	●	●	
-	●		●
+	●	●	
-	●		●
+	●	●	
-	●		●

MECHANICAL OUTLINES WITH PANEL CUT-OUTS

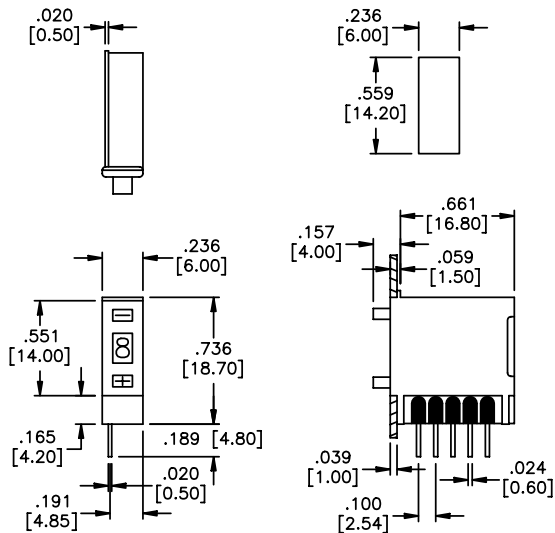
n = number of switches



SH6

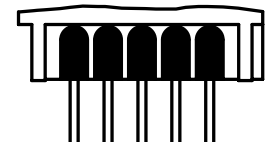


SH6G



SH6S131AKULS2

PIN CONNECTIONS



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

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

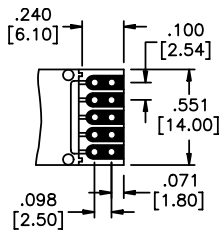
SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

J

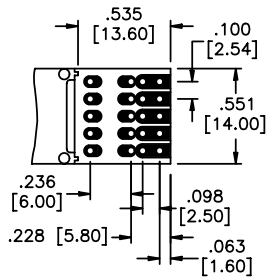
SH6 SERIES SUBMINIATURE PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

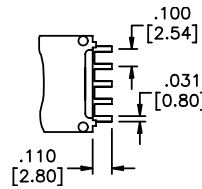
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection.



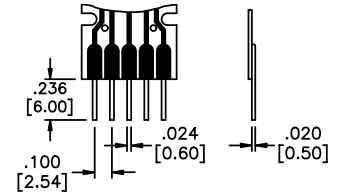
AK
short p.c. board



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

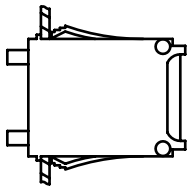


AKK
p.c. board w/fingers

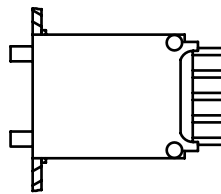


AKLS or ALLS
p.c. board w/solder pins

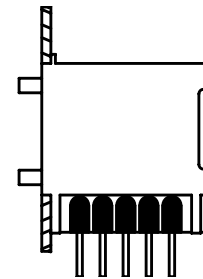
MOUNTING INFORMATION



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

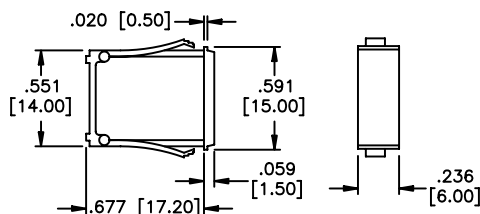
Series model	Code	P.C. board	Standard colors
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
S H 6	1 3 1 BCD (all models)	A K Short	Black housing and drum.
S H 6 G	1 3 7 BCD comp. (SH6 & SH6G only)	A L Long	White lettering
S H 6 S*	4 0 0 Change-over (SH6 & SH6G only)	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.

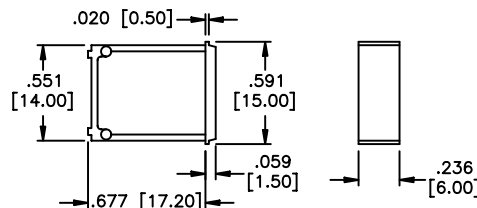
Example of complete model no.: **SH6131AK2**

ACCESSORIES

Order separately



SH6L2 Dummy housing



SH6GL2 Dummy housing

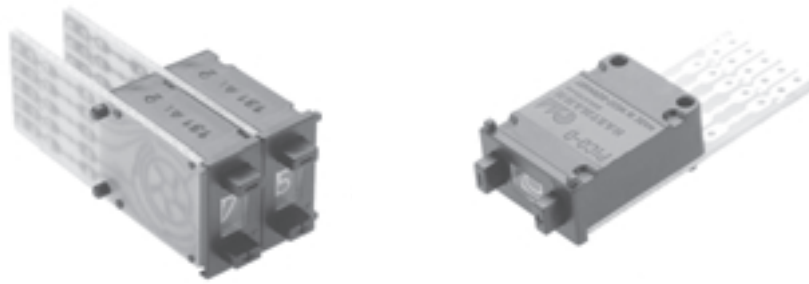
SH6L2 or SH6GL2

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-
+	●	●	
-	●		●
+	●	●	
-	●		●
+	●	●	
-	●		●
+	●	●	
-	●		●
+	●	●	
-	●		●

