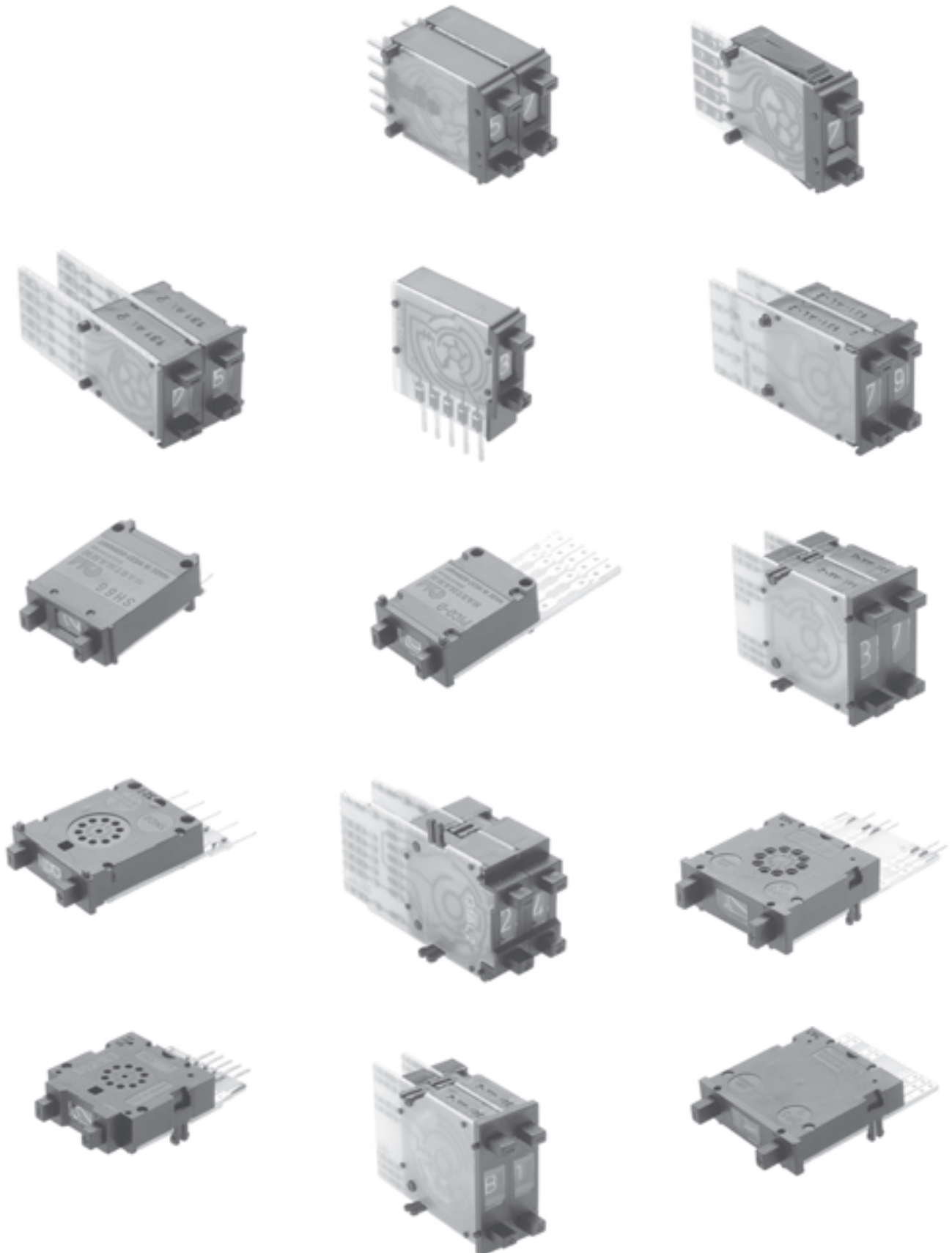


PUSHWHEEL SWITCHES

SEE PUSHWHEEL SWITCH SELECTION GUIDE ON NEXT PAGE

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE



J

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

New! SCSI SERIES SUBMINIATURE PUSHWHEEL SWITCHES

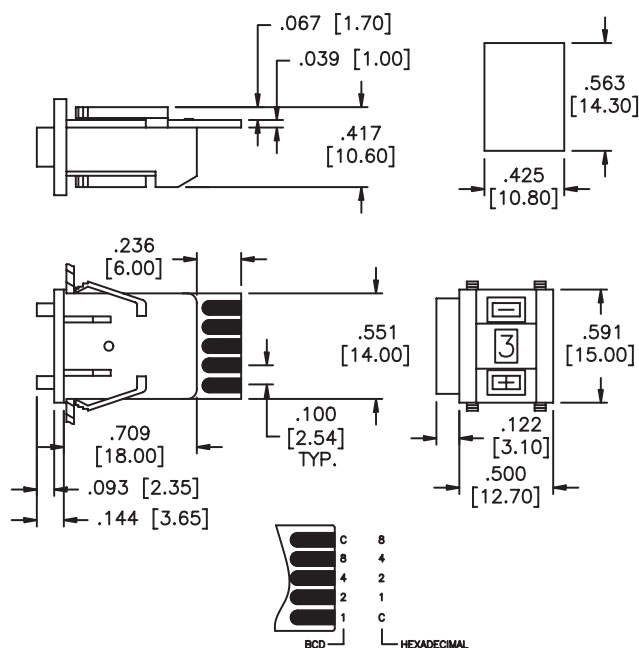
TRUTH TABLES

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

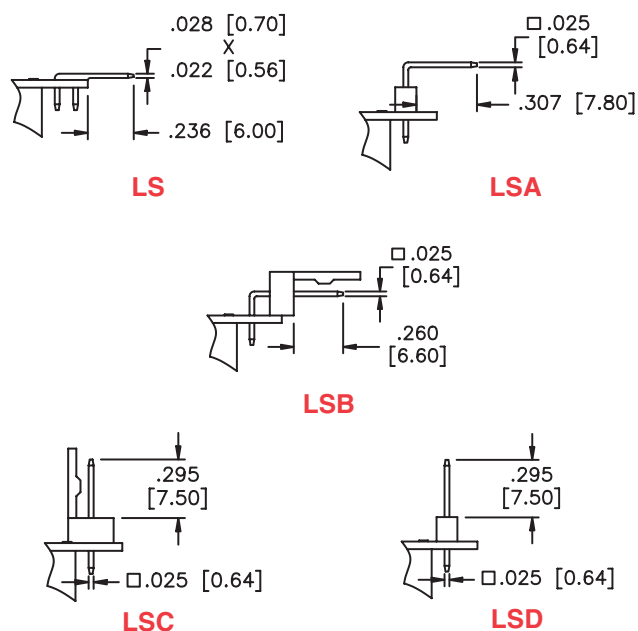
CODE 131 BCD (8 positions)					
	C	1	2	4	8
0	●				
1	●	●			
2	●		●		
3	●	●	●		
4	●			●	
5	●	●		●	
6	●		●	●	
7	●	●	●	●	

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.

