



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

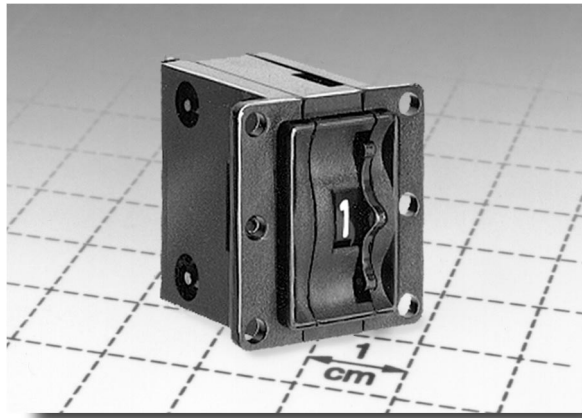
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Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# 3 Series Thumbwheel Switches



## Features/Benefits

- Most complete product offering in the industry
- Spacers available to fit most panel cutouts
- Front or rear mounting options
- Illuminated models available

## Typical Applications

- Test & measurement equipment
- Industrial equipment
- Computer devices

## Build-A-Switch

Our easy Build-A-Switch concept allows you to mix and match options to create the switch you need. Below is a complete listing of options shown in catalog. To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages J-9 thru J-16. For additional options not shown in catalog, consult Customer Service Center.



Thumbwheel & Pushwheel

Typical Example: 3 — 1 — 2 1 — 0 0 — 0 — 0 — 0 —  

### Series

**3 (STD.)** Thumbwheel switch

### Number of Sections

- 0 Switch section
- 1 1 Switch section
- 2 2 Switch sections
- 3 3 Switch sections
- 4 4 Switch sections
- 5 5 Switch sections
- 6 6 Switch sections
- 7 7 Switch sections
- 8 8 Switch sections
- 9 More than 8 switch sections

### Function Code

- 11 Decimal, SP, 10 position
- 14 Resistor decade
- 21 BCD, 10 position
- 22 Octal, 8 position
- 23 Complement of BCD, 10 position
- 26 Complement of BCD, 10 position
- 27 BCD, 10 position
- 29 BCD, 10 position
- 31 BCD, 10 position
- 35 BCD with separate common to not true bits, 10 position
- 41 BCD with complement, 10 position
- 51 BCD with complement, 10 position
- 61 SPDT repeating, 10 position
- 71 BCH, 16 position
- 72 BCH, 16 position
- 99 Mixed sections

### Mounting Style

- 00 Snap-in, front mount
- 03 Snap-in, front mount
- 04 Snap-in, front mount
- 09 Snap-in, front mount
- 10 Rear mount
- 14 Rear mount
- 19 Rear mount
- 20 Rear mount
- 24 Rear mount
- 29 Rear mount
- 30 Snap-in, front mount
- 33 Snap-in, front mount
- 34 Snap-in, front mount

### Terminations

- 0 (STD.) Type 0
- 1 Type 1, extended type 0
- 3 Type 0 with solder pins
- 4 Type 4
- 5 Type 5, extended type 4
- 6 Type 6
- 9 Any combination
- A Type 1 with solder pins
- B Type 6 with solder pins
- E Type 5 with solder pins

### Color/Marking/Stops

- 0 (STD.) Matte black body, gloss black wheel, white marking
- 1 Matte gray body, gloss black wheel, white marking
- 5 Matte black body, translucent off-white wheel, black marking
- 6 Matte gray body, translucent off-white wheel, black marking
- 9 Combination of body colors, wheel colors, marking and/or stops

### Seal

- 0 (STD.) No seal
- 1 Sealed contacts
- 2 Dust lens
- 3 Sealed contacts & dust lens
- 9 Sealing varies