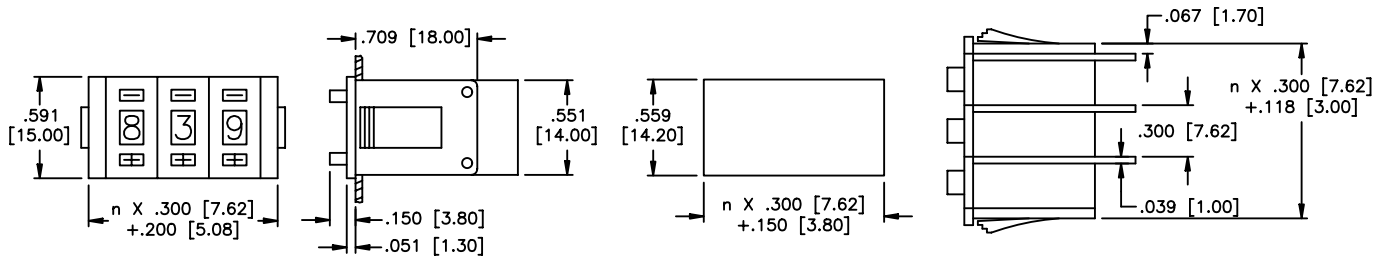
CODE 301 HEXADECIMAL					
	1	2	4	8	C
0					●
1	●				●
2		●			●
3	●	●			●
4			●		●
5	●		●		●
6		●	●		●
7	●	●	●		●
8				●	●
9	●			●	●
A		●	●	●	●
B	●	●	●	●	●
C			●	●	●
D	●	●	●	●	●
E		●	●	●	●
F	●	●	●	●	●

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

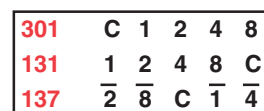
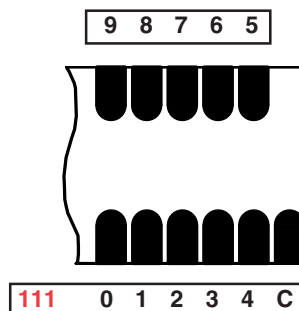
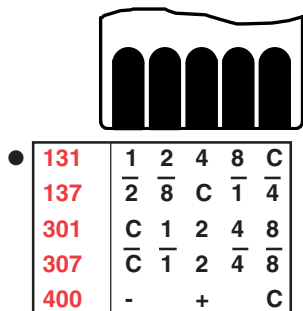
MECHANICAL OUTLINE WITH PANEL CUT-OUT & MOUNTING n = number of switches



PIN CONNECTIONS

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

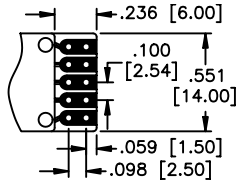
● The switching mode is shorting - i.e. - even during actuation, at least one output is connected to input C.



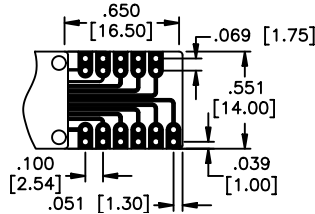
PICOD SERIES SUBMINIATURE PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

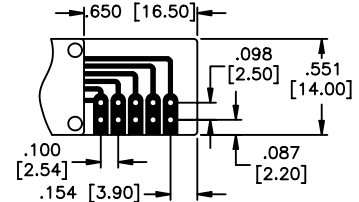
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



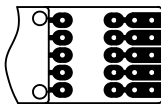
AK short p.c. board



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

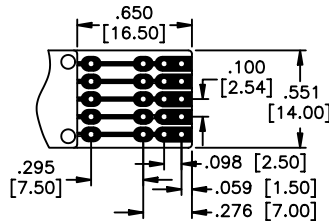


ALU long p.c. board

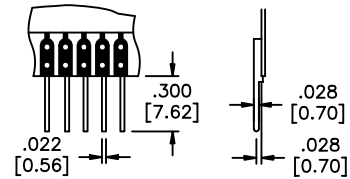


ALD long (interrupted) p.c. board

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

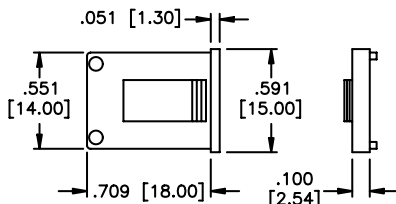
Series model	Code	P.C. board	Terminations	Standard colors
P I C O D	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/> <input type="text"/>	<input type="text"/> <input type="text"/>	<input type="text"/>
	1 1 1 Decimal 1 3 1 BCD 1 3 7 BCD comp. 3 0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

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

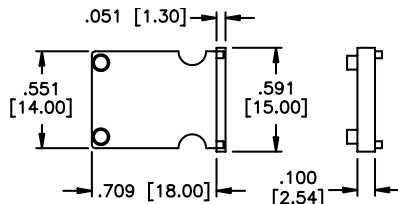
Example of complete model no.: **PICOD131AL2**