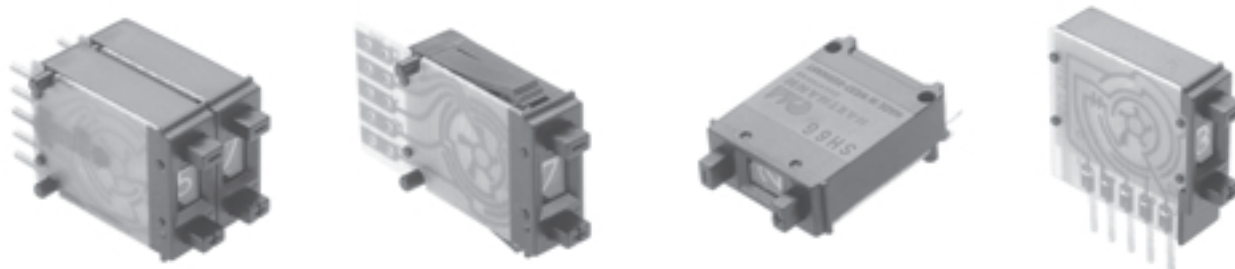
'BUILD YOUR OWN SWITCH' ORDER FORMAT

Series model	Code	P.C. board	Header options	Standard colors	For BCD only
S C S I		A K		2	
	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.: SCSI131AKLS2B07

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

SH6 SERIES SUBMINIATURE PUSHWHEEL SWITCHES

TRUTH TABLES

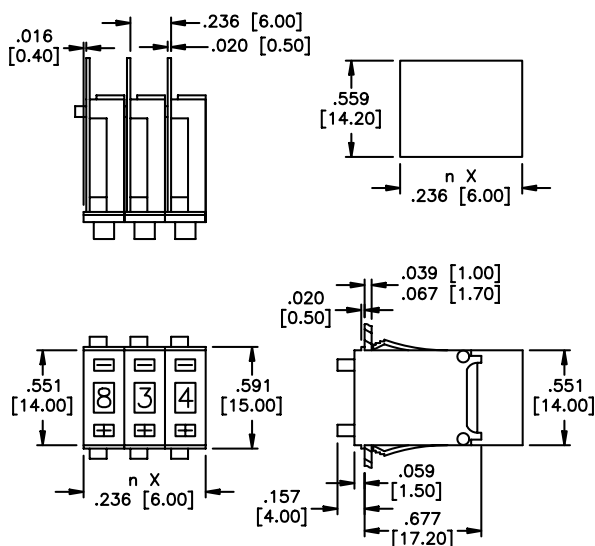
ALL MODELS CODE 131 BCD					
	C	1	2	4	8
0	●				
1	●	●			
2	●		●		
3	●	●	●		
4	●			●	
5	●	●		●	
6	●		●	●	
7	●	●	●	●	
8	●				●
9	●	●			●

SH6 & SH6G CODE 137 BCD COMP.					
	C	1	2	4	8
0	●	●	●	●	●
1	●	●	●	●	●
2	●	●	●	●	●
3	●	●	●	●	●
4	●	●	●	●	●
5	●	●	●	●	●
6	●	●	●	●	●
7	●	●	●	●	●
8	●	●	●	●	●
9	●	●	●	●	●

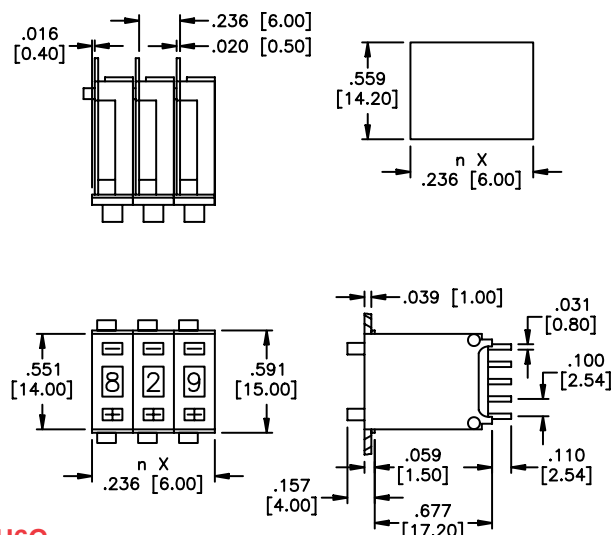
SH6 & SH6G CODE 400 CHANGE-OVER			
	C	A+	A-
+	●	●	
-	●		●
+	●	●	
-	●		●
+	●	●	
-	●		●
+	●	●	
-	●		●

MECHANICAL OUTLINES WITH PANEL CUT-OUTS

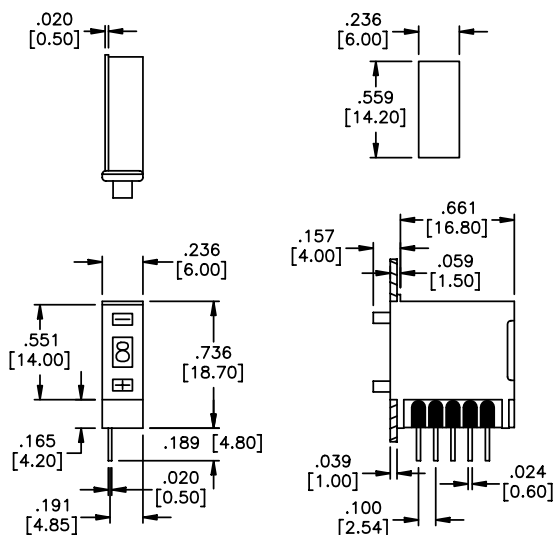
n = number of switches



SH6



SH6G

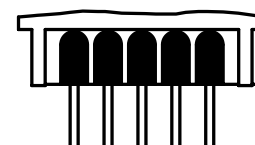


SH6S131AKULS2

PIN CONNECTIONS



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



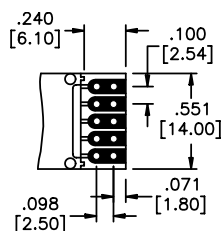
131/1	C	8	1	4	2
-------	---	---	---	---	---

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

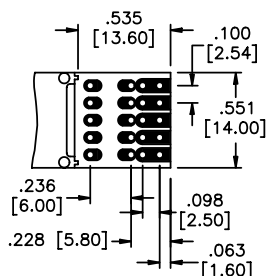
SH6 SERIES SUBMINIATURE PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

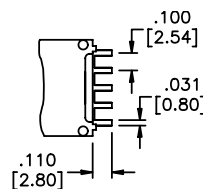
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection.