### Illumination

- NONE (STD.) No illumination
- 3 Red LED
- 5 Yellow LED
- 6 Green LED

## Specifications

**CONTACT RATING:**  
 CARRY: 1 AMP continuous.  
 SWITCH: 100 mA max.

**OPERATING VOLTAGE:** 50 mV to 28 V DC or 120 V AC.

**ELECTRICAL LIFE:** 100,000 actuations.

**CONTACT RESISTANCE:** Below 100 milliohms typ. initial @ 2-4 V DC, 100 mA.

**INSULATION RESISTANCE:** 10<sup>9</sup> ohms min.

**DIELECTRIC STRENGTH:** 500 V RMS min. @ sea level between common terminal and any output.

**OPERATING TEMPERATURE:** - 10°C to 65°C.

## Materials

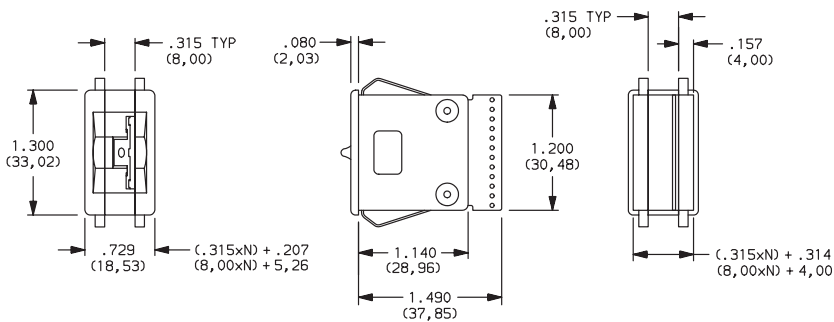
**HOUSING:** ABS plastic.  
**THUMBWHEEL:** ABS plastic.  
**ROTOR CONTACTS:** Precious metal on copper alloy.  
**STATOR CONTACTS:** Hard gold over nickel over copper on epoxy fiberglass.

**NOTE:** Specifications and materials listed above are general specifications for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

## SERIES

### 3 (STD.) THUMBWHEEL SWITCHES

PART NUMBER	NO. SECTIONS	NO. POSITIONS
31210000	1	10



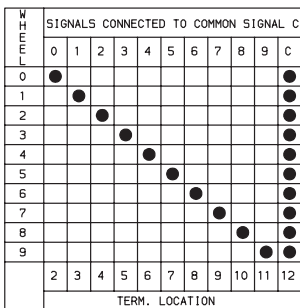
## NUMBER OF SECTIONS

- 0** Switch section only, no assembly. Blank bodies are considered sections; endplates are not sections. Must be ordered with 09 or 19 mounting style options, see pages J-11 and J-14.
- 1-8** Number of switch sections in assembly, includes endplates.
- 9** More than 8 switch sections, specify on CONFIGURATION FORM, page J-17 and consult Customer Service Center.

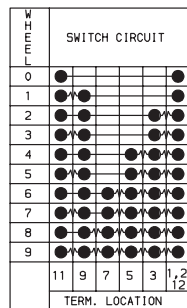
**NOTE:** Endplates and blank sections available separately, see section L.

## FUNCTION CODE

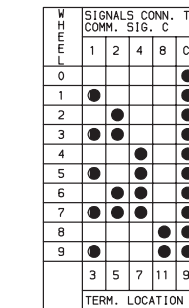
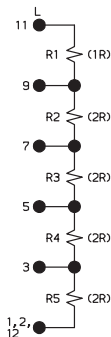
- 11** DECIMAL — 1 POLE; 10 POSITION
- 14** RESISTOR DECADE; 1-2-2-2-2 CODE (RESISTORS NOT SUPPLIED)
- 21** BCD 1-2-4-8; 10 POSITION
- 22** OCTAL 1-2-4; 8 POSITION (STOPPED BETWEEN 0-7 INCL.)
- 23** COMPLEMENT OF BCD 1-2-4-8; 10 POSITION



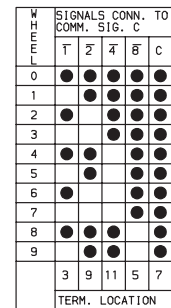
Available Terminations: 0, 1, 3, A  
 See fig. 1, page J-15.



Available Terminations: 1, A  
 See fig. 1, page J-15.



Available Terminations: 0, 1, 3, A  
 See fig. 1, page J-15.



Available Terminations: 0, 1, 3, A  
 See fig. 1, page J-15.

**NOTE:** For terminal location diagram, see page J-15.

Thumbwheel & Pushwheel

# 3 Series Thumbwheel Switches



## FUNCTION CODE

**26** COMPLEMENT OF BCD 1-2-4-8;  
10 POSITION

W H E E L	SIGNALS CONN. TO			
	1	2	4	8
0	●	●	●	●
1	●	●	●	●
2	●	●	●	●
3	●	●	●	●
4	●	●	●	●
5	●	●	●	●
6	●	●	●	●
7	●	●	●	●
8	●	●	●	●
9	●	●	●	●
	4	5	1	2
	TERM. LOCATION			

Available Terminations: 6, B  
See fig. 2, page J-15.

**27** BCD 1-2-4-8; 10 POSITION

W H E E L	SIGNALS CONN. TO			
	1	2	4	8
0				●
1	●			●
2		●		●
3	●	●		●
4			●	●
5	●	●	●	●
6	●	●	●	●
7	●	●	●	●
8			●	●
9	●	●	●	●
	4	5	1	2
	TERM. LOCATION			

Available Terminations: 6, B  
See fig. 2, page J-15.

**29** BCD 1-2-4-8; 10 POSITION

W H E E L	SIGNALS CONN. TO			
	1	2	4	8
0				●
1	●			●
2		●		●
3	●	●		●
4			●	●
5	●	●	●	●
6	●	●	●	●
7	●	●	●	●
8			●	●
9	●	●	●	●
	2	3	4	5
	TERM. LOCATION			

Available Termination: B  
See fig. 2, page J-15.