ACCESSORIES

Order separately



PICODP2 Pair of side covers

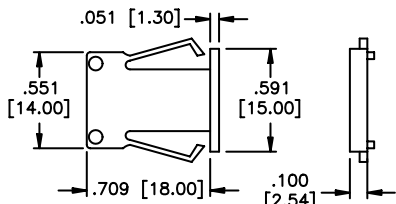


PICODA2 Spacer

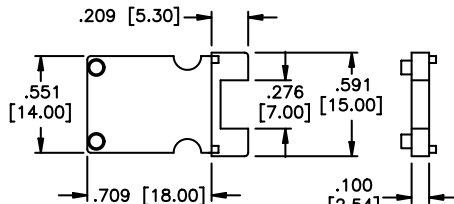
PICODL2 Dummy switches

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

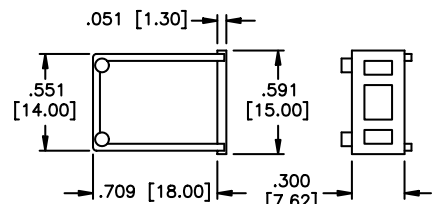
PICORD Switches for rear mounting available on request.



PICODPK2 Pair of side covers

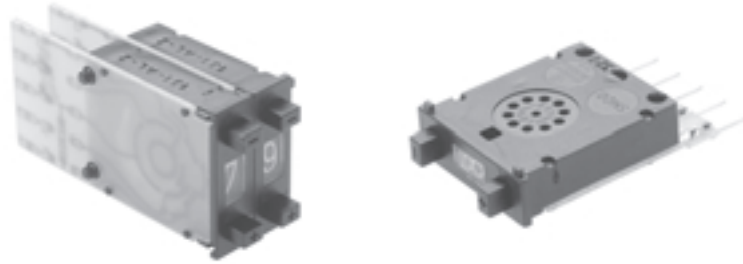


PICODAH2 Spacer



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

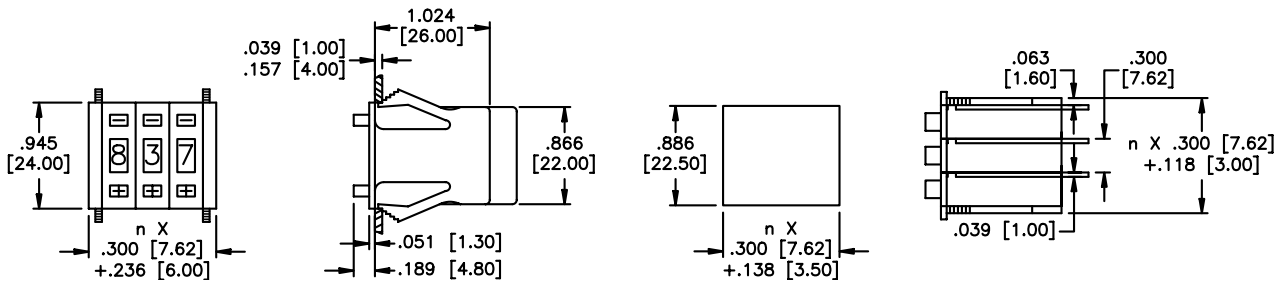
TRUTH TABLES

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		●			●	●	A												
B		●	●												B	●	●			●	●	B												
C				●											C			●		●	●	C												
D					●										D	●		●	●	●	●	D												
E			●	●											E		●	●	●	●	●	E												
F		●	●	●	●										F	●	●	●	●	●	●	F												

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

MECHANICAL OUTLINE WITH PANEL CUT-OUT & MOUNTING

n = number of switches



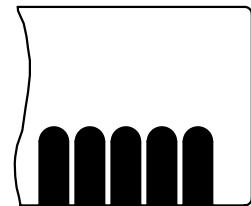
PIN CONNECTIONS

● 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)

