



## M07 MIL Rugged Coded Switches Overview

# Coded Switches - MIL Rugged Type M07



- 2 to 16 positions gray coding (BCD or hex available upon request)
- Rugged 6mm tapped shaft, 3mm versions optional
- Ruggedized stainless steel shaft
- Up to 3.5 Ncm switching torque
- Gold plated contacts, bright nickel bushing
- Meets/exceeds MIL-STD-810F for salt/fog and humidity
- Meets/exceeds MIL-STD-202G for shock and vibration
- THT (reflow version on request)
- IP68 front panel sealing (50 meters submersion) standard
- Operating temperature range: -40 to +85°C
- Various options and customization

**Pb** ELV (2000/53/EC)  
RoHS (2002/95/EC)

## Standard Product Variety

- Vertical or horizontal mounting
- 6mm double flat tapped shaft or full round shaft shaft with double D bushing
- BCD, hex or gray coding
- Number of positions
- 4.5 Ncm +/- 25%
- With end stop or endless rotating
- IP60 or IP68 front panel sealing
- Various shaft styles and lengths
- High strength reinforced plastic body

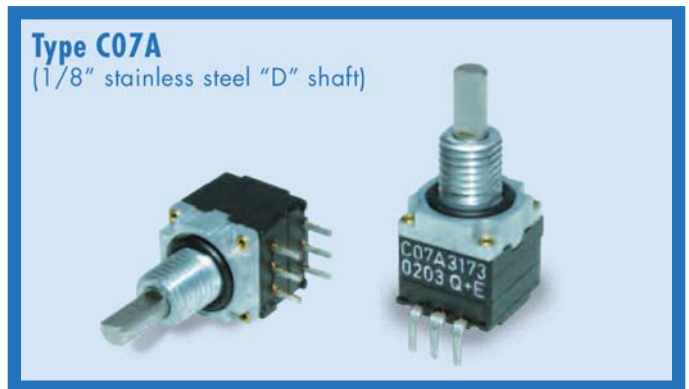
## Typical Applications

- Communications
- Military
- Avionics
- Portable Medical equipment
- Industrial automation
- Vision and imaging products
- Mobile PCs

## Examples of Customization

- 1/4" double-D shape shaft with tap screw or full-round
- High/low torque function "on/off"

## Related Type 07 Family Products



# Coded Switches - MIL Rugged Type M07 Specifications

## Mechanical Data

Resolution:	BCD: 10 positions max. (36° indexing) Other codings: 16 positions max. (22.5° indexing) End stops are factory settable from 2 to 16 (10) positions
Switching torque (new condition):	4.5 Ncm +/- 25%
Rotational life:	10,000 cycles min.
End stop strength:	60 Ncm
Fastening torque of nut (front panel mounting):	100 Ncm max.

## Electrical Data

Coding/output:	BCD, BCD complementary, hex, hex complementary or gray
Contact resistance (new condition):	50 mOhms max.
Dielectric withstanding voltage:	500 VDC during 60 seconds (pins to pins, pins to housing)

## Material Data

Shaft:	Stainless steel, 1.40307 grade (special grade)
Housing:	Bright nickel, fiber enforced high performance plastic
Nut:	Brass
Contact system:	CuBe alloy, AuCo plated (hard gold)
Soldering leads:	CuBe alloy, tin plated
O-rings:	NBR (Nitril), 70 shore

## Environmental Data

Operating/storage temperature range:	-40 to +85°C max.
IP sealing:	50 meters submersion
Vibration:	10 Grms max. @ 10 to 2000 Hz

## Packaging Sizes

Tray:	50 or 200 pcs. (antistatic tray: 100 pcs.)
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## Soldering Conditions

Hand soldering:	340°C max. during 2 s max.
Wave soldering:	280°C max. peak temperature during 5 s max.