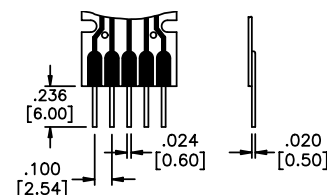
AK
short p.c. board



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

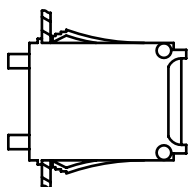


AKK
p.c. board w/fingers

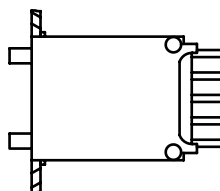


AKLS or ALLS
p.c. board w/solder pins

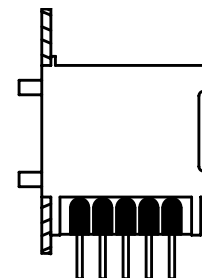
MOUNTING INFORMATION



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

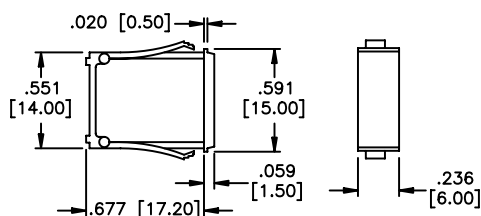
Series model	Code	P.C. board	Standard colors
S H 6	1 3 1 BCD (all models)	A K Short	Black housing
S H 6 G	1 3 7 BCD comp. (SH6 & SH6G only)	A L Long	and drum.
S H 6 S*	4 0 0 Change-over (SH6 & SH6G only)	A K K w/fingers	White lettering
(see outline dwgs.)		A K L S Short w/p.c. solder pins	
		A L L S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

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

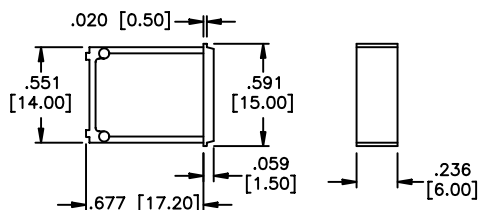
Example of complete model no.: SH6131AK2

ACCESSORIES

Order separately



SH6L2 Dummy housing



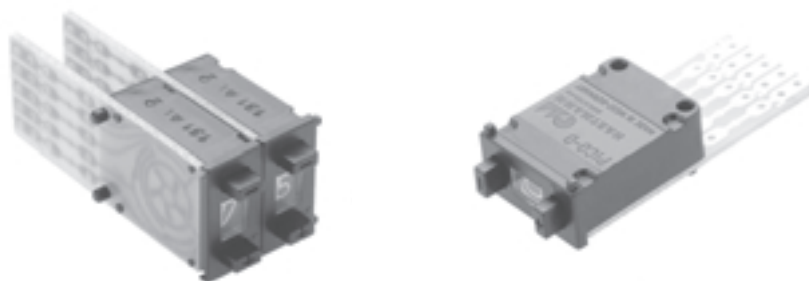
SH6GL2 Dummy housing

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.

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 = black 3 = white	2,2,3

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.

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

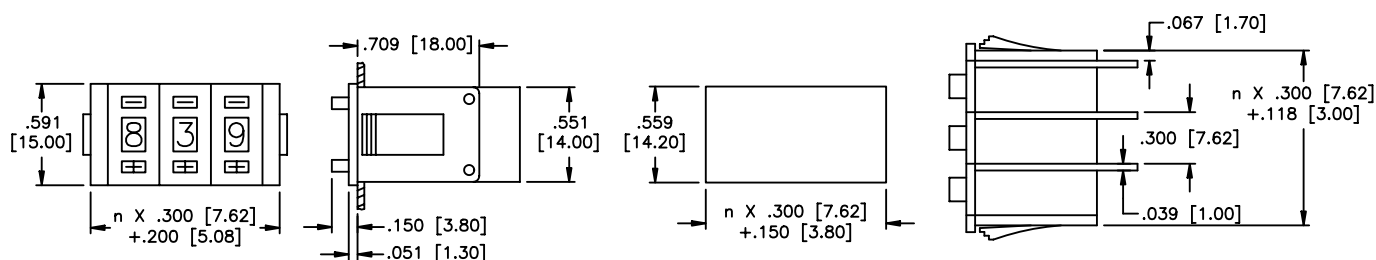
CODE 301 HEXADECIMAL					
	1	2	4	8	C
0					●
1	●				●
2		●			●
3	●	●			●
4			●		●
5	●		●		●
6		●	●		●
7	●	●	●		●
8				●	●
9	●			●	●
A		●		●	●
B	●	●		●	●
C			●	●	●
D	●		●	●	●
E		●	●	●	●
F	●	●	●	●	●

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	●									●

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.

	1	2	4	8	C
131	1	2	4	8	C
137	$\bar{2}$	$\bar{8}$	C	$\bar{1}$	$\bar{4}$
301	C	1	2	4	8
307	C	$\bar{1}$	2	$\bar{4}$	$\bar{8}$
400	-	+			C

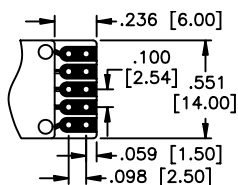
9	8	7	6	5
111	0	1	2	3 4 C

301	C	1	2	4	8
131	1	2	4	8	C
137	$\bar{2}$	$\bar{8}$	C	$\bar{1}$	$\bar{4}$

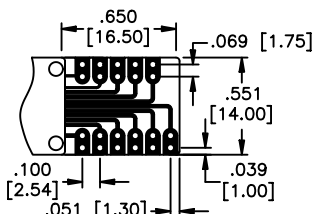
PICOD SERIES SUBMINIATURE PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

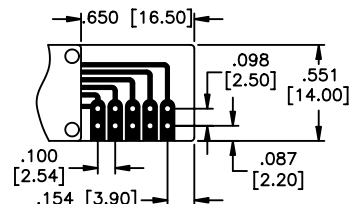
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