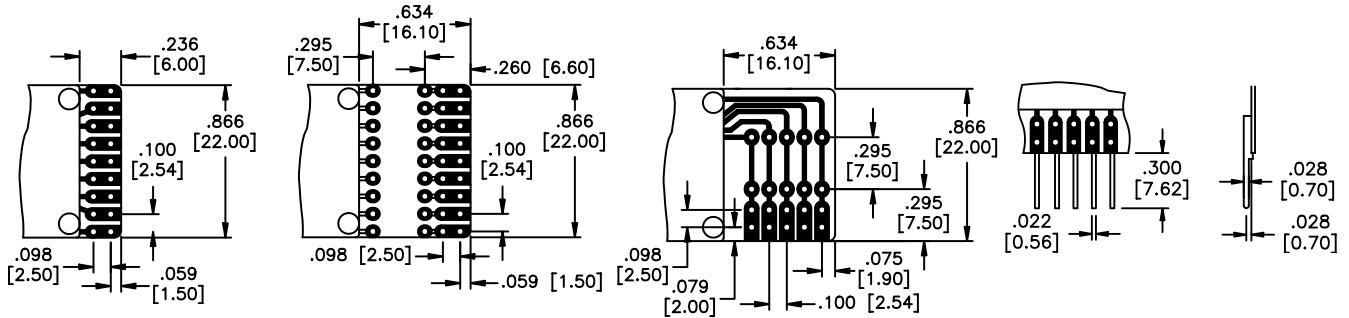


●	131	1	2	4	8	C
	301	1	2	4	8	C

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

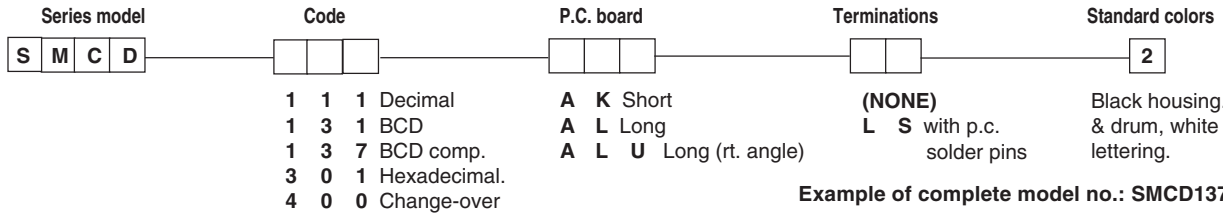
Allows customer to add resistors, diodes, ect.

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

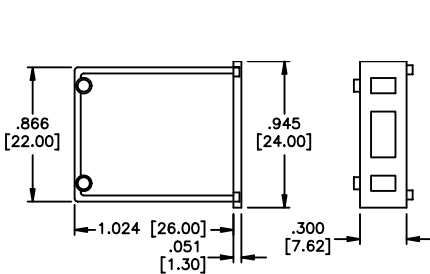


Example of complete model no.: **SMCD137ALLS2**
Order SP12 as a separate line item for limit stop pin (for 10 position models only).

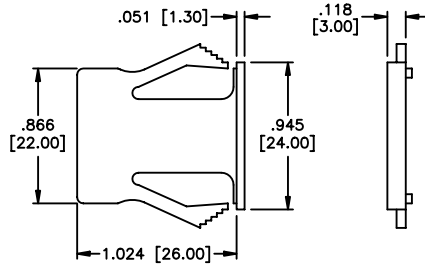
ACCESSORIES

Order separately

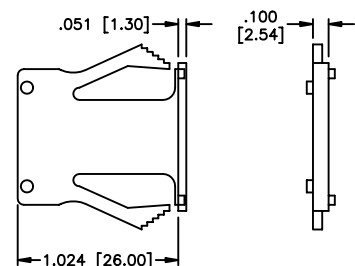
SMCL2 Dummy switches - These are empty plastic housings with the same dimensions as SMCD model (see outline). Use to fill hole where switch is not needed. **SMCRD2 & SMCRND2** switches for rear mounting available on request.