**31** BCD 1-2-4-8; 10 POSITION

W H E E L	SIGNALS CONN. TO			
	1	2	4	8
0				●
1	●			●
2		●		●
3	●	●		●
4			●	●
5	●	●	●	●
6	●	●	●	●
7	●	●	●	●
8			●	●
9	●	●	●	●
	2	3	11	9
	TERM. LOCATION			

Available Terminations: 0, 1, 3, 4, 5, A, E  
See fig. 1, page J-15.

**35** BCD 1-2-4-8 W/ SEPARATE COMMON  
TO NOT TRUE BITS, 10 POSITION

W H E E L	SIGNALS CONN. TO					
	1	2	4	8	X	Y
0	○	○	○	○	○	○
1	●	○	○	○	○	○
2	○	○	○	○	○	○
3	●	○	○	○	○	○
4	○	○	○	○	○	○
5	○	○	○	○	○	○
6	○	○	○	○	○	○
7	○	○	○	○	○	○
8	○	○	○	○	○	○
9	○	○	○	○	○	○
	8	6	4	2	12	10
	TERM. LOCATION					

Available Terminations: 0, 1, 3, A  
See fig. 1, page J-15.

**41** BCD 1-2-4-8 W/ COMPLEMENT;  
10 POSITION

W H E E L	SIGNALS CONN. TO							
	1	2	4	8	T	Z	4	8
0					●	●	●	●
1	●				●	●	●	●
2		●			●	●	●	●
3	●	●			●	●	●	●
4			●		●	●	●	●
5	●	●	●		●	●	●	●
6	●	●	●		●	●	●	●
7	●	●	●		●	●	●	●
8				●	●	●	●	●
9	●	●	●		●	●	●	●
	10	9	8	7	3	4	5	6
	TERM. LOCATION							

Available Terminations: 0, 1, 3, A  
See fig. 1, page J-15.

**51** BCD 1-2-4-8 W/ COMPLEMENT;  
ONE COMMON, 10 POSITION

W H E E L	SIGNALS CONN. TO							
	1	2	4	8	T	Z	4	8
0					●	●	●	●
1	●				●	●	●	●
2		●			●	●	●	●
3	●	●			●	●	●	●
4			●		●	●	●	●
5	●	●	●		●	●	●	●
6	●	●	●		●	●	●	●
7	●	●	●		●	●	●	●
8				●	●	●	●	●
9	●	●	●		●	●	●	●
	5	4	3	2	10	9	8	7
	TERM. LOCATION							

Available Terminations: 0, 1, 3, 4, 5, A, E  
See fig. 1, page J-15.

**61** SPDT REPEATING; PLUS (+) AND  
MINUS (-) ALTERNATING,  
10 POSITION

W H E E L	SIG. CONN.	
	+	-
0	●	●
1	●	●
2	●	●
3	●	●
4	●	●
5	●	●
6	●	●
7	●	●
8	●	●
9	●	●
	9	8
	TERM. LOC	

Available Terminations: 0, 1, 3, 4, 5, A, E  
See fig. 1, page J-15.

**71** BINARY CODED HEXADECIMAL,  
16 POSITION

W H E E L	SIGNALS CONN. TO			
	1	2	4	8
0				●
1	●			●
2		●		●
3	●	●		●
4			●	●
5	●	●	●	●
6			●	●
7	●	●	●	●
8			●	●
9	●	●	●	●
A	●	●	●	●
B	●	●	●	●
C	●	●	●	●
D	●	●	●	●
E	●	●	●	●
F	●	●	●	●
	3	5	7	11
	TERM. LOCATION			

Available Terminations: 0, 1, 3, A  
See fig. 1, page J-15.

**72** BINARY CODED HEXADECIMAL,  
16 POSITION

W H E E L	SIGNALS CONN. TO			
	1	2	4	8
0				●
1	●			●
2		●		●
3	●	●		●
4			●	●
5	●	●	●	●
6			●	●
7	●	●	●	●
8			●	●
9	●	●	●	●
A	●	●	●	●
B	●	●	●	●
C	●	●	●	●
D	●	●	●	●
E	●	●	●	●
F	●	●	●	●
	2	3	4	5
	TERM. LOCATION			

Available Terminations: 6, B  
See fig. 2, page J-15.

**99** INTERMIXED SECTIONS, SPECIFY  
ON CONFIGURATION FORM,  
PAGE J-17 AND CONSULT  
CUSTOMER SERVICE CENTER

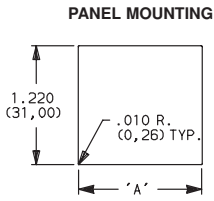
Available Terminations: Consult  
Customer Service Center.

NOTE: For terminal location diagram, see page J-15.

