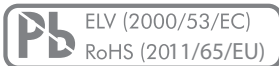


## Product description

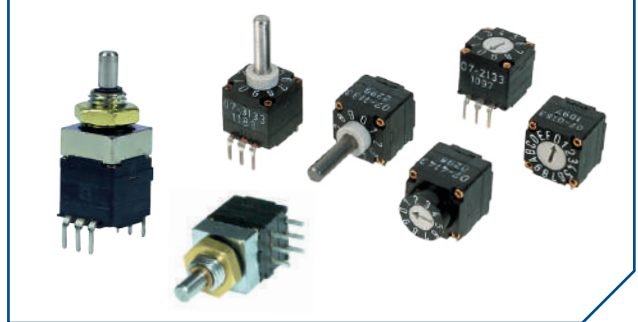
### MAIN FEATURES

#### COMPACT

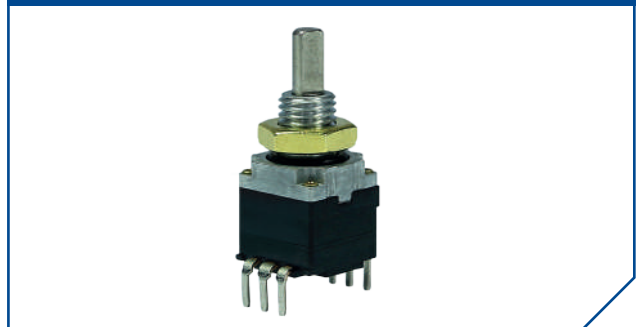
- › 2 to 16 positions BCD, Hex or Gray coding
- › Switching mode: Shorting or non-shorting
- › For rugged environments
- › Switching torque: Up to 3.5 Ncm
- › Gold plated contacts
- › THT vertical or horizontal
- › IP68 front panel sealing (up to 5 bar)
- › Operating temperature range: -40 to +85 °C
- › Various options and customizations



#### 07



#### C07A threaded bushing and compact size



### PRODUCT VARIETY

- Vertical or horizontal mounting
- Bushing style
- BCD, Hex or Gray coding
- Shorting or non-shorting
- Number of positions
- Switching torque BCD: 2.2 or 3.5 Ncm
- Switching torque Hex and Gray: 3.2 or 3.5 Ncm
- With end stop or endless rotating
- Front panel sealing IP60 or IP68
- Various shaft styles and lengths

### POSSIBLE CUSTOMIZATIONS

- Shaft dimension and shape
- Bushing, mounting
- Switching torque
- Others

### TYPICAL APPLICATIONS

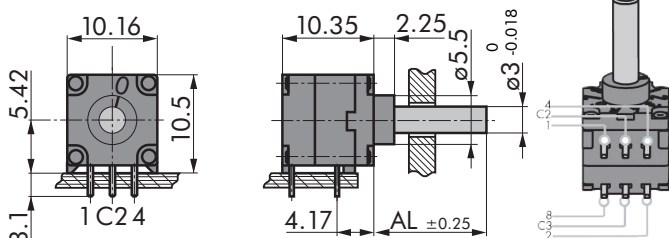
- Frequency and channel selection for two way radios
- Target aiming devices
- Aircraft transponders
- Medical equipments
- Industrial automation