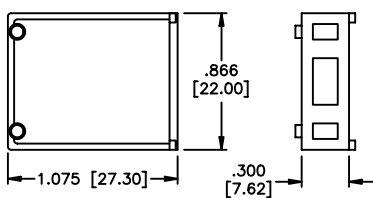
SMCL2 Dummy housing



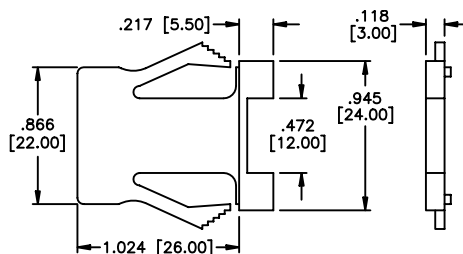
SMCPK2 Pair of side covers



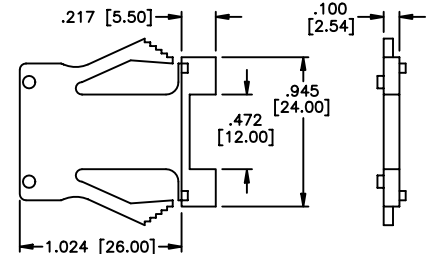
SMCA2 Spacer



SMCL2 Dummy housing

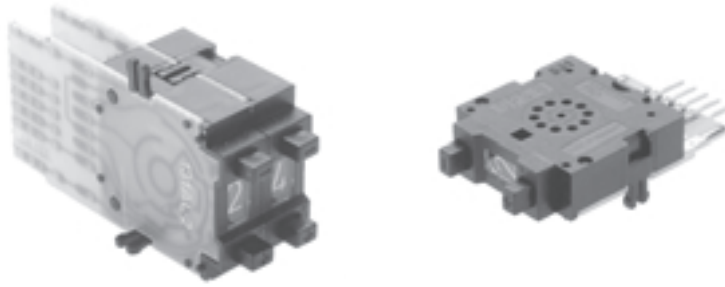


SMCPK2 Pair of side covers



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**

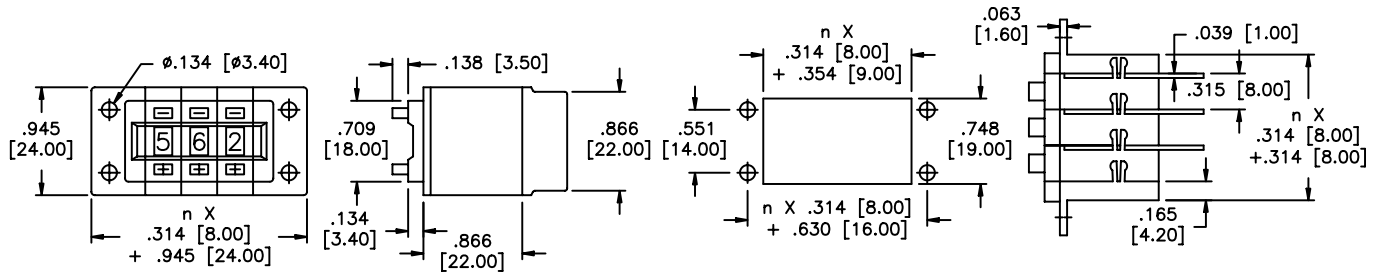
	C	0	1	2	3	4	5	6	7	8	9
0	●	●									
1	●		●								
2	●			●							
3	●				●						
4	●					●					
5	●						●				
6	●							●			
7	●								●		
8	●									●	
9	●										●

**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.

AK

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-		-						
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)

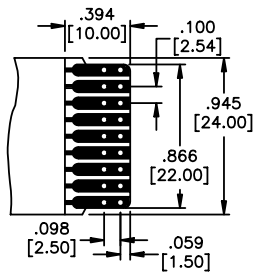
Pitch .067"(1.7mm)

131	C	1	2	4	8
301	C	1	2	4	8

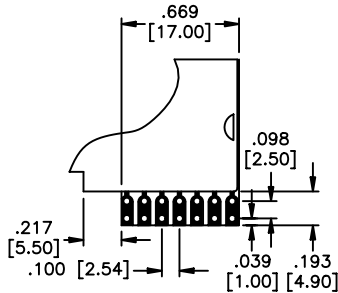
131	C	1	2	4	8		
137	C	1	2	4	8		
301	C	1	2	4	8		
400	C		+	-			
131bl	+	C	1	2	4	8	-

DPS8 SERIES MINIATURE PUSHWHEEL SWITCHES

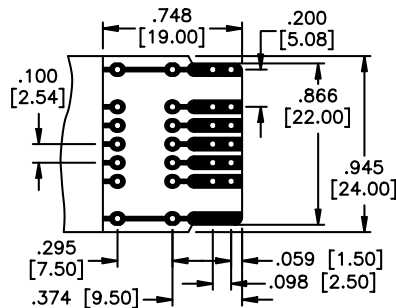
PRINTED CIRCUIT OPTIONS



AK short p.c. board

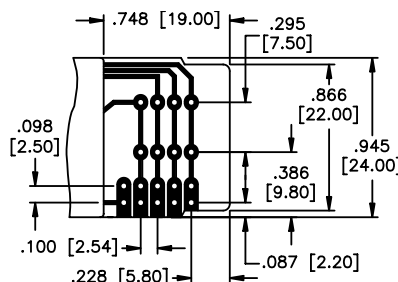


AKU short p.c. board

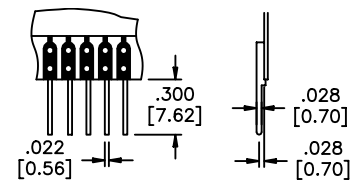


AL long p.c. board

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.

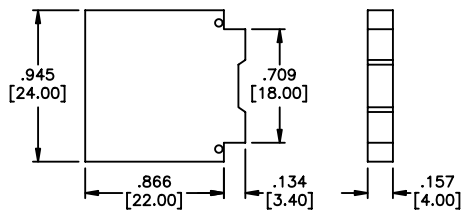
'BUILD YOUR OWN SWITCH' ORDER FORMAT

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			

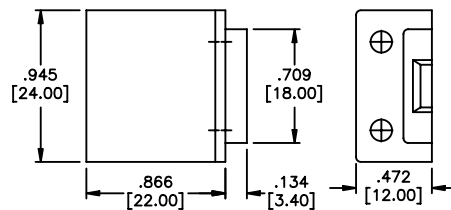
Example of complete model no.: DPS8131ALLS2
Order SP12 as a separate line item for limit stop pin (for 10 position models only).