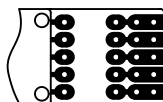
AK short p.c. board



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

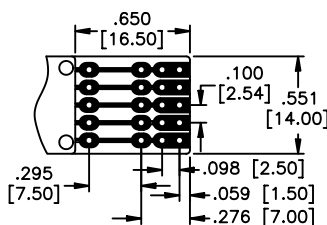


ALU long p.c. board

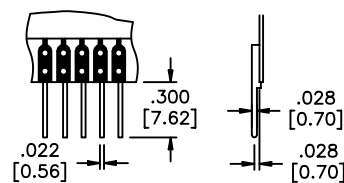


ALD long (interrupted) p.c. board

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

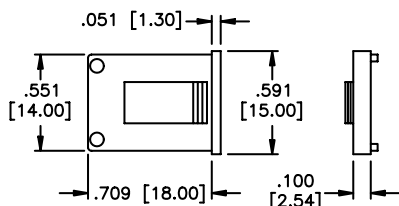
Series model	Code	P.C. board	Terminations	Standard colors
P I C O D				2
	1 1 1 Decimal	A K Short	(NONE)	Black housing
	1 3 1 BCD	A L Long	L S with p.c. solder pins	& drum, white lettering.
	1 3 7 BCD comp.	A L U Long (rt. angle)		
	3 0 1 Hexadecimal	A L D Long (interrupted)		
	3 0 7 Hexadecimal comp.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

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

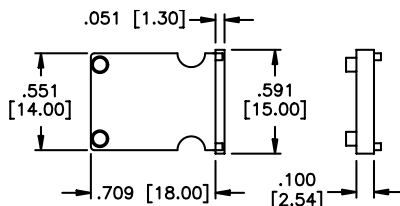
Example of complete model no.: **PICOD131AL2**

ACCESSORIES

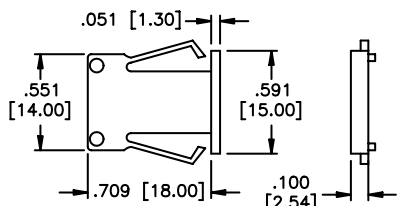
Order separately



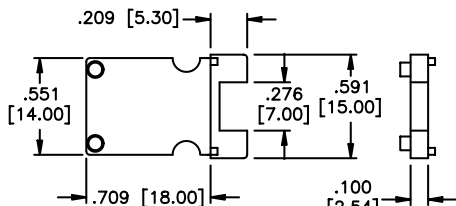
PICODP2 Pair of side covers



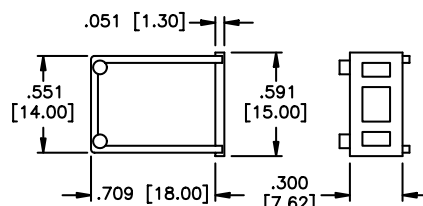
PICODA2 Spacer



PICODPK2 Pair of side covers



PICODAH2 Spacer



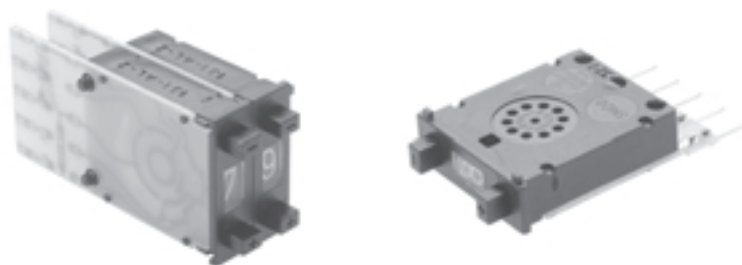
PICODL2 Dummy housing

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.

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.

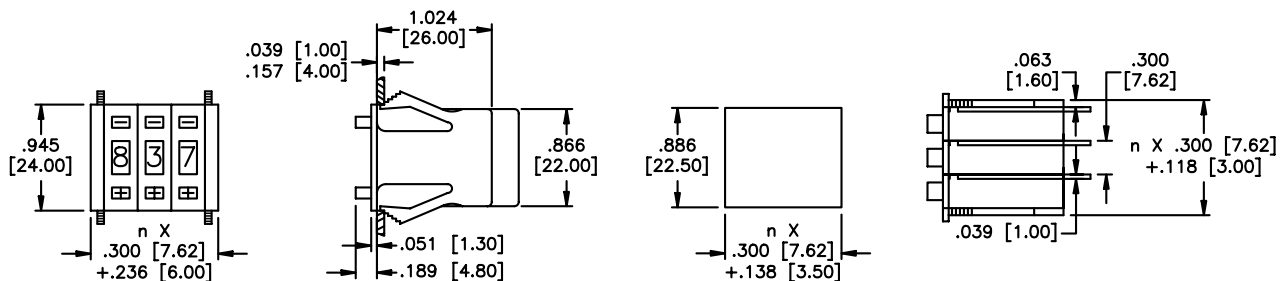
SMCD SERIES MINIATURE PUSHWHEEL SWITCHES

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					●	0	●	●								
1	●	●				1	●		●	●	●		-	●		●	1	●				●	1	●		●							
2	●		●			2	●	●		●	●		+	●	●		2		●			●	2	●		●							
3	●	●	●			3	●			●	●		-	●		●	3	●	●			●	3	●		●	●						
4	●			●		4	●	●	●		●		+	●	●		4			●		●	4	●			●						
5	●	●			●	5	●		●		●		-	●		●	5	●		●		●	5	●				●					
6	●		●	●		6	●	●			●		+	●	●		6		●	●		●	6	●					●				
7	●	●	●	●		7	●				●		-	●		●	7	●	●	●		●	7	●						●			
8	●				●	8	●	●	●	●			+	●	●		8				●	●	8	●							●		
9	●	●			●	9	●		●	●	●		-	●		●	9	●			●	●	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	1	2	4	8	C						
	131bl	+ 1	8	4	2	C -						
	137	$\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$	C						
	137bl	+ $\overline{1}$	$\overline{2}$	$\overline{4}$	$\overline{8}$	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
AK	111bl	+ 0	1	2	3	4	C	5	6	7	8	9
		+										
AL	111bl	0	1	2	3	4	C	5	6	7	8	9

Pitch .079"(2mm)

Pitch .067"(1.7mm)