Thumbwheel & Pushwheel

## MOUNTING STYLE

### Type 0 Snap-In Front Mount



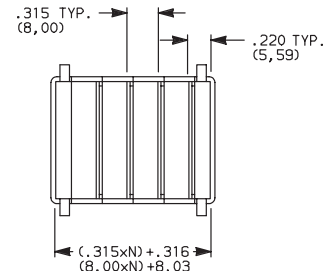
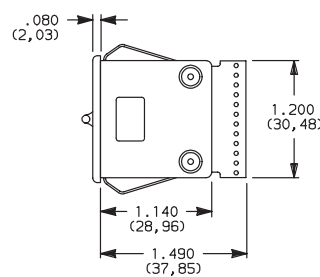
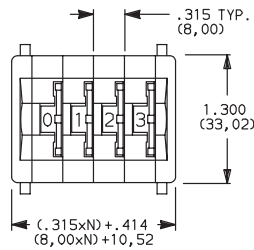
MOUNTING STYLE	DIM. 'A'
00	(.315 x N) + .326 (8,00 x N) + (8,28)
03	(.394 x N) + .326 (10,00 x N) + (8,28)
04	(.500 x N) + .326 (12,70 x N) + (8,28)

N = Number of sections.

Recommended panel thickness:  
.046 - .125  
(1,16 - 3,18)

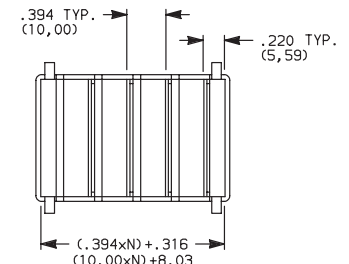
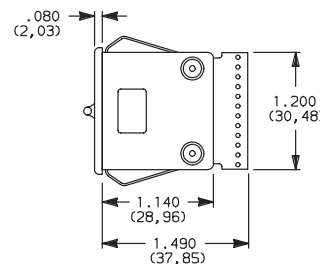
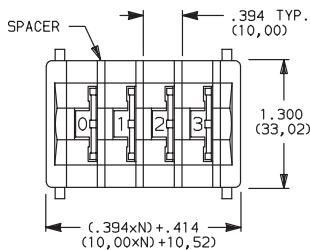


### 00 SWITCH ASSEMBLY W/ ENDPLATES — .315 (8,00) SECTION PITCH



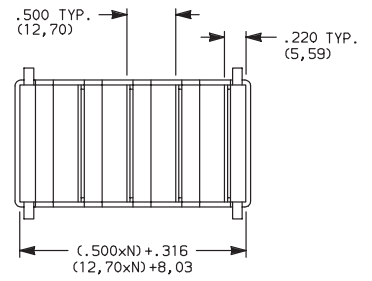
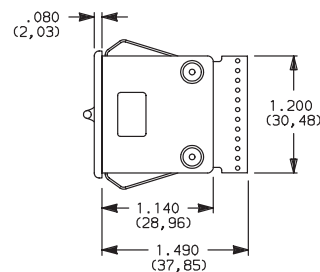
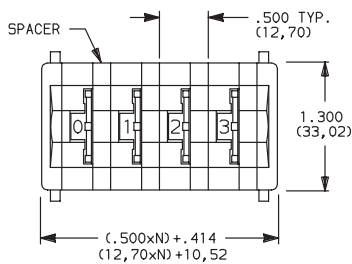
N = Number of sections.

### 03 SWITCH ASSEMBLY W/ ENDPLATES AND SPACER(S) — 10mm SECTION PITCH



N = Number of sections.

### 04 SWITCH ASSEMBLY W/ ENDPLATES AND SPACER(S) — .500 (12,70) SECTION PITCH



N = Number of sections.

### 09 SWITCH SECTION ONLY — UNASSEMBLED WITHOUT ENDPLATES OR SPACERS (Must be ordered with number of sections option "0", see Page J-9.)

**NOTE:** Endplates, blank sections, spacers and assembly hardware available separately, see section L.

# 3 Series Thumbwheel Switches



## MOUNTING STYLE

### Type 1 Rear Mount

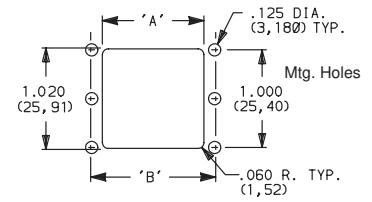


MOUNTING STYLE	DIM. 'A'	DIM. 'B'
10	$(.350 \times N) + .340$ (8,89 x N) + (8,64)	$(.350 \times N) + .560$ (8,89 x N) + (14,22)
14	$(.500 \times N) + .340$ (12,70 x N) + (8,64)	$(.500 \times N) + .560$ (12,70 x N) + (14,22)

