APEM
an IDEC company

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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**
- **PC board options include solderable lands**

SMCD SPECIFICATIONS

Panel mounting hole:
Height   .945"(24mm)
Width   .315"(8mm)
Installed depth with pc 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 EN 60068-2-6		yes
Shock DIN EN 60068-2-27		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
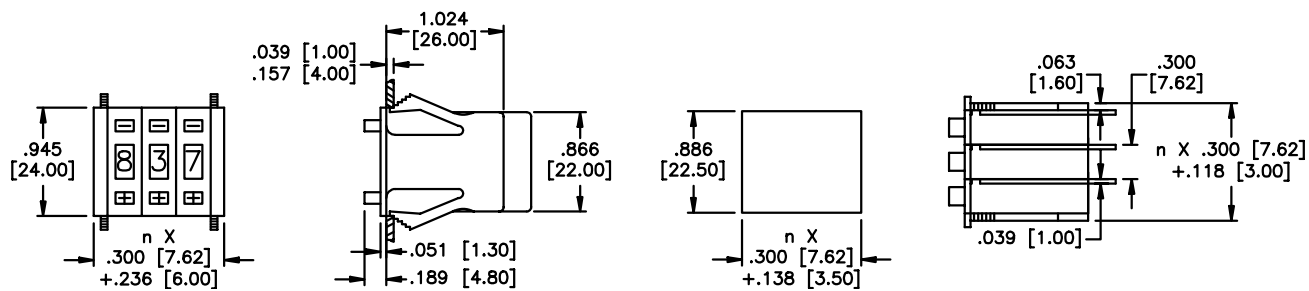
Gray housing

See sockets at end of Pushwheel section.

SMCD SERIES MINIATURE PUSHWHEEL SWITCHES

TRUTH TABLES

CODE 131 BCD

	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 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

.945 [24.00]

n X .300 [7.62] +.236 [6.00]

1.024 [26.00]

.039 [1.00]
.157 [4.00]

.866 [22.00]

.051 [1.30]
.189 [4.80]

.886 [22.50]

n X .300 [7.62] +.138 [3.50]

.063 [1.60]
.300 [7.62]

n X .300 [7.62] +.118 [3.00]

.039 [1.00]

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 LED 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)

●
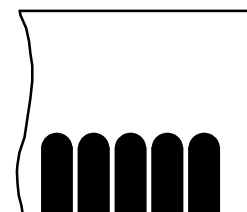
131	1	2	4	8	C
301	1	2	4	8	C

SMCD SERIES MINIATURE PUSHWHEEL SWITCHES

PRINTED CIRCUIT OPTIONS

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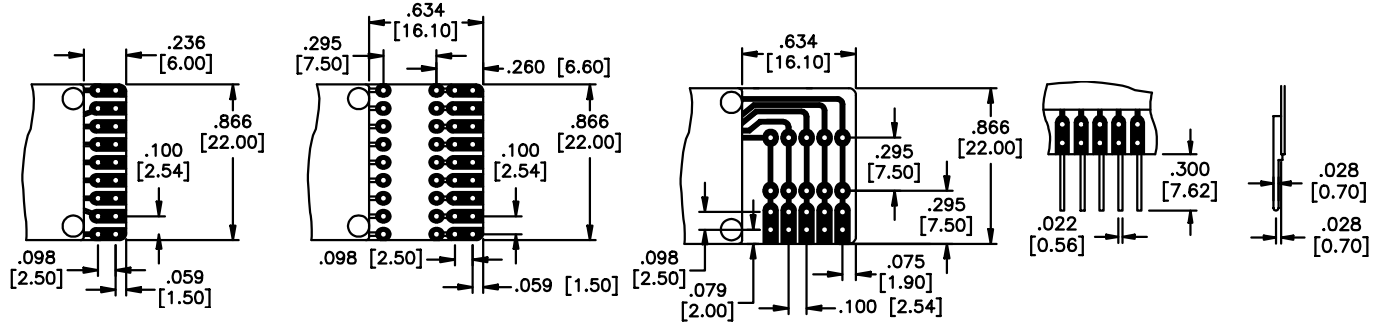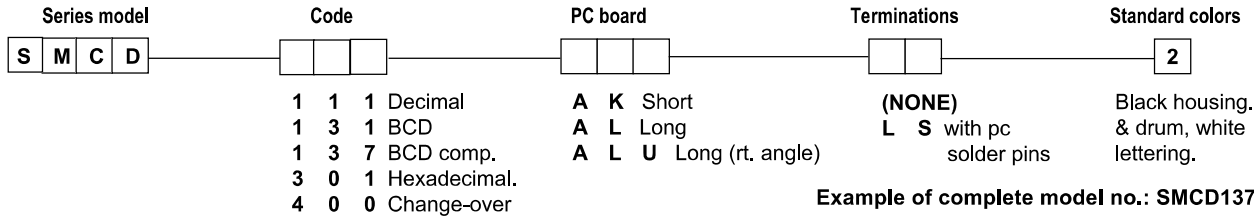