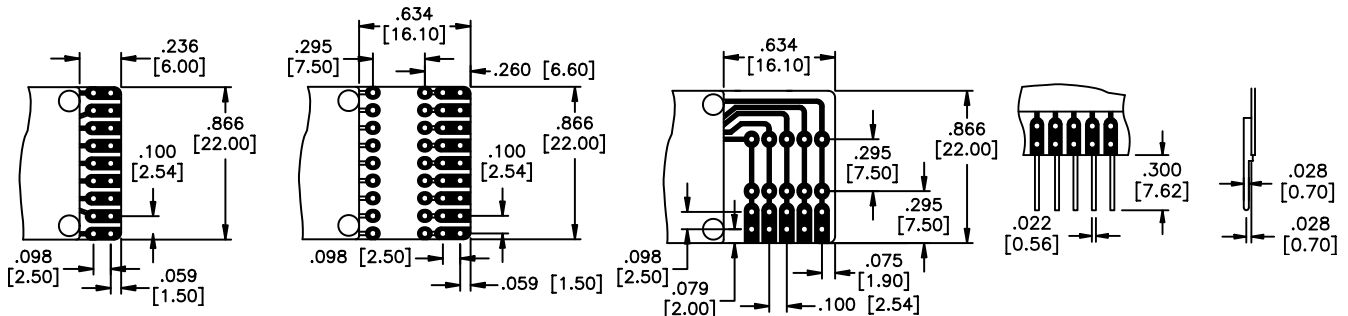
Pitch .079"(2mm)

●	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

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

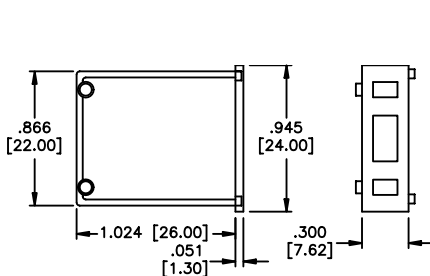
Example of complete model no.: **SMCD137ALLS2**

Order SP12 as a separate line item for limit stop pin (for 10 position models only).

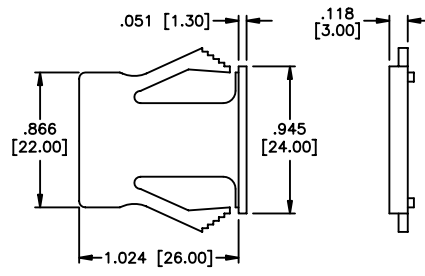
ACCESSORIES

Order separately

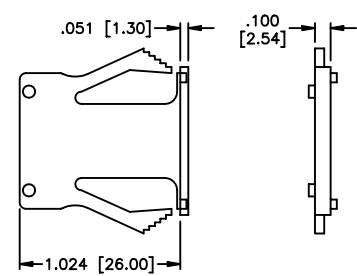
SMCL2 Dummy switches - These are empty plastic housings with the same dimensions as SMCD model (see outline). Use to fill hole where switch is not needed. **SMCRD2 & SMCRND2** switches for rear mounting available on request.



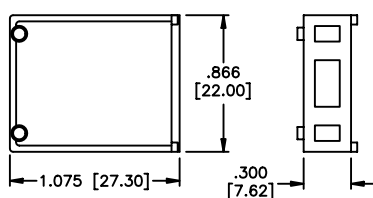
SMCL2 Dummy housing



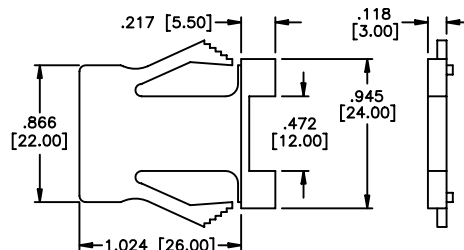
SMCPK2 Pair of side covers



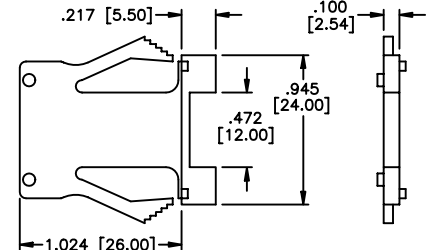
SMCA2 Spacer



SMCL2 Dummy housing

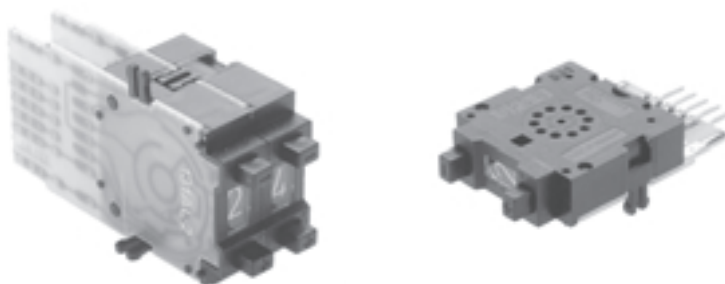


SMCPK2 Pair of side covers



SMCAH2 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

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**

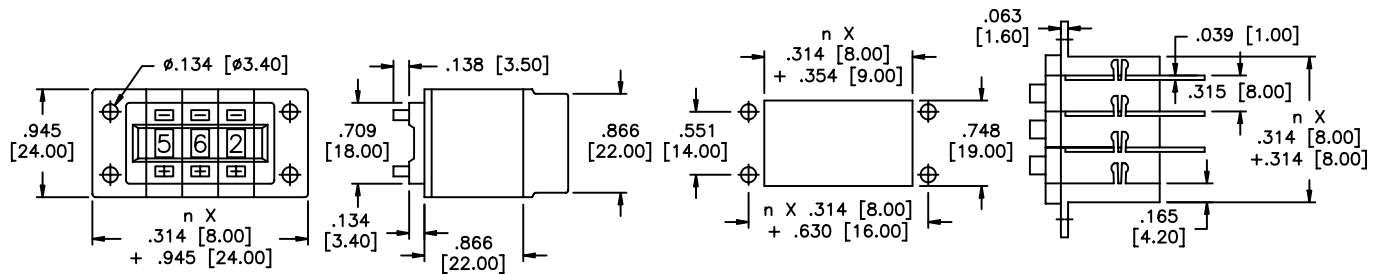
	C	0	1	2	3	4	5	6	7	8	9
0	●	●									
1	●		●								
2	●			●							
3	●				●						
4	●					●					
5	●						●				
6	●							●			
7	●								●		
8	●									●	
9	●										●

**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	137	141	301	400	111	111bl
+	+	+	1	+	+	0	+
C	C	C	1	C	C	0	+
1	1	1	2	1	0	1	1
2	2	2	2	2	2	2	2
4	4	4	4	C	4	4	4
8	8	8	8	8	8	8	8
-	-	-	C	A+	-	9	-
-	-	-	A-	-	-	9	-

Pitch .079" (2mm)