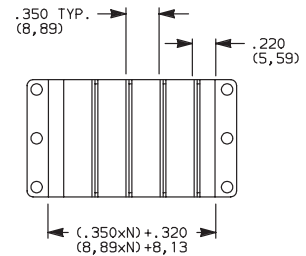
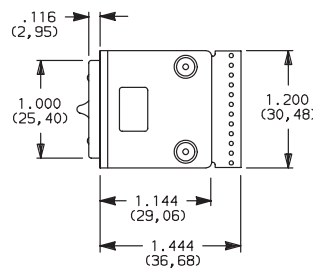
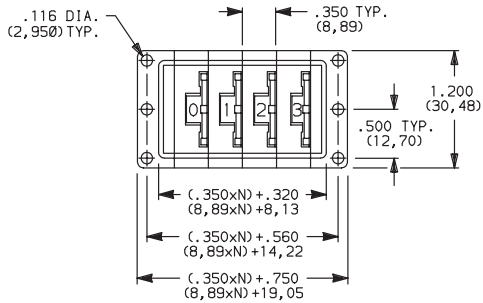
N = Number of sections.

Recommended panel thickness:  
.046 - .125  
(1,16 - 3,18)

### PANEL MOUNTING

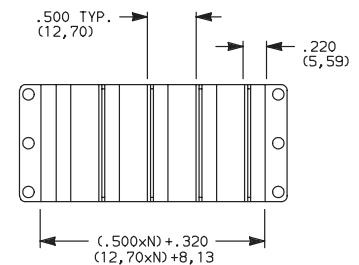
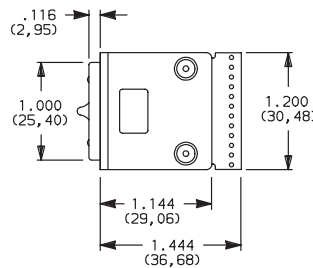
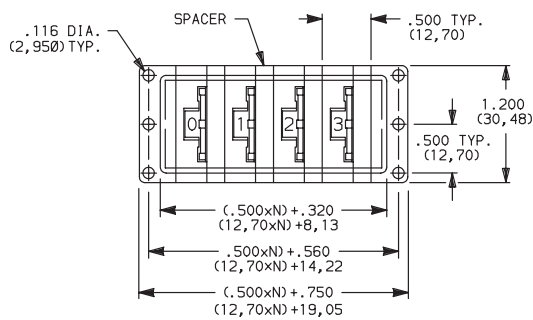


### 10 SWITCH ASSEMBLY W/ ENDPLATES — .350 (8,89) SECTION PITCH



N = Number of sections.

### 14 SWITCH ASSEMBLY W/ ENDPLATES AND SPACER(S) — .500 (12,70) SECTION PITCH



N = Number of sections.

### 19 SWITCH SECTION ONLY — UNASSEMBLED WITHOUT ENDPLATES OR SPACERS (Must be ordered with number of sections option "0", see Page J-9.)

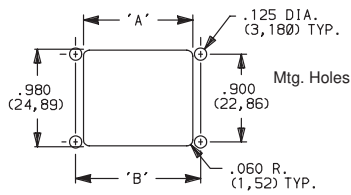
NOTE: Endplates, blank sections, spacers and assembly hardware available separately, see section L.

Thumbwheel & Pushwheel

## MOUNTING STYLE

### Type 2 Rear Mount

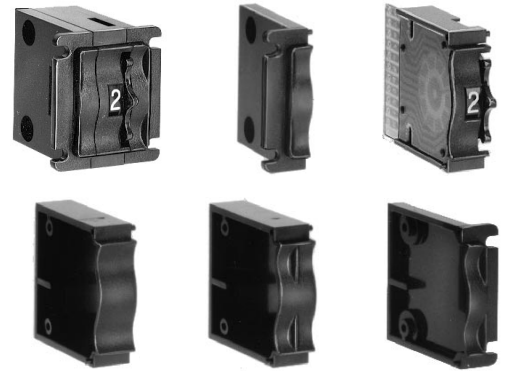
#### PANEL MOUNTING



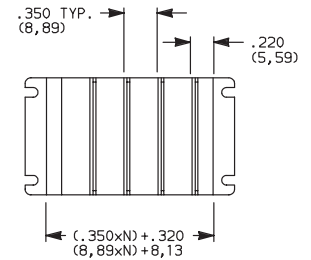
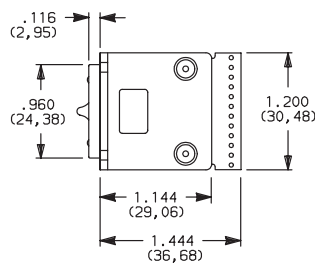
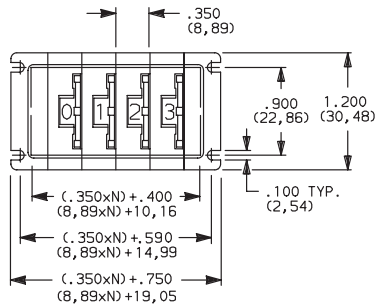
MOUNTING STYLE	DIM. 'A'	DIM. 'B'
20	$(.350 \times N) + .420$ (8,89 x N) + (10,67)	$(.350 \times N) + .590$ (8,89 x N) + (14,99)
24	$(.500 \times N) + .420$ (12,70 x N) + (10,67)	$(.500 \times N) + .590$ (12,70 x N) + (14,99)

N = Number of sections.