## Dimensions and pin assignment

### SWITCH DESIGN AND PIN ASSIGNMENT

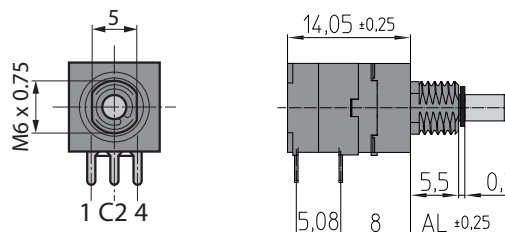
#### 07 HORIZONTAL

With shaft, without threaded bushing



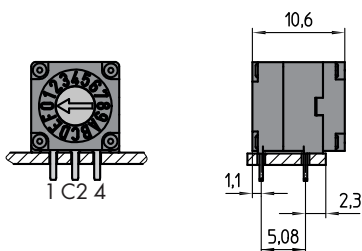
AL: See type key

With shaft, with threaded bushing

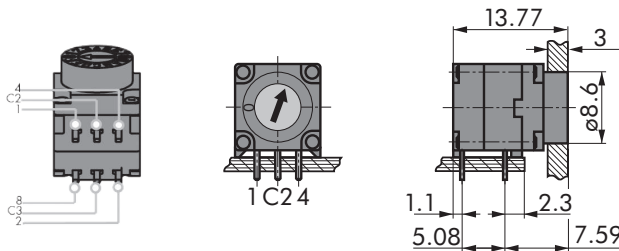


AL: See type key

Screwdriver without bezel

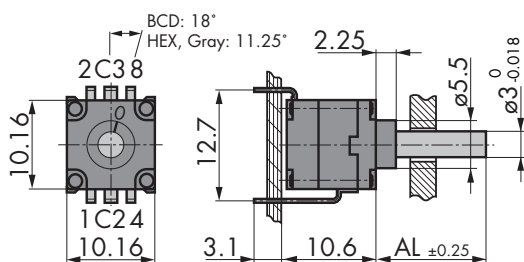


Screwdriver with bezel, front panel operation



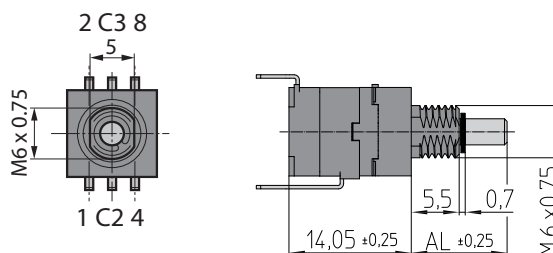
#### 07 VERTICAL

With shaft, without threaded bushing



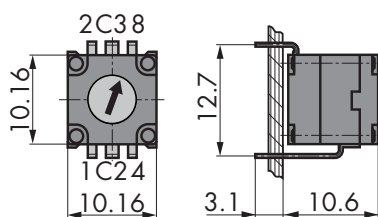
AL: See type key

With shaft, with threaded bushing

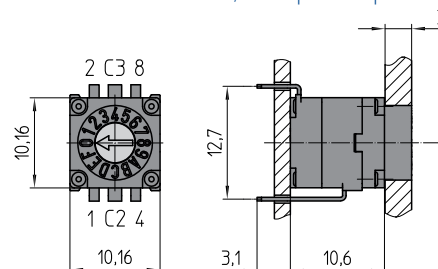


AL: See type key

Screwdriver without bezel



Screwdriver with bezel, front panel operation



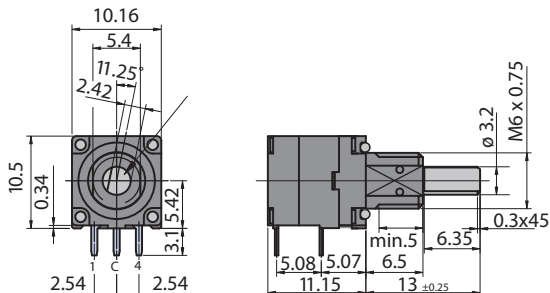
Dimensions in mm  
Tolerances according to DIN ISO 2768-1 (m), unless otherwise specified

## Dimensions and pin assignment

### SWITCH DESIGN AND PIN ASSIGNMENT

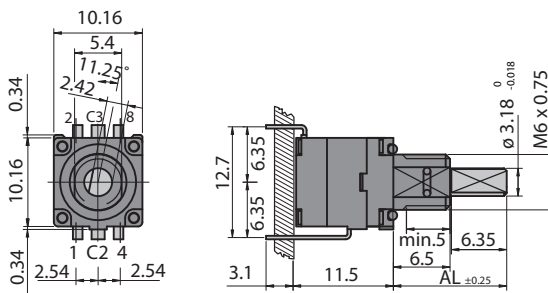
#### C07A HORIZONTAL AND VERTICAL

##### Horizontal with threaded bushing



AL: See type key

##### Vertical with threaded bushing

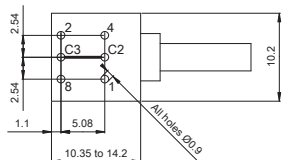


AL: See type key

### DRILLING DIAGRAM AND FOOTPRINT

#### 07 HORIZONTAL

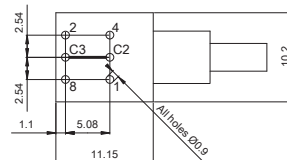
##### View from component side of the PCB



