

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

Typical Applications

- Test & measurement equipment
- Industrial equipment
- Computer devices



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 m Ω typ. initial @ 2-4 V DC, 100 mA.

INSULATION RESISTANCE: 10⁹ Ω min.

DIELECTRIC STRENGTH: 500 Vrms min. @ sea level between common terminal and any output.

OPERATING TEMPERATURE: -40°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 for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

* Note: All models listed are RoHS compliant. See Technical Data section of this catalog for RoHS compliant and compatible definitions and specifications.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages M-4 thru M-10. For additional options not shown in catalog, consult Customer Service Center.

Consult factory for illumination availability.

<p>Series</p> <p>3 Thumbwheel switch</p> <p>Number of Sections</p> <p>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</p>	<p>Function Code</p> <p>11 Decimal, SP, 10 position 14 Resistor decade 21 BCD, 10 position 23 Complement of BCD, 10 position 27 BCD, 10 position 31 BCD, 10 position 71 BCH, 16 position</p>	<p>Mounting Style</p> <p>00 Snap-in, front mount 09 Snap-in, front mount* 10 Rear mount 19 Rear mount*</p>	<p>Terminations</p> <p>0 Type 0 1 Type 1, extended type 0 N Solder pins with .100" spacing** P Solder pins with .156" spacing** 9 Any combination</p>	<p>Color/Marking/Stops</p> <p>0 Matte black body, gloss black wheel, white marking</p>	<p>Seal</p> <p>0 No seal 1 Sealed contacts 2 Dust lens 3 Sealed contacts & dust lens</p>
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*X9 mounting styles must be ordered with '0' number of sections.

** Note: Termination option N (RoHS compliant) replaced termination option 3 (Non-RoHS compliant).
Termination option P (RoHS compliant) replaced termination option B (Non-RoHS compliant).

Thumbwheel

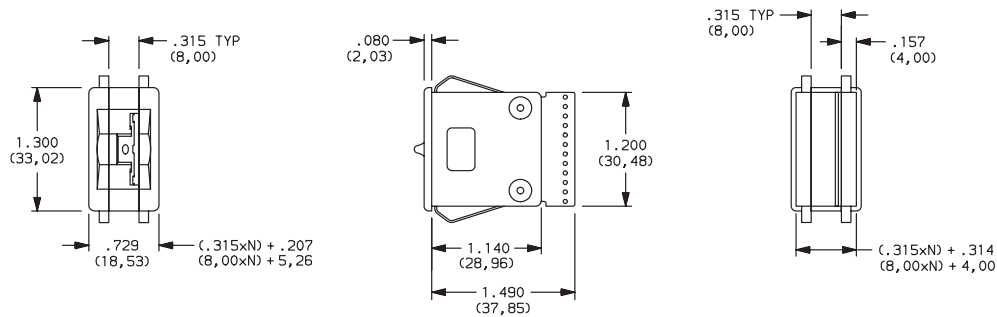


M

3 Series Thumbwheel Switches

SERIES

3 THUMBWHEEL SWITCHES



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 M-5 and M-6.
- 1-8** Number of switch sections in assembly, includes endplates.
- 9** More than 8 switch sections, specify on CONFIGURATION FORM, page M-10 and consult Customer Service Center.

NOTE: Endplates and blank sections available separately, see pages M-13 and M-14.

FUNCTION CODE

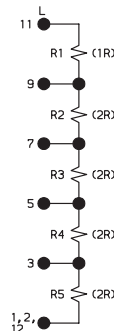
- 11** DECIMAL-1 POLE; 10 POSITION
- 14** RESISTOR DECADE; 1-2-2-2-2 CODE (RESISTORS NOT SUPPLIED)
- 21** BCD 1-2-4-8; 10 POSITION

WHEEL	SIGNALS CONNECTED TO COMMON SIGNAL C									
	0	1	2	3	4	5	6	7	8	9
0	●									●
1		●								●
2			●							●
3				●						●
4					●					●
5						●				●
6							●			●
7								●		●
8									●	●
9										●
	2	3	4	5	6	7	8	9	10	11
	TERM. LOCATION									

Available Terminations: 0, 1, N
See fig. 1, page M-7.