Recommended panel thickness:  
.046 - .125  
(1,16 - 3,18)

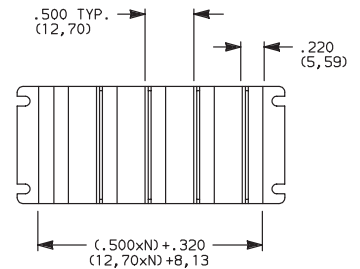
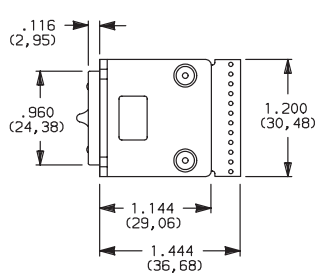
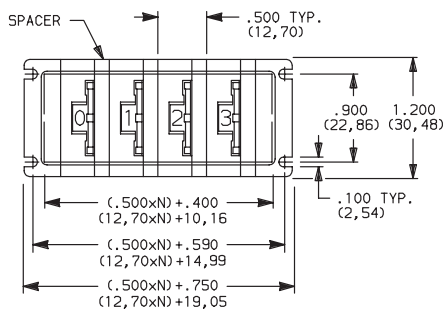


### 20 SWITCH ASSEMBLY W/ ENDPLATES — .350 (8,89) SECTION PITCH



N = Number of sections.

### 24 SWITCH ASSEMBLY W/ ENDPLATES AND SPACER(S) — .500 (12,70) SECTION PITCH



N = Number of sections.

### 29 SWITCH SECTION ONLY — UNASSEMBLED WITHOUT ENDPLATES OR SPACERS (Must be ordered with number of sections option "0", see Page J-9.)

NOTE: Endplates, blank sections, spacers and assembly hardware available separately, see section L.

# 3 Series Thumbwheel Switches



## MOUNTING STYLE

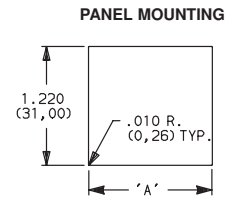
### Type 3 Snap-In Front Mount



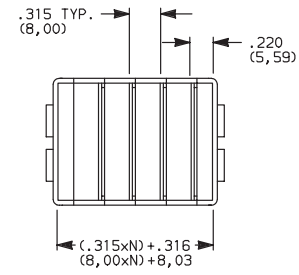
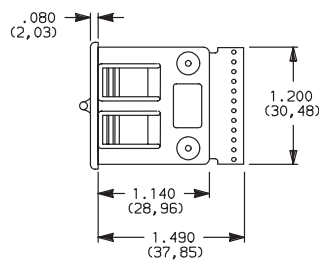
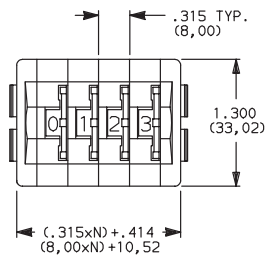
MOUNTING STYLE	DIM. 'A'
30	$(.315 \times N) + .360$ (8,00 x N) + (9,14)
33	$(.394 \times N) + .360$ (10,01 x N) + (9,14)
34	$(.500 \times N) + .360$ (12,70 x N) + (9,14)

N = Number of sections.

Recommended panel thickness:  
.046 - .125  
(1,16 - 3,18)

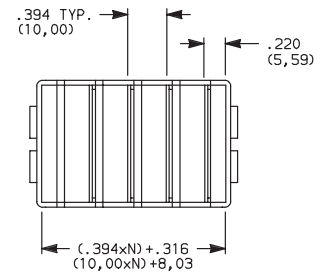
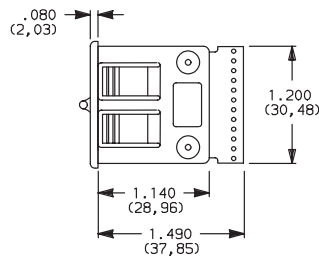
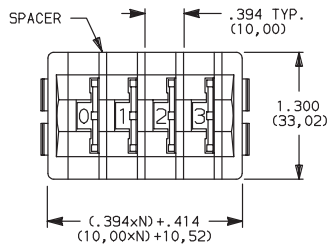