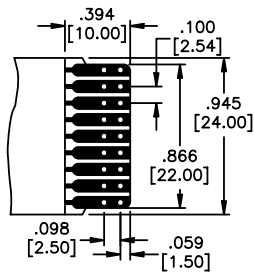
Pitch .067" (1.7mm)

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

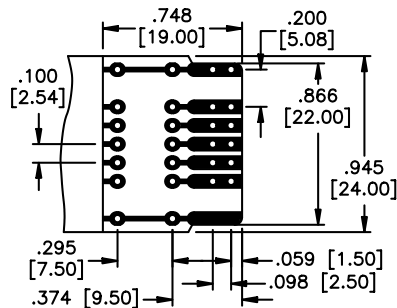
	131	137	301	400	131bl
C	1	1	C	C	+
1	2	2	1	1	1
2	4	4	2	2	2
4	8	8	4	4	4
8	-	-	8	8	8
-	-	-	-	-	-

DPS8 SERIES MINIATURE PUSHWHEEL SWITCHES

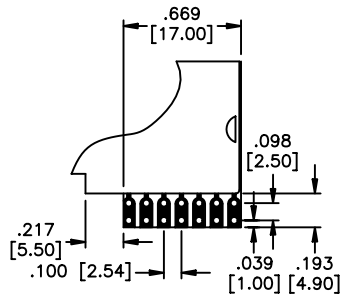
PRINTED CIRCUIT OPTIONS



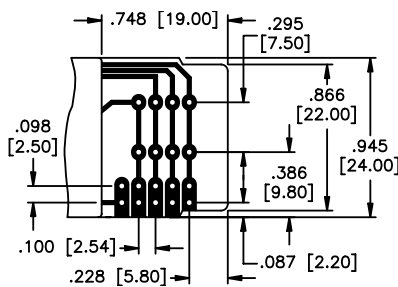
AK short p.c. board



AL long p.c. board
For BCD models, the output traces are supplied disconnected

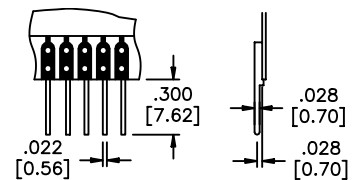


AKU short p.c. board



ALU long p.c. board

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



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.

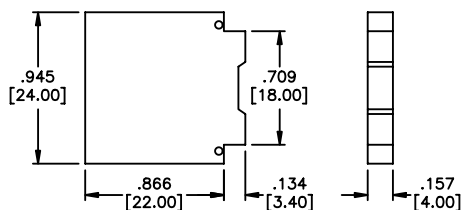
'BUILD YOUR OWN SWITCH' ORDER FORMAT

Series model	Code	P.C. board	Terminations	Standard colors
D P S 8				2
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				

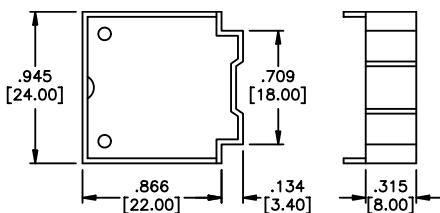
Example of complete model no.: **DPS8131ALLS2**
Order SP12 as a separate line item for limit stop pin (for 10 position models only).

ACCESSORIES

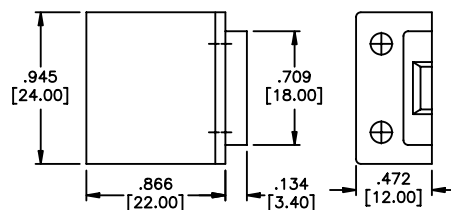
Order separately



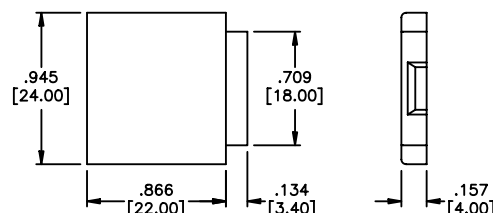
DPS8A2 Spacer



DPS8L2 Dummy housing



DPS8PW2 Pair of side covers



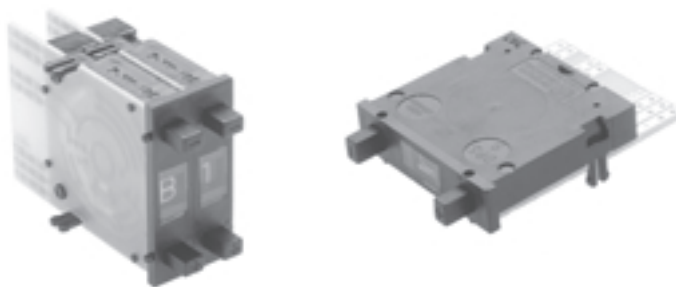
DPS8P2 Pair of side covers

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.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Figure 1 displays seven 7-segment displays arranged in two rows. The top row shows displays for CODE 131 (BCD), CODE 137 (BCD COMP.), CODE 400 (CHANGE-OVER), CODE 301 (HEXADECIMAL), and CODE 307 (HEXADEC. COMP.). The bottom row shows displays for CODE 111 (DECIMAL) and CODE 141 (BCD + COMP.). Each display shows the hexadecimal digits 0 through 9. The segments are labeled C, 1, 2, 4, 8, and the top row of segments is labeled 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. The bottom row of segments is labeled C, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. The displays show the following patterns:

- CODE 131 (BCD):** Shows digits 0-9 in BCD format.
- CODE 137 (BCD COMP.):** Shows digits 0-9 in BCD format with complementation.
- CODE 400 (CHANGE-OVER):** Shows digits 0-9 in BCD format with change-over.
- CODE 301 (HEXADECIMAL):** Shows digits 0-9 in hexadecimal format.
- CODE 307 (HEXADEC. COMP.):** Shows digits 0-9 in hexadecimal format with complementation.
- CODE 111 (DECIMAL):** Shows digits 0-9 in decimal format.
- CODE 141 (BCD + COMP.):** Shows digits 0-9 in BCD format with complementation.

n = number of decades

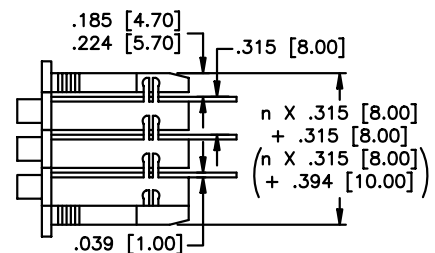
Technical drawing of a 3-pin connector showing front and side views with dimensions in inches and millimeters.