ACCESSORIES

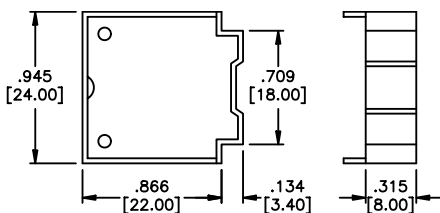
Order separately



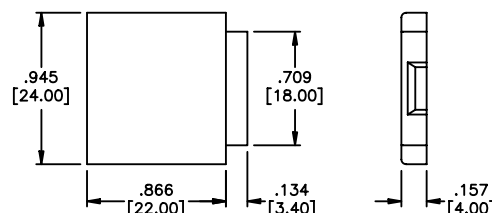
DPS8A2 Spacer



DPS8PW2 Pair of side covers



DPS8L2 Dummy housing



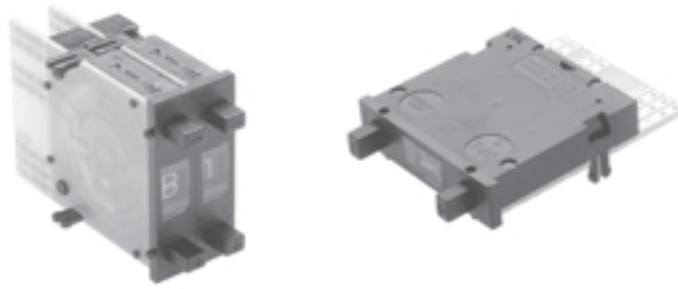
DPS8P2 Pair of side covers

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	●				

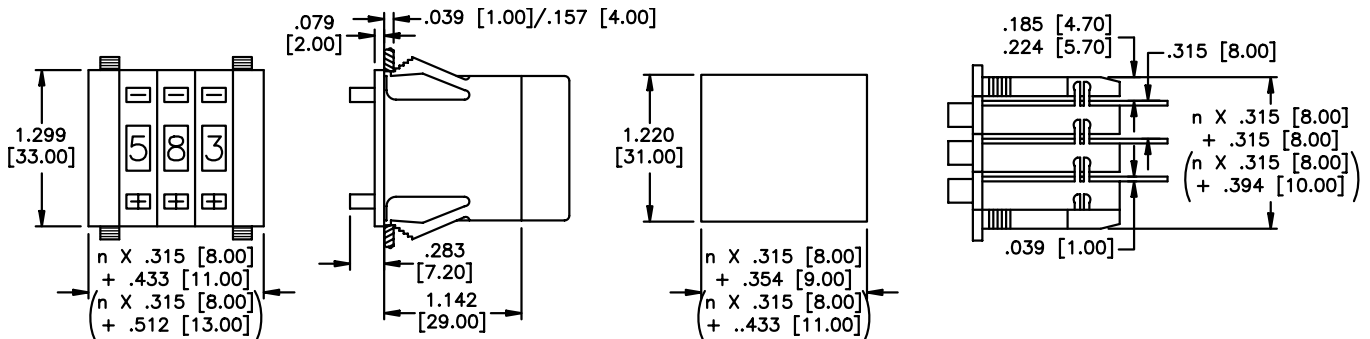
CODE 111 DECIMAL											
	C	0	1	2	3	4	5	6	7	8	9
0	●	●									
1	●		●								
2	●			●							
3	●				●						
4	●					●					
5	●						●				
6	●							●			
7	●								●		
8	●									●	
9	●										●

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					

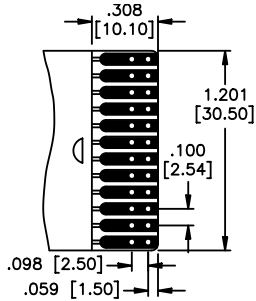
111bi + C 0 1 2 3 4 5 6 7 8 9 - Pitch .079" (2mm)

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

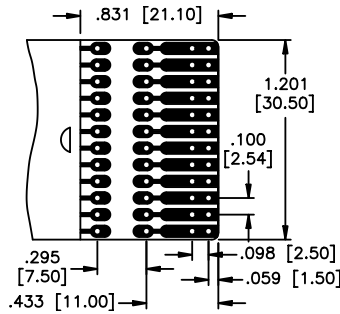
DPS9 SERIES PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

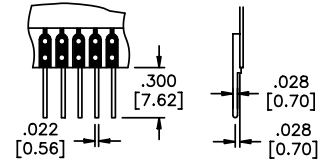
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



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.

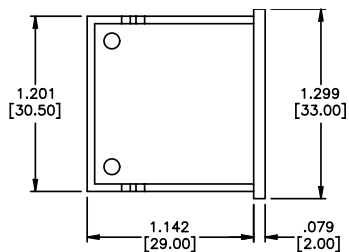
'BUILD YOUR OWN SWITCH' ORDER FORMAT

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.

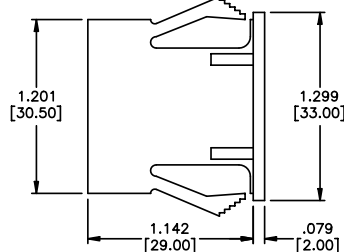
Example of complete model no.: DPS9141AKLS2
Order SP15 as a separate line item for limit stop pin (for 10 position models only).