### 30 SWITCH ASSEMBLY W/ ENDPLATES — .315 (8,00) SECTION PITCH



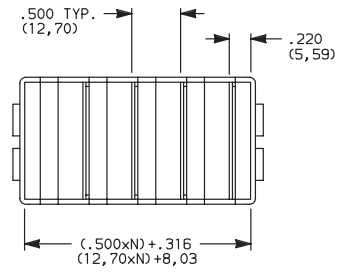
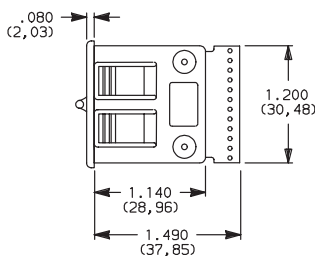
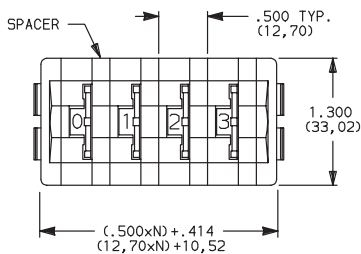
N = Number of sections.

### 33 SWITCH ASSEMBLY W/ ENDPLATES AND SPACER(S) — 10mm SECTION PITCH



N = Number of sections.

### 34 SWITCH ASSEMBLY W/ ENDPLATES AND SPACER(S) — .500 (12,70) SECTION PITCH



N = Number of sections.

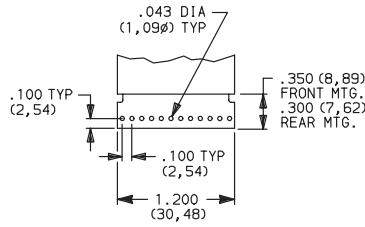
### 09 SWITCH SECTION ONLY — UNASSEMBLED WITHOUT ENDPLATES OR SPACERS (Must be ordered with number of sections option "0", see Page J-9.)

NOTE: Endplates, blank sections, spacers and assembly hardware available separately, see section L.

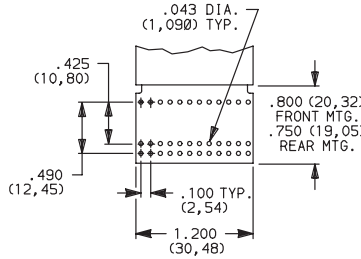


## TERMINATIONS

### 0 (STD.) TYPE 0

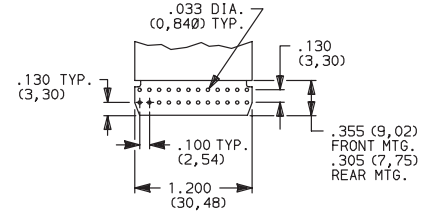


### 1 TYPE 1, EXTENDED TYPE 0

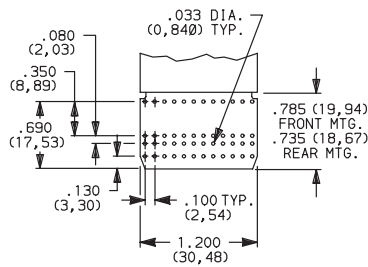


Signal traces cut except for common(s).

### 4 TYPE 4

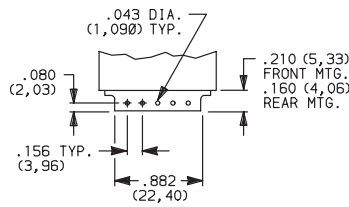


### 5 TYPE 5, EXTENDED TYPE 4

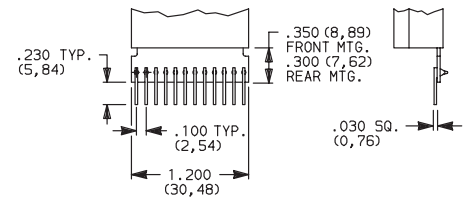


Signal traces cut except for common(s).

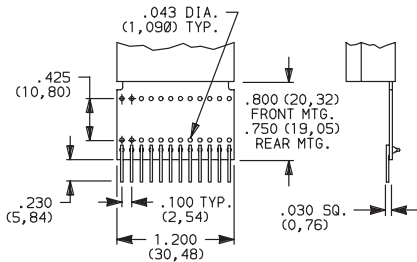
### 6 TYPE 6



### 3 TYPE 0 WITH SOLDER PINS

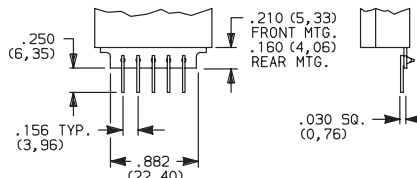


### A TYPE 1 WITH SOLDER PINS

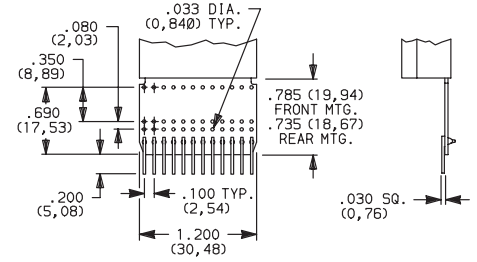


Signal traces cut except for common(s).