AK short pc board

AL long pc board
Allows customer to add
resistors, diodes, etc.

ALU long pc board

LS pc 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	PC board	Terminations	Standard colors
S M C D	☐ ☐ ☐	☐ ☐	☐ ☐	2

|	Code		PC board		Terminations	Standard colors
1 1 1	Decimal	A K	Short	(NONE)		Black housing.
1 3 1	BCD	A L	Long	L S	with pc	& drum, white
1 3 7	BCD comp.	A L U	Long (rt. angle)		solder pins	lettering.
3 0 1	Hexadecimal.					
4 0 0	Change-over					

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

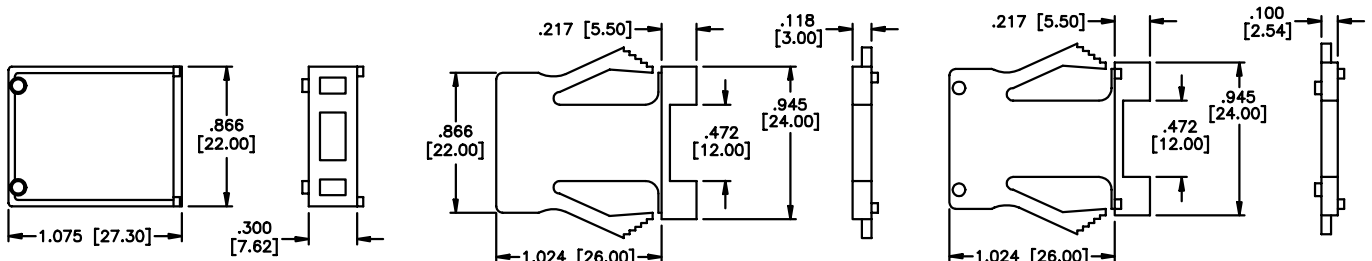## ACCESSORIES   Order separately

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.
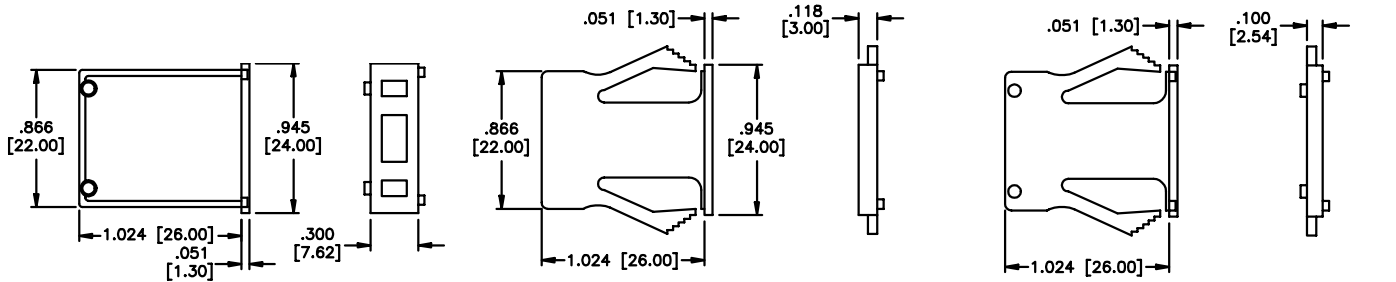
SMCL2 Dummy housing

SMCPK2 Pair of side covers

SMCA2 Spacer

SMCRL2 Dummy housing

SMCPKH2 Pair of side covers

SMCAH2 Spacer