ACCESSORIES

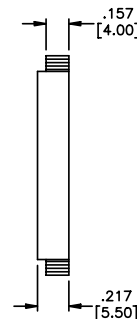
Order separately



DPS9L2 Dummy housing

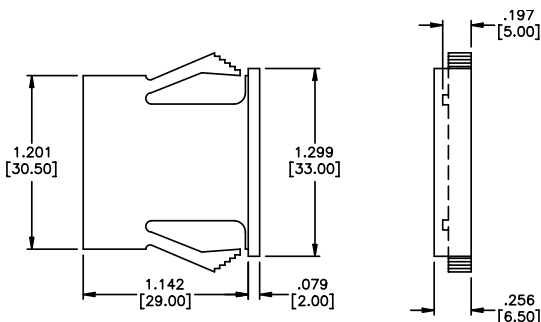


DPS910P2 Pair of side covers

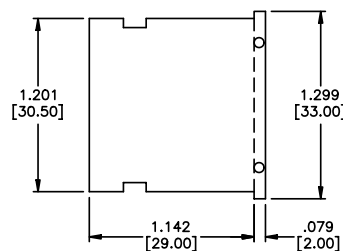


DPS9L2 Dummy switches

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

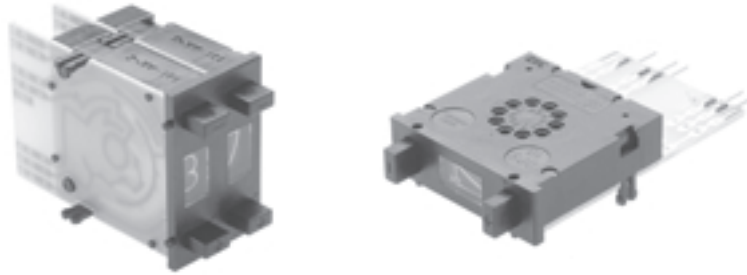


DPS910PB2 Pair of side covers



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	●				

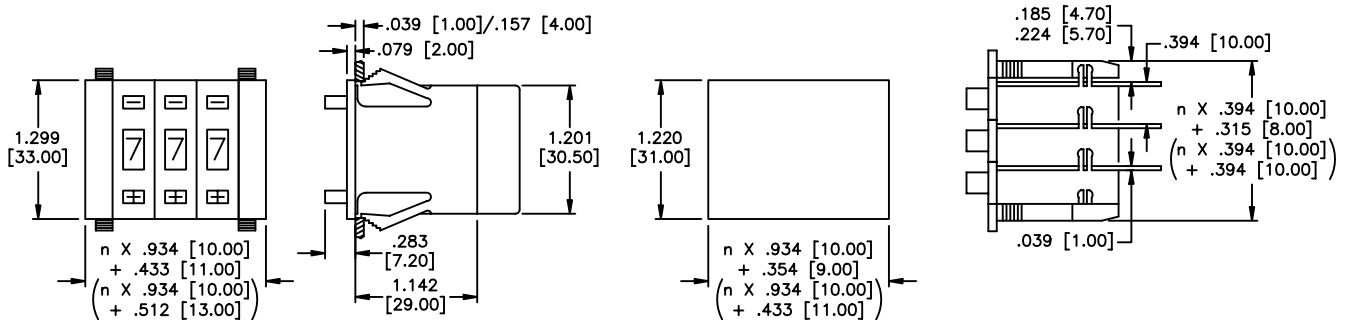
CODE 111 DECIMAL											
	C	0	1	2	3	4	5	6	7	8	9
0	●	●									
1	●		●								
2	●			●							
3	●				●						
4	●					●					
5	●						●				
6	●							●			
7	●								●		
8	●									●	
9	●										●

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.

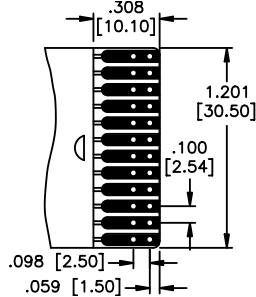
Model	+	1	2	3	C	4	5	6	7	8	9	-	
131	+	$\bar{1}$	$\bar{2}$					C	8	$\bar{4}$		-	
137	+	$\bar{1}$	$\bar{2}$					C	$\bar{8}$	$\bar{4}$		-	
141	+		2	$\bar{4}$	$\bar{2}$	C	$\bar{8}$	$\bar{1}$	1	8	4	-	
301	+	1	2					C	8	$\bar{4}$		-	
307	+	$\bar{1}$	$\bar{2}$					C	$\bar{8}$	$\bar{4}$		-	
400	+	C						A-	A+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

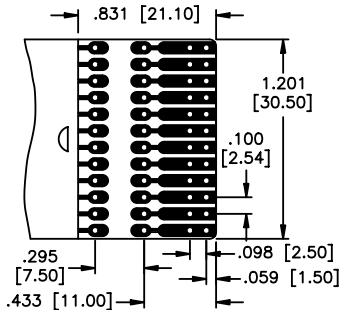
DPS10 SERIES PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

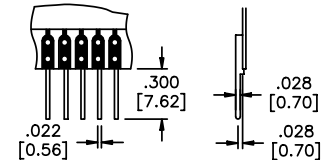
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



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.