Front View Dimensions:

- Overall height: 1.299 [33.00]
- Pin spacing (center-to-center): $n \times .315$ [8.00]
- Pin diameter: $+ .433$ [11.00]
- Pin diameter (alternative): $(n \times .315$ [8.00]) $+ .512$ [13.00]

Side View Dimensions:

- Top pin offset: $.079$ [2.00]
- Top pin diameter: $.039$ [1.00] / $.157$ [4.00]
- Bottom pin offset: $.283$ [7.20]
- Bottom pin diameter: 1.142 [29.00]
- Overall height: 1.22 [31.0]



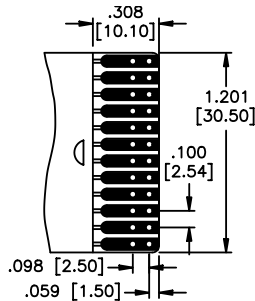
- | | | | | | | | | | | | | | |
|------|-------|---|---|---|---|---|---|---|----|----|---|---|---|
| ● | 131 | + | 1 | 2 | | | | | C | 8 | | 4 | - |
| | 137 | + | 1 | 2 | | | | | C | 8 | | 4 | - |
| | 141 | + | | 2 | 4 | 2 | C | 8 | 1 | 1 | 8 | 4 | - |
| ● | 301 | + | 1 | 2 | | | | | C | 8 | | 4 | - |
| AK ● | 307 | + | 1 | 2 | | | | | C | 8 | | 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)

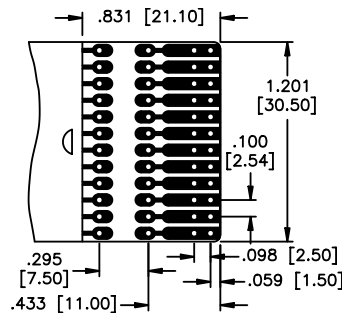
DPS9 SERIES PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

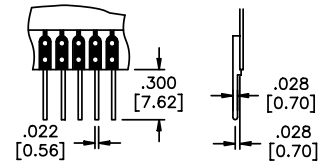
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



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.

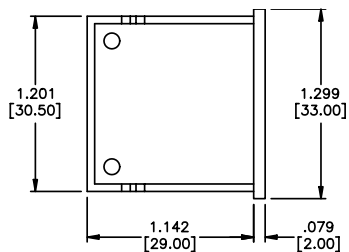
'BUILD YOUR OWN SWITCH' ORDER FORMAT

Series model	Code	P.C. board	Terminations	Standard colors
D P S 9				
	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	2 Black housing. & drum, white lettering.

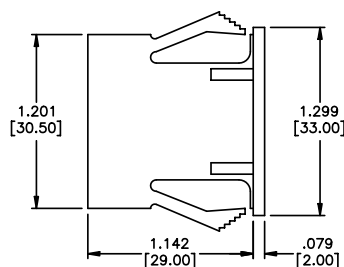
Example of complete model no.: **DPS9141AKLS2**
Order SP15 as a separate line item for limit stop pin (for 10 position models only).

ACCESSORIES

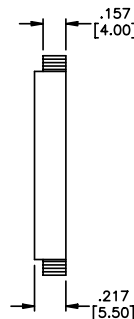
Order separately



DPS9L2 Dummy housing

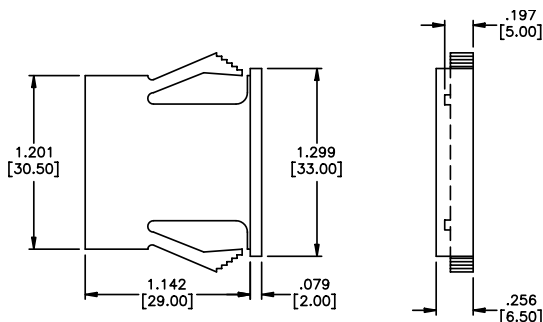


DPS910P2 Pair of side covers

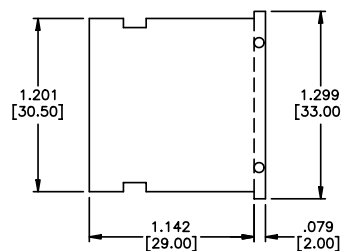


DPS9L2 Dummy switches

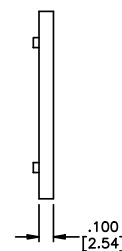
These are empty plastic housings with the same dimensions as DPS9 model (see outline). Use to fill hole where switch is not needed.



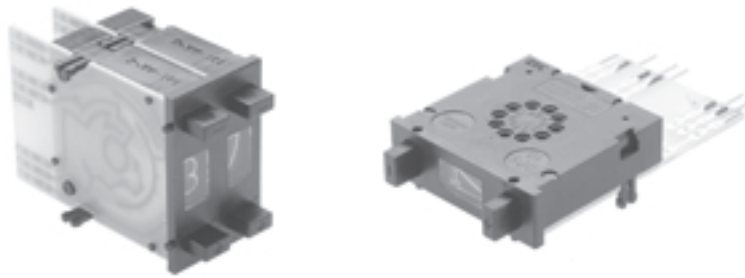
DPS910PB2 Pair of side covers



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	●				

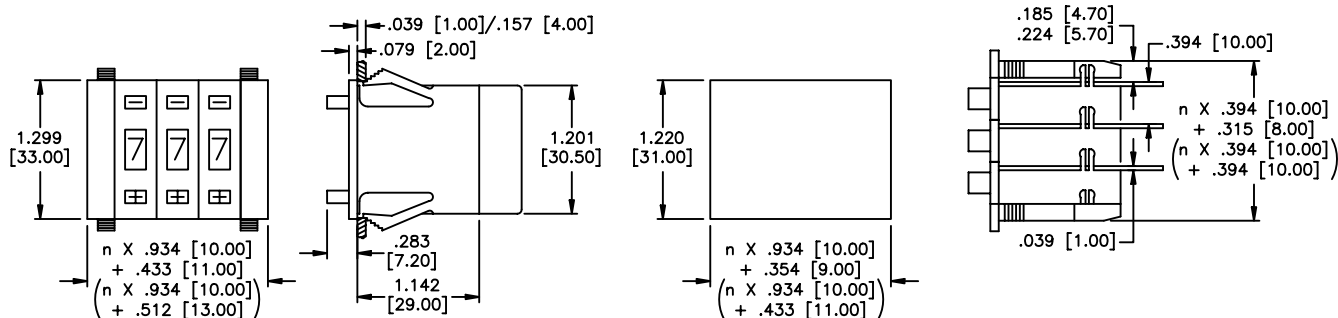
CODE 111 DECIMAL										
	C	0	1	2	3	4	5	6	7	8 9
0	●	●								
1	●		●							
2	●			●						
3	●				●					
4	●					●				
5	●						●			
6	●							●		
7	●								●	
8	●									●
9	●									●

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.

