

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

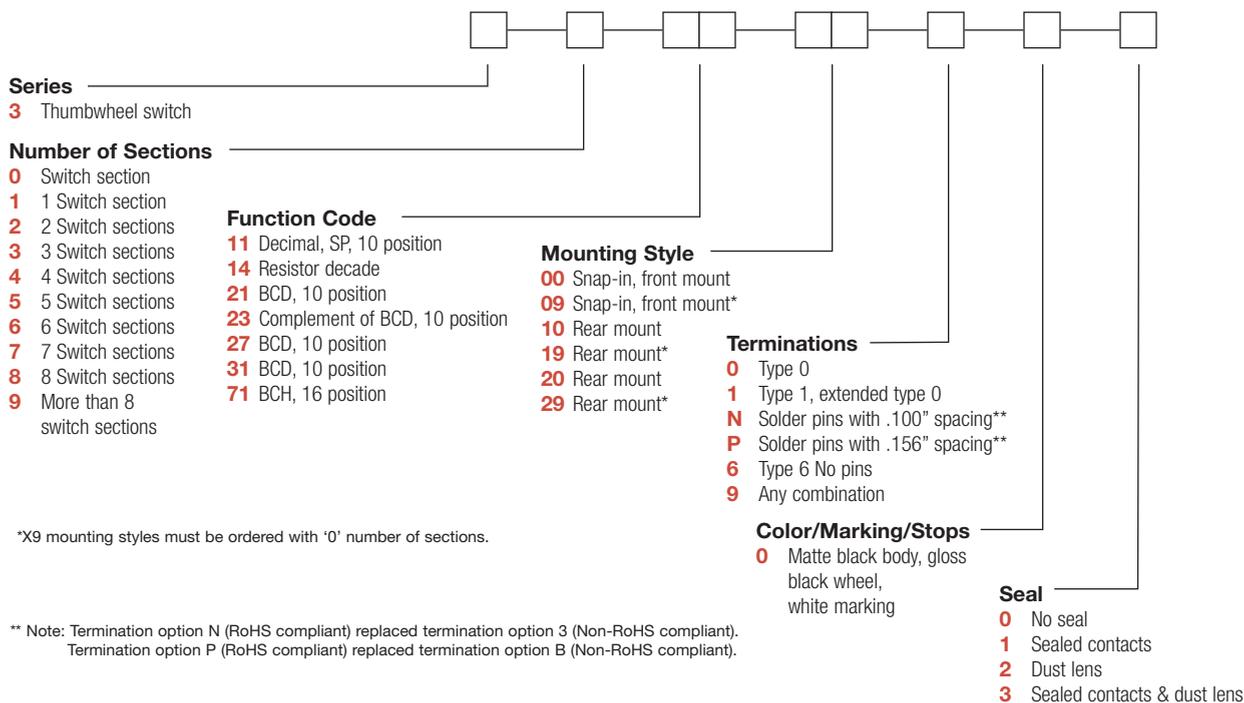
HOUSING: ABS plastic.
 THUMBWHEEL: ABS plastic.
 ROTOR CONTACTS: Precious metal on copper alloy.
 STATOR CONTACTS: Hard gold over nickel over copper
 on epoxy fiberglass.

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.



Thumbwheel

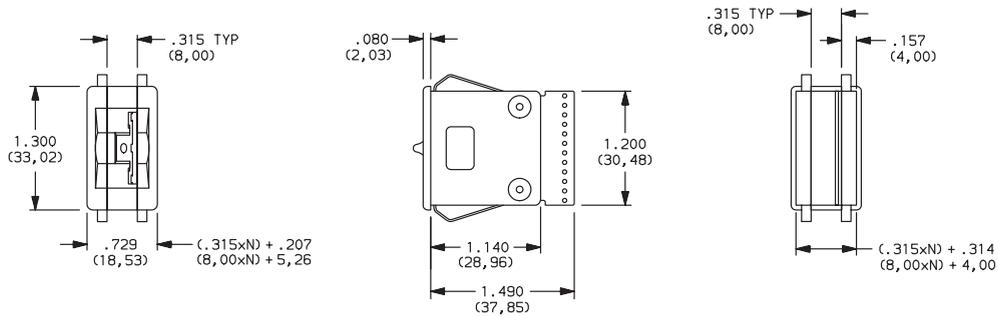


M

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

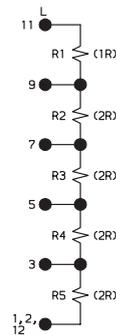
- 11** DECIMAL-1 POLE; 10 POSITION
- 14** RESISTOR DECADE; 1-2-2-2-2 CODE (RESISTORS NOT SUPPLIED)
- 21** BCD 1-2-4-8; 10 POSITION

| W H E E L | SIGNALS CONNECTED TO COMMON SIGNAL C | | | | | | | | | | |
|-----------------------|--------------------------------------|---|---|---|---|---|---|---|----|----|----|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | C |
| 0 | ● | | | | | | | | | | ● |
| 1 | | ● | | | | | | | | | ● |
| 2 | | | ● | | | | | | | | ● |
| 3 | | | | ● | | | | | | | ● |
| 4 | | | | | ● | | | | | | ● |
| 5 | | | | | | ● | | | | | ● |
| 6 | | | | | | | ● | | | | ● |
| 7 | | | | | | | | ● | | | ● |
| 8 | | | | | | | | | ● | | ● |
| 9 | | | | | | | | | | ● | ● |
| | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| | TERM. LOCATION | | | | | | | | | | |