## Codings

### BCD

	8	4	2	1
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				

On  
 Off

### BCD Complementary

	8	4	2	1
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				

### Hex

	8	4	2	1
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

### Hex Complementary

	8	4	2	1
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

### Gray

	8	4	2	1
0				
1				
2				
3				
4				
5				
6				
7				
8				
9				
A				
B				
C				
D				
E				
F				

# Coded Switches - MIL Rugged Type M07 Specifications

## Type Key

0	7	(M07A)	-	X	X	X	X	-	X	X	X	X	X	X	X
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**Style**

1 - Horizontal (shaft)

**End Stop**

0 - Endless rotating  
1 - With end stop

**Coding**

3 - BCD (max. 10 pos.)  
4 - BCD compl. (max. 10 pos.)  
5 - Hex  
6 - Hex compl.  
7 - Gray

**Switching Mode**

3 - Shorting  
4 - Non-shorting

0 - 6mm  
Z - 1

**Number of Positions** <sup>1</sup>

0 - Standard (10 or 16 pos.)  
E - 15 pos. (0 - E)  
D - 14 pos. (0 - D)  
C - 13 pos. (0 - C)  
B - 12 pos. (0 - B)  
A - 11 pos. (0 - A)  
9 - 10 pos. (0 - 9)  
8 - 9 pos. (0 - 8)  
7 - 8 pos. (0 - 7)  
6 - 7 pos. (0 - 6)  
5 - 6 pos. (0 - 5)  
4 - 5 pos. (0 - 4)  
3 - 4 pos. (0 - 3)  
2 - 3 pos. (0 - 2)  
1 - 2 pos. (0 - 1)

<sup>1</sup>C07A: only available with standard number of positions

**Shaft Length (AL)**

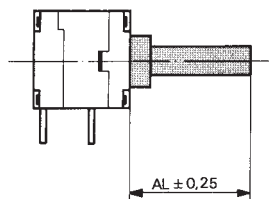
000 - Basic style: Basic round shaft 9.2mm  
010 - Double flat: Tapped shaft 9.2mm (e.g. 10.5 mm = 105; not available for C07A)

**Bushing, IP Sealing**

20 - Threaded (nut supplied) panel mounting/threaded  
30 - Threaded, IP68 (nut supplied)

**Torque, Packaging**

- - 4.5 Ncm +/- 25%, tray (50/200 pcs.)  
T - 3.5 Ncm



Please state shaft length (AL) measured from mounting face (max. AL basic style: 30 mm, threaded bushing: 28.7 mm, C07A: 30.2 mm).

# Preference Types Selection Chart

## M07 Horizontal

### Threaded Bushing, IP60, with End Stop

Coding	Switching Mode	Positions	Indexing Angle	With End Stop	Endless Rotating
BCD	Shorting	10 (0-9)	36°	M07A-1133-200000	07-1033
	Non-shorting	10 (0-9)	36°	M07A-1134-200000	07-1034
BCD compl.	Shorting	10 (0-9)	36°	M07A-1143-200000	07-1043
Hex	Shorting	16 (0-F)	22.5°	M07A-1153-200000	07-1053
	Non-shorting	16 (0-F)	22.5°	M07A-1154-200000	07-1054
Hex compl.	Shorting	16 (0-F)	22.5°	M07A-1163-200000	07-1063
Gray	Shorting	16 (0-F)	22.5°	M07A-1173-200000	07-1073

### Threaded Bushing, IP68, with End Stop

Coding	Switching Mode	Positions	Indexing Angle	With End Stop
BCD	Shorting	10 (0-9)	36°	M07A-1033-300000
	Non-shorting	10 (0-9)	36°	M07A-1034-300000
BCD compl.	Shorting	10 (0-9)	36°	M07A-1043-300000
Hex	Shorting	16 (0-F)	22.5°	M07A-1053-300000
	Non-shorting	16 (0-F)	22.5°	M07A-1054-300000
Hex compl.	Shorting	16 (0-F)	22.5°	M07A-1063-300000
Gray	Shorting	16 (0-F)	22.5°	M07A-1073-300000