WHEEL	SWITCH CIRCUIT									
	0	1	2	3	4	5	6	7	8	9
0	●	●	●	●	●	●	●	●	●	●
1	●	●	●	●	●	●	●	●	●	●
2	●	●	●	●	●	●	●	●	●	●
3	●	●	●	●	●	●	●	●	●	●
4	●	●	●	●	●	●	●	●	●	●
5	●	●	●	●	●	●	●	●	●	●
6	●	●	●	●	●	●	●	●	●	●
7	●	●	●	●	●	●	●	●	●	●
8	●	●	●	●	●	●	●	●	●	●
9	●	●	●	●	●	●	●	●	●	●
	11	9	7	5	3	1,2	12			
	TERM. LOCATION									

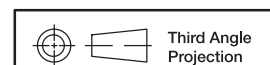
Available Terminations: 1
See fig. 1, page M-7.



WHEEL	SIGNALS CONN. TO COMM. SIG. C									
	1	2	4	8	C					
0	●				●					
1	●				●					
2		●			●					
3	●	●			●					
4			●		●					
5	●			●	●					
6		●	●		●					
7	●	●			●					
8				●	●					
9	●				●					
	3	5	7	11	9					
	TERM. LOCATION									

Available Terminations: 0, 1, N
See fig. 1, page M-7.

NOTE: For terminal location diagram, see page M-7.



Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

3 Series Thumbwheel Switches

FUNCTION CODE



23 COMPLEMENT OF BCD 1-2-4-8;
10 POSITION

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

Available Terminations: 0, 1, N
See fig. 1, page M-7.

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

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

Available Terminations: P
See fig. 2, page M-7.

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

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

Available Terminations: 0, 1, N
See fig. 1, page M-7.

71 BINARY CODED HEXADECIMAL,
16 POSITION

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

Available Terminations: 0, 1, N
See fig. 1, page M-7.

NOTE: For terminal location diagram, see page M-7.

MOUNTING STYLE



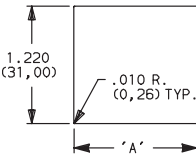
Type 0 Snap-In Front Mount

MOUNTING STYLE	DIM. 'A'
00	$(.315 \times N) + .326$ $(8.00 \times N) + (8.28)$

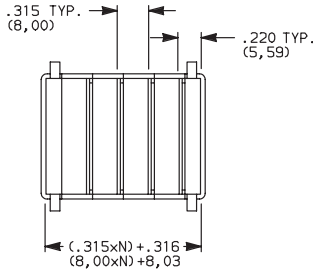
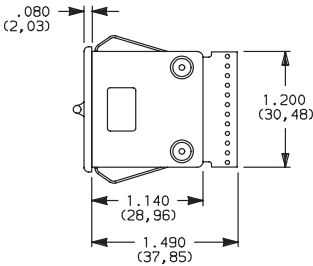
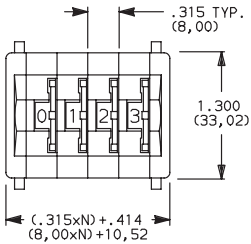
N = Number of sections.

Recommended panel thickness:
0.46-.125
(1.16-3.18)

PANEL MOUNTING



00 SWITCH ASSEMBLY W/ ENDPLATES--.315 (8.00) 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 M-4.)

NOTE: Endplates, blank sections, spacers
and assembly hardware available separately, see pages M-8 and M-9.



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change



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MOUNTING STYLE

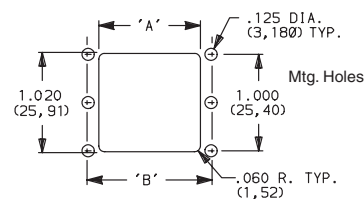
Type 1 Rear Mount

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

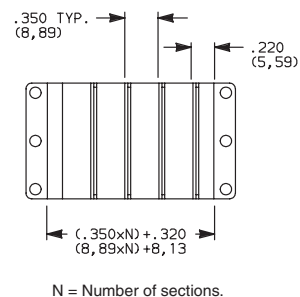
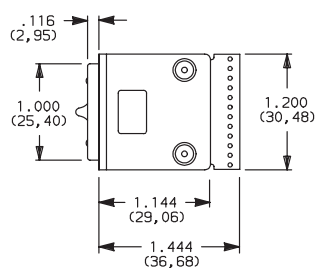
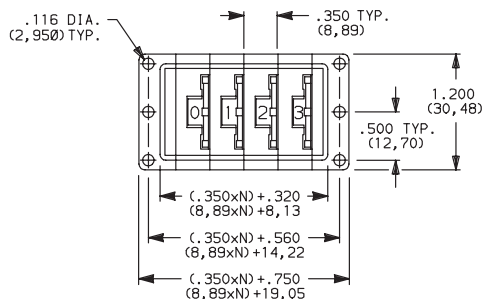
N = Number of sections.