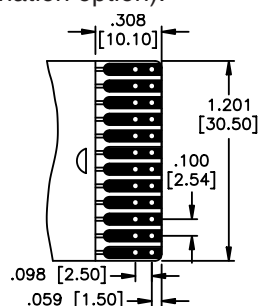
		AK									
		131	137	141	301	307	400	111	111bl	+	-
	C	1	1	2	1	1	C	0	C	0	
	1	2	2	4	2	2	A-	1	0	1	
	2						A+	2	2	2	
	4							3	3	3	
	8							C	4	4	
	C							5	5	5	
								6	6	6	
								7	7	7	
								8	8	8	
								9	9	9	

Pitch .079"(2mm)

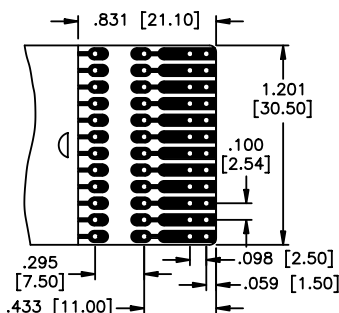
DPS10 SERIES PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

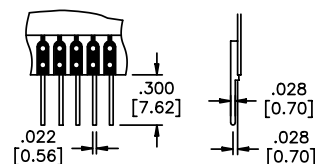
P.C. boards have .039" (1mm) holes and are suitable for soldering or socket connection (with the exception of LED illumination option).



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.

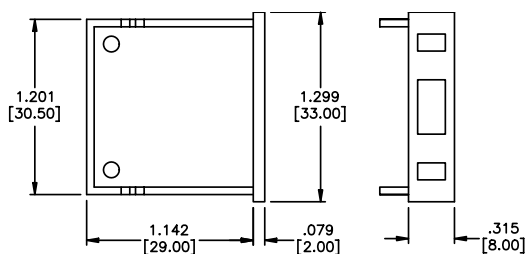
'BUILD YOUR OWN SWITCH' ORDER FORMAT

Series model	Code	P.C. board	Terminations	Standard colors
D P S 1 0				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.

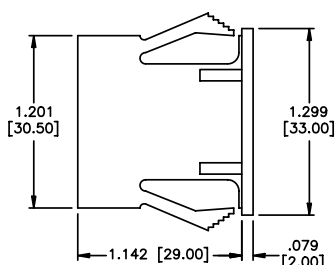
Example of complete model no.: **DPS10141AKLS2**
Order SP15 as a separate line item for limit stop pin (for 10 position models only).

ACCESSORIES

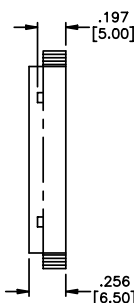
Order separately



DPS10L2 Dummy housing

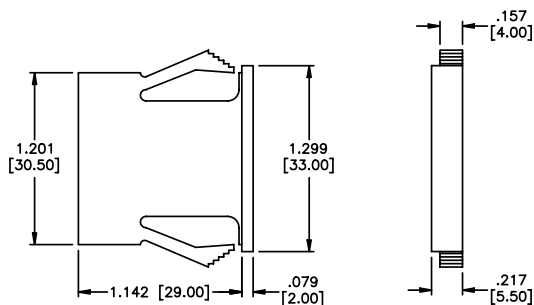


DPS910P2 Pair of side covers

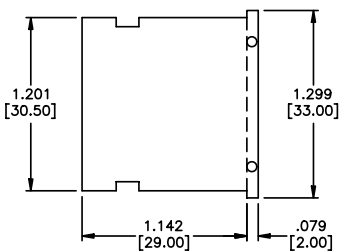


DPS10L2
Dummy switches

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

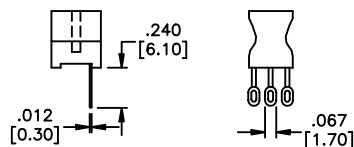
Operating temperature: -40°C to 100°C

Insertion force/contact: Approx. 7.2 oz.

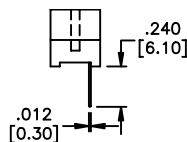
Withdrawal force/contact: Approx. 6.5 oz.

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

TERMINATIONS



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



LS Printed circuit

ORDER FORMAT:

Make selections shown below boxes for complete connector model number.

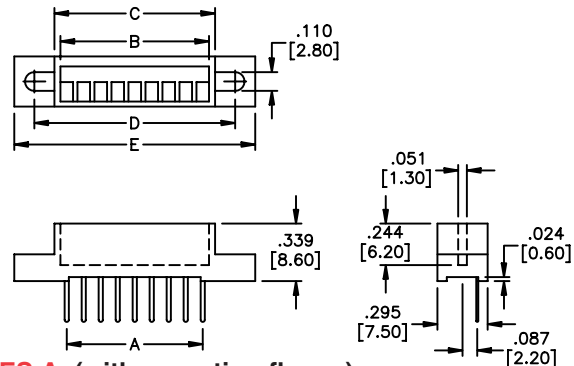
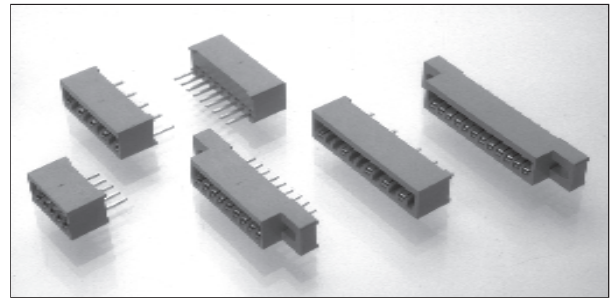
Series No. of poles Terminations

☐ ☐ ☐

A or B 9 or 12 for Series A L for solder lug

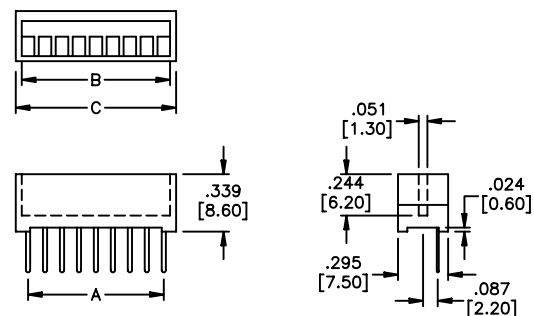
5, 9, 11 or 12 for Series B LS for printed circuit

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)

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

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- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
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- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
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- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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