### Threaded Bushing, IP60, Endless Rotating (Horizontal)

Coding	Switching Mode	Positions	Indexing Angle	Endless Rotating
BCD	Shorting	10 (0-9)	36°	07-1133-300000
	Non-shorting	10 (0-9)	36°	07-1134-300000
BCD compl.	Shorting	10 (0-9)	36°	07-1143-300000
Hex	Shorting	16 (0-F)	22.5°	07-1153-300000
	Non-shorting	16 (0-F)	22.5°	07-1154-300000
Hex compl.	Shorting	16 (0-F)	22.5°	07-1163-300000
Gray	Shorting	16 (0-F)	22.5°	07-1173-300000

## M07 Horizontal

### Threaded Bushing, IP68, with End Stop

Coding	Switching Mode	Positions	Indexing Angle	With End Stop
Hex	Shorting	16 (0-F)	22.5°	C07A1153-300000
	Non-shorting	16 (0-F)	22.5°	C07A1154-300000
Hex compl.	Shorting	16 (0-F)	22.5°	C07A1163-300000
Gray	Shorting	16 (0-F)	22.5°	C07A1173-300000

# Preference Types Selection Chart

## M07 Vertical

### Threaded Bushing, IP60 with End Stop

Coding	Switching Mode	Positions	Indexing Angle	With End Stop	Endless Rotating
BCD	Shorting	10 (0-9)	36°	M07A-3133-200000	07-3033
	Non-shorting	10 (0-9)	36°	M07A-3134-200000	07-3034
BCD compl.	Shorting	10 (0-9)	36°	M07A-3143-200000	07-3043
Hex	Shorting	16 (0-F)	22.5°	M07A-3153-200000	07-3053
	Non-shorting	16 (0-F)	22.5°	M07A-3154-200000	07-3054
Hex compl.	Shorting	16 (0-F)	22.5°	M07A-3163-200000	07-3063
Gray	Shorting	16 (0-F)	22.5°	M07A-3173-200000	07-3073

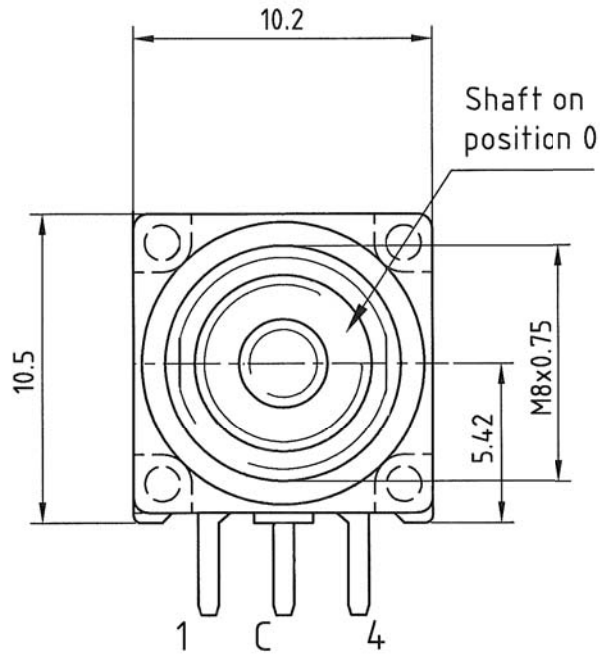
### Threaded Bushing, IP68, with End Stop

Coding	Switching Mode	Positions	Indexing Angle	With End Stop
BCD	Shorting	10 (0-9)	36°	M07A-3133-300000
	Non-shorting	10 (0-9)	36°	M07A-3134-300000
BCD compl.	Shorting	10 (0-9)	36°	M07A-3134-300000
Hex	Shorting	16 (0-F)	22.5°	M07A-3153-300000
	Non-shorting	16 (0-F)	22.5°	M07A-3154-300000
Hex compl.	Shorting	16 (0-F)	22.5°	M07A-3163-300000
Gray	Shorting	16 (0-F)	22.5°	M07A-3173-300000