### B TYPE 6 WITH SOLDER PINS



### E TYPE 5 WITH SOLDER PINS



Signal traces cut except for common(s).

### 9 ANY COMBINATION OF TERMINATION CONFIGURATIONS OR SPECIAL TERMINATIONS. ALSO USED WITH FUNCTION CODES 91 AND 92.

Specify on configuration form, page J-17 and consult Customer Service Center.

PC Board 1/32" (0,79) thick.

**NOTE:** All terminal holes shown may not be present for all function codes, consult Customer Service Center. Terminal connector available for termination options 0, 1, 4 & 5, see section L.

## Terminal Location Numbers

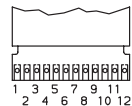


FIG. 1

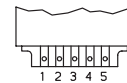
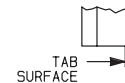


FIG. 2



**NOTE:** See function codes, pages J-9 and J-10, for signal locations.

# 3 Series Thumbwheel Switches



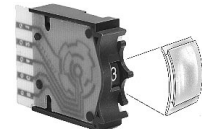
## COLOR/MARKING/STOPS

- 0** (STD.) MATTE BLACK HOUSING (Gloss black wheel with white characters; no stops.)
- 1** MATTE GRAY HOUSING (Gloss black wheel with white characters; no stops.)
- 5** MATTE BLACK HOUSING (Translucent off - white wheel with black characters; no stops, recommended with ILLUMINATION option.)
- 6** MATTE GRAY HOUSING (Translucent off - white wheel with black characters; no stops, recommended with ILLUMINATION option.)
- 9** SPECIAL COLOR OR MARKINGS FOR HOUSING OR WHEEL, STOPS (Specify on CONFIGURATION FORM, Page J-17 and consult Customer Service Center).  
AVAILABLE COLORS: Marking: white, black  
Body: black, gray (matte finish)  
Wheel: white, black, red, orange, yellow, green, blue, brown, gray (gloss finish)

NOTE: Stop pins are available separately, see section L.

## SEAL

- 0** (STD.) UNSEALED SWITCHING CONTACTS.
- 1** SEALED SWITCHING CONTACTS. (Sealing is by means of an o-ring rotary seal and a cured-in-place elastomer gasket. Switching contact area is protected from moisture, oil, and airborne contaminants.)
- 2** DUST LENS. (Protects the character face of the wheel from abrasion and dirt, recommended with ILLUMINATION option).
- 3** SEALED SWITCHING CONTACTS AND DUST LENS. (options 1 and 2 recommended with ILLUMINATION option).
- 9** SEALING VARIATIONS, SECTION TO SECTION WITHIN ASSEMBLY. (Specify on CONFIGURATION FORM, page J-17 and consult Customer Service Center. Also specify with blank sections, where seal is not applicable).



Dust Lens

## ILLUMINATION

- NONE** (STD.) NO ILLUMINATION
- 3** RED LED
- 5** YELLOW LED
- 6** GREEN LED

NOTE: Illumination option recommended with COLOR/MARKING/STOPS options 5, 6 and SEAL options 2 and 3.  
Illumination option not available with termination options with solder pins. Internal LED illuminates wheel characters for low-light visibility.



Thumbwheel & Pushwheel



# Configuration Form

GRAY SHADED AREAS TO BE FILLED IN BY C&K.

C&K CATALOG PART NO.

**3**

C&K PART NUMBER

C&K PART NUMBER

COMPANY NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_ TEL.# \_\_\_\_\_

CUSTOMER CONTACT \_\_\_\_\_ DATE \_\_\_\_\_

ORIGINATED BY \_\_\_\_\_ SALES REP. \_\_\_\_\_

CUSTOMER  
PRINT  
REVISION:

DETAILS:

THUMBWHEEL SECTIONS	NO. OF SEC.	FUNCTION CODE — TERMINATIONS — COLOR/MARKING/STOPS/SEAL — ILLUMINATION	DESCRIBE IN APPROPRIATE ROW
		ENTER OPTION CODES IN APPROPRIATE BOXES. FUNCTION CODES INCLUDE BLANK SECTIONS (SEE CATALOG PAGE NO TAG).	
	1	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	2	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	3	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	4	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	5	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	6	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	7	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	8	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	9	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	10	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	
	11	3 - <input type="text"/> <input type="text"/> - - <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	

QUALITY CONTROL INSTRUCTIONS

PRODUCTION APPROVAL

DATE

Q.C. APPROVAL

DATE

REV.

INITIALS

DATE

FOR SWITCHES WITH MORE THAN 11 SECTIONS, CONTINUE ON ADDITIONAL SHEETS.

SPECIAL INSTRUCTIONS OR SPECIFICATIONS:

SHEET \_\_\_\_ OF \_\_\_\_