Commons (C2, C3) must be connected together on the PCB

#### 07 HORIZONTAL

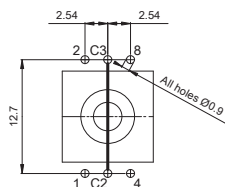
##### View from component side of the PCB



Commons (C2, C3) must be connected together on the PCB

#### 07 & C07A VERTICAL

##### View from component side of the PCB



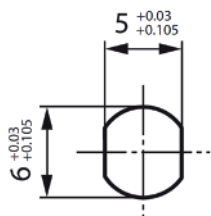
Commons (C2, C3) must be connected together on the PCB

Dimensions in mm  
Tolerances according to DIN ISO 2768-1 (m), unless otherwise specified

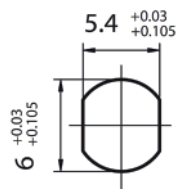
## Dimensions and pin assignment

### FRONT PANEL CUT OUT

07 THREADED BUSHING

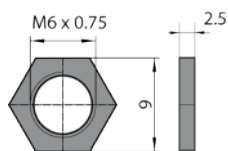


C07A

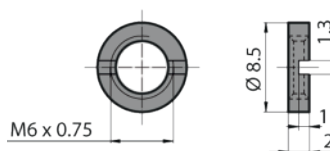


### NUT

HEX NUT (SUPPLIED)



SLOTTED NUT



Dimensions in mm  
Tolerances according to DIN ISO 2768-1 (m), unless otherwise specified

## Ordering information

### ORDERING CODE

07	-	-	-	-	-	-	-	-	-	-	-
C07A	A										

**STYLE<sup>1</sup>**

<b>0</b>	Horizontal	screwdriver without bezel
<b>1</b>	Horizontal	with shaft
<b>2</b>	Vertical	screwdriver without bezel
<b>3</b>	Vertical	with shaft
<b>4</b>	Horizontal	screwdriver with bezel
<b>5</b>	Vertical	screwdriver with bezel

<sup>1</sup> C07A only available in style 1 and 3

**END STOP**

<b>0</b>	Endless rotating (not for C07A, BCD code)
<b>1</b>	With end stop

**CODING<sup>2</sup>**

<b>3</b>	BCD (max. 10 positions)
<b>4</b>	BCD complementary (max. 10 positions)
<b>5</b>	Hex
<b>6</b>	Hex complementary
<b>7</b>	Gray

Explanation see chapter «Technical explanations»  
<sup>2</sup> C07A only available with code 5, 6 and 7

**SWITCHING MODE<sup>3</sup>**

<b>3</b>	Shorting
<b>4</b>	Non-shorting

Explanation see chapter «Technical explanations»  
<sup>3</sup> Non-shorting not possible with Gray code, BCD complementary and Hex complementary

**NUMBER OF POSITIONS<sup>4</sup>**

<b>0</b>	Standard (10 or 16 positions)
<b>E</b>	15 positions (0 – E)
<b>D</b>	14 positions (0 – D)
<b>C</b>	13 positions (0 – C)
<b>B</b>	12 positions (0 – B)
<b>A</b>	11 positions (0 – A)
<b>9</b>	10 positions (0 – 9)
<b>8</b>	9 positions (0 – 8)
<b>7</b>	8 positions (0 – 7)
<b>6</b>	7 positions (0 – 6)
<b>5</b>	6 positions (0 – 5)
<b>4</b>	5 positions (0 – 4)
<b>3</b>	4 positions (0 – 3)
<b>2</b>	3 positions (0 – 2)
<b>1</b>	2 positions (0 – 1)

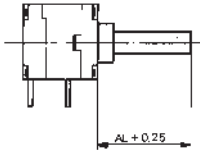
<sup>4</sup> C07A only available with standard number of positions

**SHAFT LENGTH (AL)**

**000** With shaft without threaded bushing: 12.8 mm  
With shaft with threaded bushing: 11.5 mm  
With shaft with C07A-bushing: 13 mm

**XXX<sup>5</sup>** Customized shaft length (AL)  
Not available for C07A  
(shaft length rounded to next 0.5 mm, e.g. 10.3 mm = 10.5 mm or 10 mm)

<sup>5</sup> Customized shaft length / shaft length (AL): Description measured from mounting face (see picture below). Max. shaft length: 30 mm, for threaded bushing: 26 mm, for C07A: 20 mm.