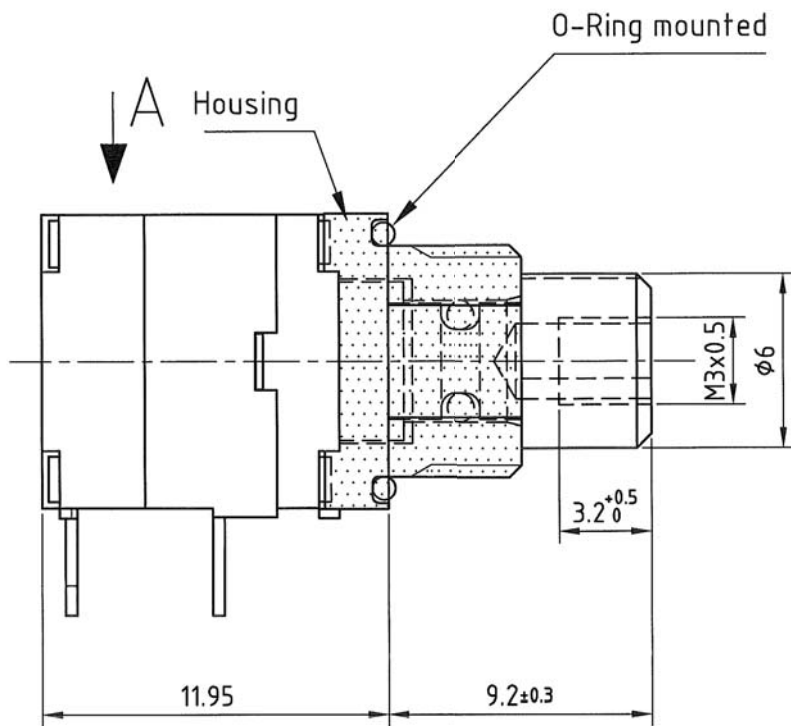
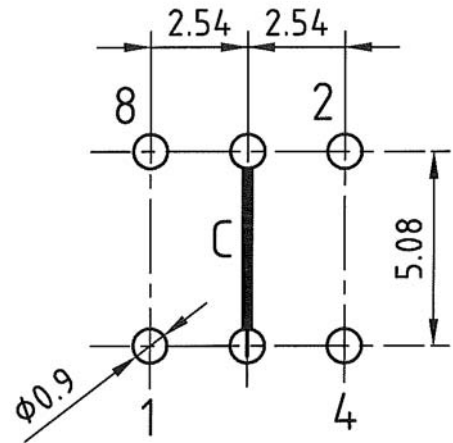
### Threaded Bushing, IP60, Endless Rotating (Vertical)

Coding	Switching Mode	Positions	Indexing Angle	Endless Rotating
BCD	Shorting	10 (0-9)	36°	07-3033-300000
	Non-shorting	10 (0-9)	36°	07-3034-300000
BCD compl.	Shorting	10 (0-9)	36°	07-3043-300000
Hex	Shorting	16 (0-F)	22.5°	07-3053-300000
	Non-shorting	16 (0-F)	22.5°	07-3054-300000
Hex compl.	Shorting	16 (0-F)	22.5°	07-3063-300000
Gray	Shorting	16 (0-F)	22.5°	07-3073-300000