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

| W H E E L | 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 | 1,2 | | | |
| | TERM. LOCATION | | | | | | | | | |

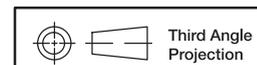
Available Terminations: 1
See fig. 1, page M-7.



| W H E E L | SIGNALS CONN. TO COMMON 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

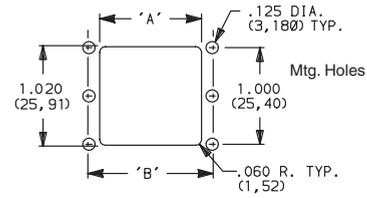
MOUNTING STYLE

Type 1 Rear Mount

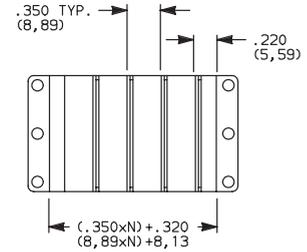
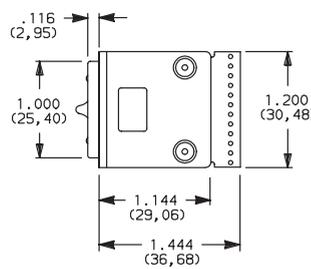
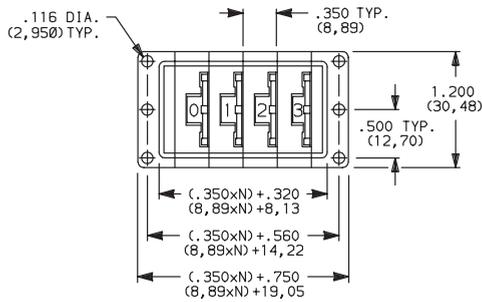
| MOUNTING STYLE | DIM. 'A' | DIM. 'B' |
|----------------|--|---|
| 10 | $(.350 \times N) + .340$ $(8.89 \times N) + (8.64)$ | $(.350 \times N) + .560$ $(8.89 \times N) + (14.22)$ |

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

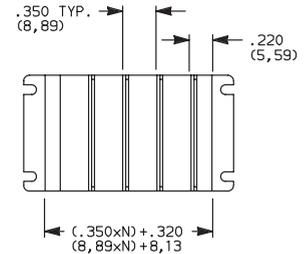
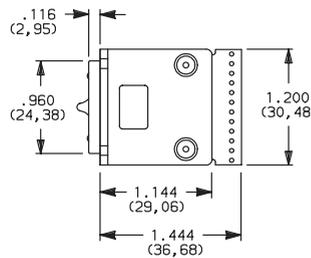
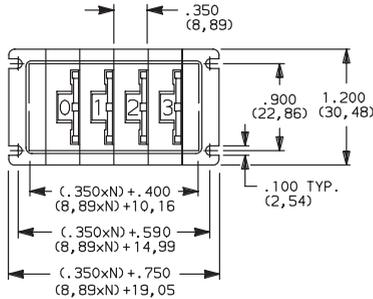


N = Number of sections.

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

Type 2 Rear Mount

20 SWITCH ASSEMBLY W/ ENDPLATES--.350 (8,89) 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 M-4.)

Thumbwheel



M

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

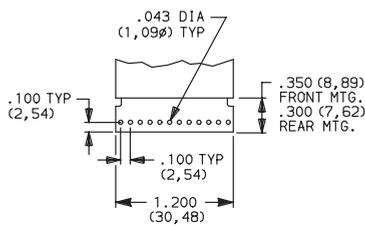


Dimensions are shown: Inches (mm)
Specifications and dimensions subject to change

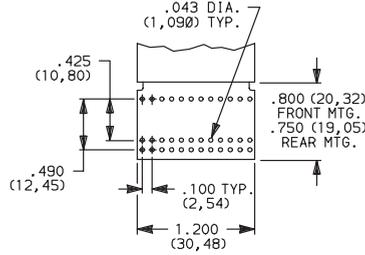
3 Series Thumbwheel Switches

TERMINATIONS

0 TYPE 0

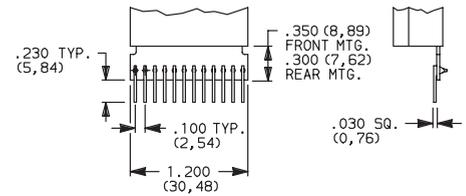


1 TYPE 1, EXTENDED TYPE 0

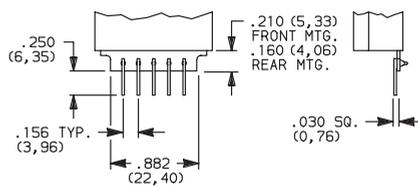


Signal traces cut except for common(s).

N SOLDER PINS WITH .100" SPACING

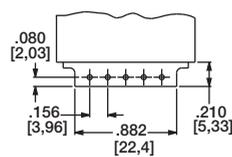


P SOLDER PINS WITH .156" SPACING



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

6 TYPE 6, NO PINS



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

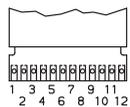


FIG. 1



TAB SURFACE

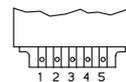


FIG. 2



TAB SURFACE

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



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

3 Series Thumbwheel Switches

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



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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 _____

CUSTOMER
PRINT
REVISION:

ADDRESS _____ TEL.# _____

CUSTOMER CONTACT _____ DATE _____

DETAILS:

ORIGINATED BY _____ SALES REP. _____

| 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 - <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"/> | |

Thumbwheel



M

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 ____



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

Mouser Electronics

Authorized Distributor

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

[C&K Components:](#)

[332100N00](#)