**BUSHING | IP SEALING**

<b>00</b>	Non (type 07 only)
<b>20</b>	Threaded (nut supplied)
<b>30</b>	Threaded   IP68 (hex nut supplied)

**SWITCHING TORQUE | PACKAGING**

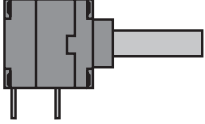
-	3.2 Ncm (BCD: 2.2 Ncm)	tray (50 or 200 pieces)
<b>V</b>	3.2 Ncm (BCD: 2.2 Ncm)	antistatic tray (100 pieces)
<b>T</b>	3.5 Ncm (BCD: 3.5 Ncm)	tray (50 or 200 pieces)
<b>S</b>	3.5 Ncm (BCD: 3.5 Ncm)	antistatic tray (100 pieces)

## Ordering information

### PREFERENCE TYPES SELECTION CHART<sup>1</sup>

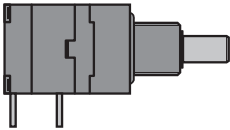
#### 07 HORIZONTAL

With shaft, without threaded bushing



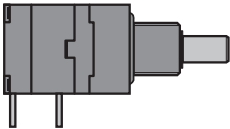
CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER	
				WITH END STOP	ENDLESS ROTATING
BCD	Shorting	36°	10 (0 – 9)	07-1133	07-1033
	Non-shorting	36°	10 (0 – 9)	07-1134	07-1034
BCD complementary	Shorting	36°	10 (0 – 9)	07-1143	07-1043
Hex	Shorting	22.5°	16 (0 – F)	07-1153	07-1053
	Non-shorting	22.5°	16 (0 – F)	07-1154	07-1054
Hex complementary	Shorting	22.5°	16 (0 – F)	07-1163	07-1063
Gray	Shorting	22.5°	16 (0 – F)	07-1173	07-1073

With shaft, with threaded bushing, IP68, with end stop



CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER
BCD	Shorting	36°	10 (0 – 9)	07-1133-300000
	Non-shorting	36°	10 (0 – 9)	07-1134-300000
BCD complementary	Shorting	36°	10 (0 – 9)	07-1143-300000
Hex	Shorting	22.5°	16 (0 – F)	07-1153-300000
	Non-shorting	22.5°	16 (0 – F)	07-1154-300000
Hex complementary	Shorting	22.5°	16 (0 – F)	07-1163-300000
Gray	Shorting	22.5°	16 (0 – F)	07-1173-300000

With shaft, with threaded bushing, IP68, endless rotating



CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER
BCD	Shorting	36°	10 (0 – 9)	07-1033-300000
	Non-shorting	36°	10 (0 – 9)	07-1034-300000
BCD complementary	Shorting	36°	10 (0 – 9)	07-1043-300000
Hex	Shorting	22.5°	16 (0 – F)	07-1053-300000
	Non-shorting	22.5°	16 (0 – F)	07-1054-300000
Hex complementary	Shorting	22.5°	16 (0 – F)	07-1063-300000
Gray	Shorting	22.5°	16 (0 – F)	07-1073-300000

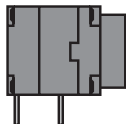
<sup>1</sup> For other Types | options see type key

## Ordering information

### PREFERENCE TYPES SELECTION CHART<sup>1</sup>

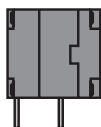
#### 07 HORIZONTAL

Screwdriver with bezel front panel operation



CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER	
				WITH END STOP	ENDLESS ROTATING
BCD	Shorting	36°	10 (0 – 9)	07-4133	07-4033
	Non-shorting	36°	10 (0 – 9)	07-4134	07-4034
BCD complementary	Shorting	36°	10 (0 – 9)	07-4143	07-4043
Hex	Shorting	22.5°	16 (0 – F)	07-4153	07-4053
	Non-shorting	22.5°	16 (0 – F)	07-4154	07-4054
Hex complementary	Shorting	22.5°	16 (0 – F)	07-4163	07-4063
Gray	Shorting	22.5°	16 (0 – F)		07-4073