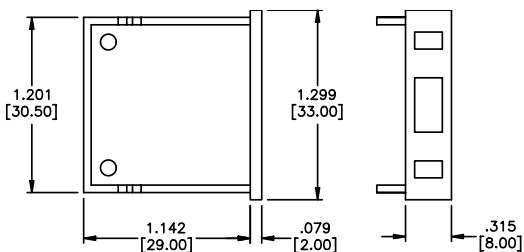
'BUILD YOUR OWN SWITCH' ORDER FORMAT

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 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.

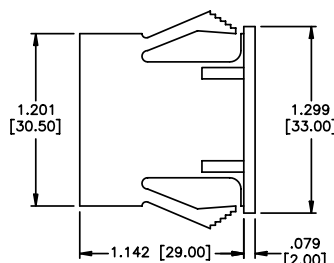
Example of complete model no.: **DPS10141AKLS2**
Order SP15 as a separate line item for limit stop pin (for 10 position models only).

ACCESSORIES

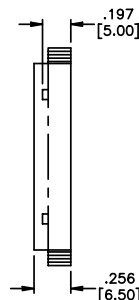
Order separately



DPS10L2 Dummy housing

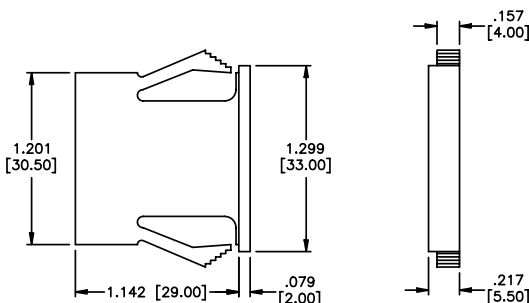


DPS910P2 Pair of side covers

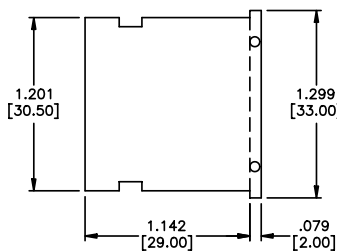


DPS10L2 Dummy switches

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

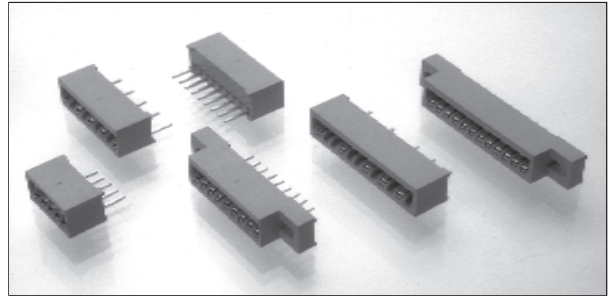


DPS910A2 Spacer

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

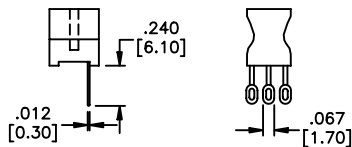
Operating temperature: -40°C to 100°C

Insertion force/contact: Approx. 7.2 oz.

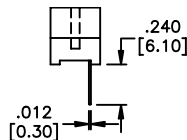
Withdrawal force/contact: Approx. 6.5 oz.

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

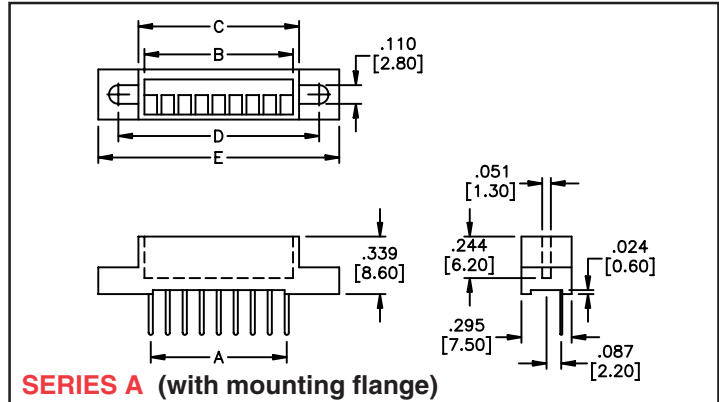
TERMINATIONS



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

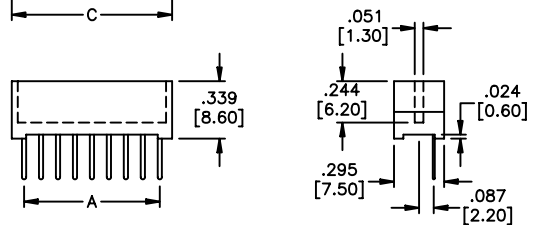
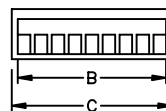


LS Printed circuit



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)

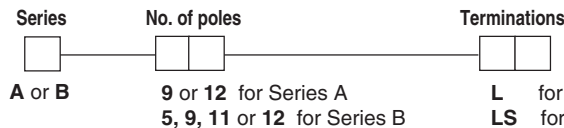


SERIES B (without mounting flange)

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**

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

J