Recommended panel thickness:
0.46-.125
(1,16-3,18)

PANEL MOUNTING



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



19 SWITCH SECTION ONLY--UNASSEMBLED WITHOUT ENDPLATES OR SPACERS (Must be ordered with number of sections option "0", see Page M-4.)

NOTE: Endplates, blank sections, spacers and assembly hardware available separately, see pages M-8 and M-9.

Thumbwheel

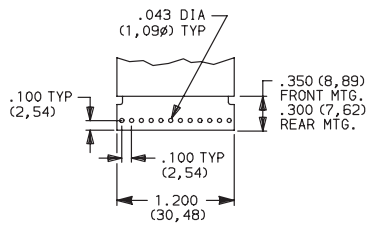


M

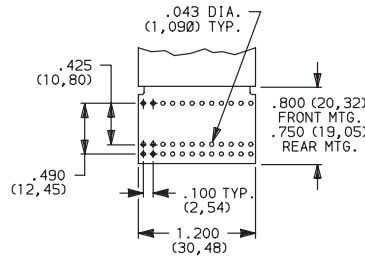
TERMINATIONS



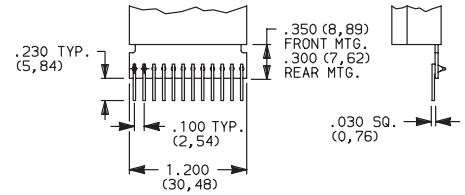
0 TYPE 0



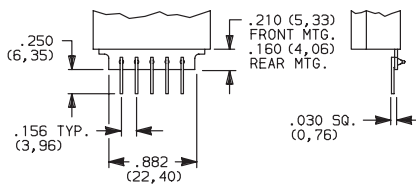
1 TYPE 1, EXTENDED TYPE 0



N SOLDER PINS WITH .100" SPACING



P SOLDER PINS WITH .156" SPACING



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

9 ANY COMBINATION OF TERMINATION CONFIGURATIONS OR SPECIAL TERMINATIONS.

Specify on configuration form, page M-10 and consult Customer Service Center.

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, see page M-9.

NOTE: Termination option N (RoHS compliant) replaced termination option 3 (Non-RoHS compliant).
Termination option P (RoHS compliant) replaced termination option B (Non-RoHS compliant).

Terminal Location Numbers

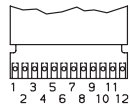


FIG. 1

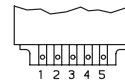


FIG. 2

NOTE: See function codes, pages M-4 and M-5, for signal locations.

COLOR/MARKING/STOPS



0 MATTE BLACK HOUSING (Gloss black wheel with white characters; no stops.)

NOTE: Stop pins are available separately, see page M-8.

SEAL

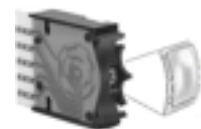


0 UNSEALED SWITCHING CONTACTS.

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.)

3 SEALED SWITCHING CONTACTS AND DUST LENS



Dust Lens



Third Angle
Projection

Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

3 Series Thumbwheel Switches

AVAILABLE HARDWARE

Blank sections, Type 0,
.315 THK.



PART NO.

413602000 W/RIB-BLACK

400502000 W/RIB & W/OUT SPRINGS-BLACK

Blank sections, Front mount, Type 0,
.315 THK.



PART NO.

413502000 PLAIN-BLACK

400702000 PLAIN & W/OUT SPRINGS-BLACK

Blank sections, Rear mount, Type 1,
.350 THK.



4006



4008

PART NO.

400602000 W/RIB-BLACK

400802000 PLAIN-BLACK

Blank sections, Rear mount, Type 2,
.350 THK.



4734



4733

PART NO.

473402000 W/RIB-BLACK

473302000 PLAIN-BLACK

End plates, Front mount, Type 0



PART NO.