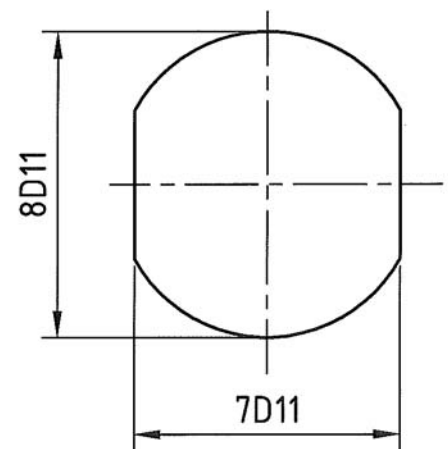
# Technical Data

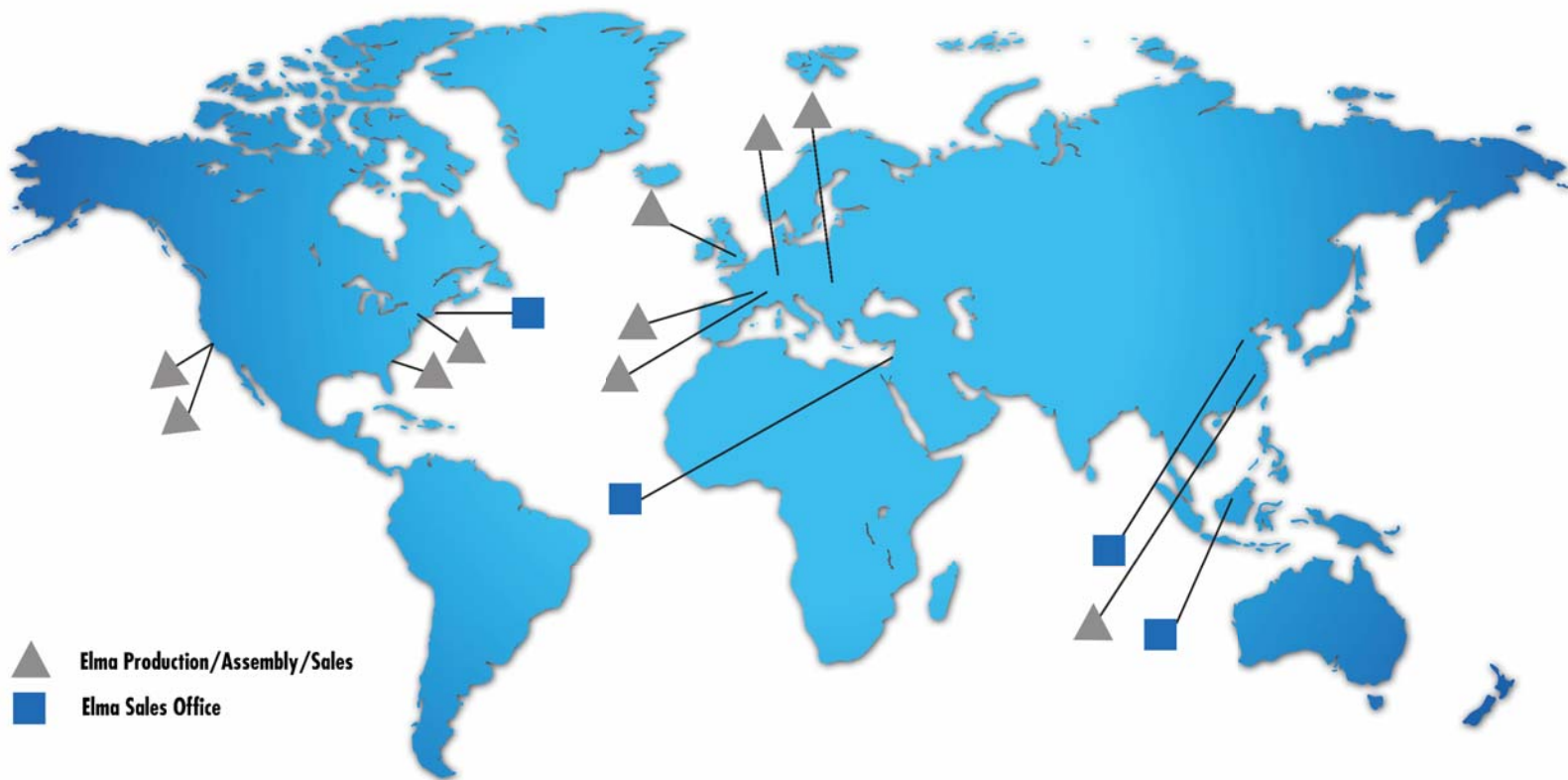


Drilling diagram  
View from component side



Front panel cut out





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