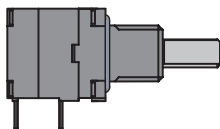
Screwdriver without bezel



CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER	
				WITH END STOP	ENDLESS ROTATING
BCD	Shorting	36°	10 (0 – 9)	07-0133	
	Non-shorting	36°	10 (0 – 9)	07-0134	07-0034
BCD complementary	Shorting	36°	10 (0 – 9)	07-0143	
Hex	Shorting	22.5°	16 (0 – F)	07-0153	07-0053
	Non-shorting	22.5°	16 (0 – F)	07-0154	07-0054
Hex complementary	Shorting	22.5°	16 (0 – F)	07-0163	
Gray	Shorting	22.5°	16 (0 – F)	07-0173	07-0073

#### C07A HORIZONTAL

Threaded bushing, IP68, with end stop



CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER	
				WITH END STOP	
Hex	Shorting	22.5°	16 (0 – F)	C07A1153-300000	
	Non-shorting	22.5°	16 (0 – F)	C07A1154-300000	
Hex complementary	Shorting	22.5°	16 (0 – F)	C07A1163-300000	
Gray	Shorting	22.5°	16 (0 – F)	C07A1173-300000	

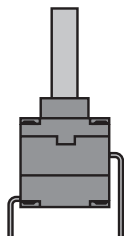
<sup>1</sup> For other Types | options see type key

## Ordering information

### PREFERENCE TYPES SELECTION CHART<sup>1</sup>

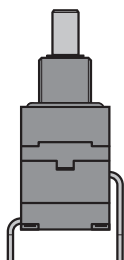
#### 07 VERTICAL

With shaft, without threaded bushing



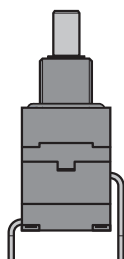
CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER	
				WITH END STOP	ENDLESS ROTATING
BCD	Shorting	36°	10 (0 – 9)	07-3133	07-3033
	Non-shorting	36°	10 (0 – 9)	07-3134	07-3034
BCD complementary	Shorting	36°	10 (0 – 9)	07-3143	07-3043
Hex	Shorting	22.5°	16 (0 – F)	07-3153	07-3053
	Non-shorting	22.5°	16 (0 – F)	07-3154	07-3054
Hex complementary	Shorting	22.5°	16 (0 – F)	07-3163	07-3063
Gray	Shorting	22.5°	16 (0 – F)	07-3173	07-3073

With shaft, with threaded bushing, IP68, with end stop



CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER	
				WITH END STOP	ENDLESS ROTATING
BCD	Shorting	36°	10 (0 – 9)	07-3133-300000	
	Non-shorting	36°	10 (0 – 9)	07-3134-300000	
BCD complementary	Shorting	36°	10 (0 – 9)	07-3143-300000	
Hex	Shorting	22.5°	16 (0 – F)	07-3153-300000	
	Non-shorting	22.5°	16 (0 – F)	07-3154-300000	
Hex complementary	Shorting	22.5°	16 (0 – F)	07-3163-300000	
Gray	Shorting	22.5°	16 (0 – F)	07-3173-300000	

With shaft, with threaded bushing, IP68, endless rotating



CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER	
				WITH END STOP	ENDLESS ROTATING
BCD	Shorting	36°	10 (0 – 9)		07-3033-300000
	Non-shorting	36°	10 (0 – 9)		07-3034-300000
BCD complementary	Shorting	36°	10 (0 – 9)		07-3043-300000
Hex	Shorting	22.5°	16 (0 – F)		07-3053-300000
	Non-shorting	22.5°	16 (0 – F)		07-3054-300000
Hex complementary	Shorting	22.5°	16 (0 – F)		07-3063-300000
Gray	Shorting	22.5°	16 (0 – F)		07-3073-300000

