

Features/Benefits

- *PCB mounting style for electronic applications*
- *Process compatible boot available for solder washing*
- *Multiple wheel markings available to customize application*

Typical Applications

- *Test & measurement equipment*
- *Instrumentation*
- *Computer peripherals*



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-29 and J-30. For additional options not shown in catalog, consult Customer Service Center.



Thumbwheel & Pushwheel

Typical Example: 3 M — 1 2 — 0 —

Series

3M (STD.) Miniature thumbwheel switch

Function Code

- 11** (STD.) Decimal, SP, 10 position, CCW
- 12** Decimal, SP, 10 position, CW
- 21** BCD, SP, 10 position, CCW
- 22** BCD, SP, 10 position, CW
- 24** Complement of BCD, SP, 10 position, CW

Marking

- 0** (STD.) No wheel marking
- 1** Vertical wheel marking, terminals left
- 2** Vertical wheel marking, terminals right
- 3** Upright wheel marking, terminals down
- 4** Inverted wheel marking, terminals up

Seal

- NONE** (STD.) No seal
- F** Splashproof silicone rubber seal

3M Series Miniature Thumbwheel Switches

Specifications

CONTACT RATING:

CARRY: 1 AMP continuous @ 28 V DC.

SWITCH: 0.4 VA max., 100 mA max., 28 V DC max.

ELECTRICAL LIFE: 100,000 actuations.

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

INSULATION RESISTANCE: 10^9 ohms min. (dry).

DIELECTRIC STRENGTH: 250 V RMS min. @ sea level.

OPERATING TEMPERATURE: -10°C to 65°C.

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

Materials

HOUSING: Glass filled polyester (PBT), flame retardant (UL 94V-0).

BASE: Glass filled nylon (UL 94V-0).

THUMBWHEEL: Glass filled polyester (PBT), flame retardant (UL 94V-0).

ROTOR CONTACTS: Hard gold over nickel over copper on epoxy fiberglass.

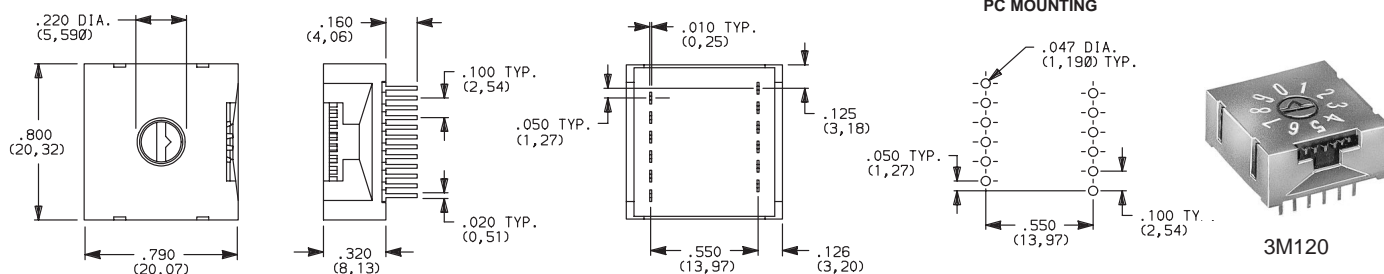
STATOR CONTACTS: Copper alloy, with gold over nickel.

TERMINALS: Solder clad over copper alloy. All terminals insert molded. All terminals present regardless of function.

BASE SEAL: Epoxy.

SERIES

3M MINIATURE THUMBWHEEL SWITCH



PART NUMBER	NO. POSITIONS
3M120	10

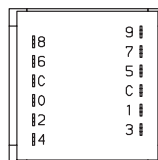
FUNCTION CODE

11 (STD.) DECIMAL, SP, 10 POSITION, CCW

12 DECIMAL, SP, 10 POSITION, CW

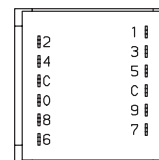
W H E E L	COMMON (C) CONNECTED TO TERMINAL INDICATED									
	0	1	2	3	4	5	6	7	8	9
0	●									
1		●								
2			●							
3				●						
4					●					
5						●				
6							●			
7								●		
8									●	
9										●

Function Code 11



Wheel opening this side.

Function Code 12



Wheel opening this side.

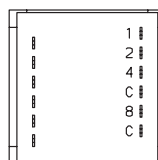
Bottom Views

21 BCD, SP, 10 POSITION, CCW

22 BCD, SP, 10 POSITION, CW

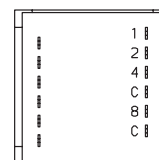
W H E E L	COMM. (C) CONN TO TERM. IND.			
	1	2	4	8
0				
1	●			
2		●		
3			●	
4				●
5	●			
6		●		
7			●	
8				●
9	●			

Function Code 21



Wheel opening this side.

Function Code 22



Wheel opening this side.

Bottom Views

Thumbwheel & Pushwheel

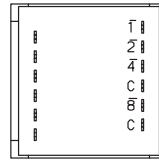
3M Series Miniature Thumbwheel Switches

FUNCTION CODE

24 COMPLEMENT OF BCD, SP, 10 POSITION, CW

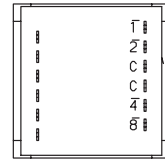
W H E E L	COMM. (C) CONN. TO TERM. IND.			
	T	2	4	8
0	●	●	●	●
1	●	●	●	●
2	●	●	●	●
3	●	●	●	●
4	●	●	●	●
5	●	●	●	●
6	●	●	●	●
7	●	●	●	●
8	●	●	●	●
9	●	●	●	●

Function Code 23



Wheel opening this side.

Function Code 24



Wheel opening this side.

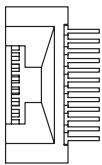
Bottom Views

WHEEL MARKING

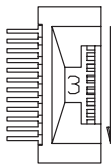
0 (STD.) NO WHEEL MARKING

1 VERTICAL WHEEL MARKING, TERMINALS LEFT

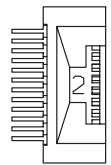
2 VERTICAL WHEEL MARKING, TERMINALS RIGHT



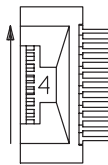
CCW



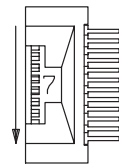
CW



CCW



CW

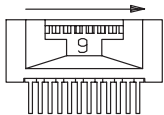


3 UPRIGHT WHEEL MARKING, TERMINALS DOWN

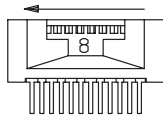
4 INVERTED WHEEL MARKING, TERMINALS UP

TOP MARKINGS - ALL SWITCHES

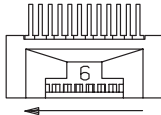
CCW



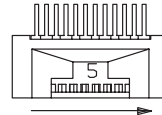
CW



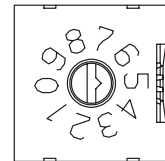
CCW



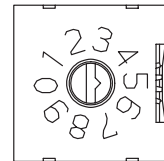
CW



CCW



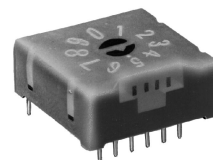
CW



SEAL

NONE (STD.) NO SEAL

F SPLASHPROOF SILICONE RUBBER SEAL AND EPOXY BASE SEAL.



NOTE: Silicone rubber seal peels off easily after installation. Epoxy base seal standard.

Thumbwheel & Pushwheel