413402000 BLACK

Two required for
complete assembly.

End plates, Rear mount, Type 1



PART NO.

400402003 BLACK

Two required for
complete assembly.

End plates, Rear mount, Type 2



PART NO.

473202003 BLACK

Two required for
complete assembly.

Spacers, Front mount, Type 0 & 3, .078 THK.
(Makes section pitch 10mm)



PART NO.

410802000 BLACK

Stop pins



PART NO.

402900000

Thumbwheel



M

AVAILABLE HARDWARE

Terminal connector



605A00000



605A02000

PART NO.
605A00000 PC
605A02000 SOLDER LUG

Fits 0 & 1 terminations only.

Screws for field assembly of thumbwheel switches
(2 screws needed per assembly + 403500000 nuts)

SCREW PART NUMBER (0-80 UNF THD. SIZE)	NUMBER OF SECTIONS IN ASSEMBLY	
	FRONT MOUNTING	REAR MOUNTING
	MTG. STYLE - 00	MTG. STYLE - 10
412700000	1-2	1-2
412701000	3-4	3
412702000	5-7	4-6

Nut



Two nuts required per assembly and screws.

PART NO.
403500000

Nut driver (For 403500000 nut)



PART NO.
406100652

Thumbwheel



M

3 Series Thumbwheel Switches

Configuration Form

GRAY SHADED AREAS TO BE FILLED IN BY CUSTOMER SERVICE.

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 <small>ENTER OPTION CODES IN APPROPRIATE BOXES. FUNCTION CODES INCLUDE BLANK SECTIONS (SEE PAGES M-9 & M-10).</small>	DESCRIBE IN APPROPRIATE ROW
	1	3 - - - - -	
	2	3 - - - - -	
	3	3 - - - - -	
	4	3 - - - - -	
	5	3 - - - - -	
	6	3 - - - - -	
	7	3 - - - - -	
	8	3 - - - - -	
	9	3 - - - - -	
	10	3 - - - - -	
	11	3 - - - - -	

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 ____

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

C&K Switches:

[412701000](#) [400402003](#) [413402000](#) [413502000](#) [403500000](#) [400802000](#) [412702000](#) [3P0230102](#) [402900000](#) [3P-](#)
[3-23-3-1-0-2](#) [301129103](#) [302329000](#) [302329001](#) [302329002](#) [302329100](#) [303129000](#) [307129000](#) [322320003](#)
[322710B01](#) [3P0210A02](#) [3P0230002](#) [3P0230100](#) [3P1210000](#) [3P1210002](#) [3P1210102](#) [3P1230000](#) [3P1230100](#)
[3P1230102](#) [3P2210000](#) [3P2210002](#) [3P2230000](#) [3P2233100](#) [3P3210102](#) [3P3230102](#) [3P4210100](#) [3U0210300](#)
[3U0710000](#) [3U0710002](#) [3U07100C0](#) [3U07100C2](#) [3U07100E0](#) [3U07100E2](#) [3U1210002](#) [3U1710000](#) [3U1710002](#)
[3U17100C0](#) [3U17100C2](#) [3U17100E0](#) [3U2210000](#) [3U2210002](#) [3U2210N00](#) [3U2710000](#) [3U2710002](#) [3U3210000](#)
[3U3210002](#) [3U32100E0](#) [302329003](#) [3P0210N00](#) [3P0210N02](#) [3P0230000](#) [3P1213000](#) [3P1213002](#) [3P1230002](#)
[3P2213000](#) [3P2213002](#) [3P2230002](#) [3P2233000](#) [3P3210000](#) [3P3210002](#) [3P3213000](#) [3P3213002](#) [3P3230000](#)
[3P3230002](#) [3P3233000](#) [3P3233002](#) [3P4210002](#) [3P4213002](#) [3P4233002](#) [3P4233102](#) [3U1210NC0](#) [3U22100C0](#)
[3U22100C2](#) [3U32100C0](#) [302129002](#) [412700000](#) [371120000](#) [332100N00](#) [302129000](#) [302129N00](#) [302129103](#)
[302129100](#) [473402000](#) [332120003](#) [322710P01](#) [400702000](#) [473302000](#) [312100000](#) [302109002](#) [3P0210P02](#)
[3U1710N02](#)