<sup>1</sup> For other Types | options see type key

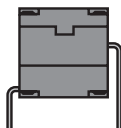


## Ordering information

### PREFERENCE TYPES SELECTION CHART<sup>1</sup>

#### 07 VERTICAL

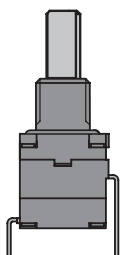
Screwdriver without bezel



CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER	
				WITH END STOP	ENDLESS ROTATING
BCD	Shorting	36°	10 (0 – 9)	07-2133	07-2033
	Non-shorting	36°	10 (0 – 9)	07-2134	07-2034
BCD complementary	Shorting	36°	10 (0 – 9)	07-2143	
Hex	Shorting	22.5°	16 (0 – F)	07-2153	07-2053
	Non-shorting	22.5°	16 (0 – F)	07-2154	
Hex complementary	Shorting	22.5°	16 (0 – F)	07-2163	07-2063
Gray	Shorting	22.5°	16 (0 – F)	07-2173	

#### C07A VERTICAL

Threaded bushing, IP68, with end stop



CODING	SWITCHING MODE	INDEXING ANGLE	POSITIONS	PART NUMBER	
				WITH END STOP	
Hex	Shorting	22.5°	16 (0 – F)	C07A3153-300000	
	Non-shorting	22.5°	16 (0 – F)	C07A3154-300000	
Hex complementary	Shorting	22.5°	16 (0 – F)	C07A3163-300000	
Gray	Shorting	22.5°	16 (0 – F)	C07A3173-300000	

### PACKAGING

Foam polystyrene box:

50 or 200 pieces (depending on shipment quantity)

### ACCESSORIES AND SPARE PARTS

Hex nut M6 x 0.75:

Part number 4424-22 (50 pieces / bag), brass

Slotted nut M6 x 0.75:

Part number 4424-28 (50 pieces / bag), brass

Part number 4424-31 (50 pieces / bag), stainless steel (cross slot)

<sup>1</sup> For other Types | options see type key

## Specifications

### MECHANICAL DATA

Detent angle   positions:	22.5° detent angle   16 positions 36° detent angle   10 positions
Rotary limitation   end stop:	Configurable
Switching torque:	22.5°: 3.2 or 3.5 Ncm (±25 % in new condition) 36°: 2.2 or 3.5 Ncm (±25 % in new condition)
Rotational life:	> 10'000 cycles (tested at room temperature)
Rotational stop strength:	22.5° detent angle: > 35 Ncm 36° detent angle: > 45 Ncm
Fastening torque of nut (front panel mounting):	M6 x 0.75: < 100 Ncm

### ELECTRICAL DATA

Electrical connection:	Pins 0.4 x 0.7 mm
Switching voltage:	< 42 VDC (resistive load)
Switching current:	< 200 mA (resistive load)
Contact resistance:	< 50 mΩ (in new condition)
Switching   breaking capacity:	< 5 VA
Signal   coding:	10 positions: BCD or BCD complementary 16 positions: Hex, Hex complementary or Gray
Switching mode:	Shorting or non-shorting (non-shorting with Gray, BCD complementary and Hex complementary not possible)
Dielectric strength:	500 VDC during 60 s (pin-to-pin, pin-to-housing)
Insulation resistance:	> 1 GΩ at 500 VDC (pin-to-pin, pin-to-housing, in new condition)

### MATERIALS

Shaft:	Stainless steel 1.4305
Bushing   housing:	Zinc die casting, fiberglass reinforced high performance plastic
Contact surface:	Cu alloy (Au plated)
Soldering leads:	Cu alloy (tin plated)
Hex nut:	Brass
Slotted nut:	Brass or stainless steel
O-rings:	NBR (nitrile rubber), 70 shore A

### ENVIRONMENTAL DATA

Operating temperature:	-40 to +85 °C (IEC 60068-2-14)
Storage temperature:	-40 to +85 °C (IEC 60068-2-14)
IP sealing against front panel:	IP60 without sealing IP68 with shaft and front panel sealing (2 bar, 1 h)
Vibration:	10 G <sub>RMS</sub> at 10 to 2'000 Hz
Flammability:	UL94-HB

### SOLDERING CONDITIONS

Hand soldering:	< 280 °C during 2 s
Wave soldering:	< 280 °C during 2 s

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United States: +1 510 656 3400