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Product Information

General notes

The printable switching elements with tactile feedback, unlighted or lighted, by means of LED, are characterised by a robust design and various application possibilities.

Mounting

Cosmos modular tact switch is suitable for use with through-hole caps or for installation under membrane-type overlays. Also anti pull-off key caps are available.

The small size and square shape allow the modular switches to be used side by side on 2.54 mm matrix.

Contacts

The Cosmos series offer the customer with the choice of silver or tropicalized gold contacts as 1 normally open.

Contact and terminals are fully sealed against dust, liquid penetrations, soldering and solvent cleaning processes.

Keys

The customer has the selection of lense and key-caps in various colours and shapes.

Marking

Standard markings are available. Custom markings or symbols in different colours are available on request.

Illumination

The illuminated Cosmos is available in red, green and yellow embedded LED. Other LED colours on request.

We reserve the right to modify technical data



All dimensions in mm


Modular tact switch

Modular element usable for Keys \square 12.3 mm | \varnothing 10 mm



Essential Accessories:

-  Key cap square page 6
-  Key square page 5

	Switching action	Contacts	Contact material	Illumination	Typ-Nr.	Component layout	Mounting dimensions	Technical drawing	Circuit drawing	
Modular tact switch standard	M	1 NO	Silver	LED green	81.20101.03	1	1	5	2	0.002
				LED red	81.20101.02	1	1	5	2	0.002
				LED yellow	81.20101.04	1	1	5	2	0.002
				without	81.10101.00	1	1	5	1	0.002
tropicalized	M	1 NO	Gold	LED green	81.22151.03	1	1	5	2	0.002
				LED red	81.22151.02	1	1	5	2	0.002
				LED yellow	81.22151.04	1	1	5	2	0.002
				without	81.12151.00	1	1	5	1	0.002

Switching action: M = Momentary action


Contacts: NO = Normally open

Component layout from page 9, Mounting dimensions from page 9, Technical drawing from page 9, Circuit drawing from page 10

Front

Protective lens

for mounting under foil


	Protective lens	Typ-Nr.	Technical drawing	
Protective lens Lens diameter 11 mm	Plastic transparent	80.00000.97	4	0.001
Lens diameter 7.8 mm	Plastic transparent	80.00000.11	3	0.001

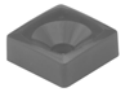


Technical drawing from page 9

Key square

for mounting with front panel cut-out


	Key	Ø 12.3 x 12.3 mm Typ-Nr.	Technical drawing	
Key square	Plastic dark-grey	80.11011.07	6	0.001
	Plastic light-grey	80.11011.09	6	0.001
	Plastic red	80.11011.02	6	0.001



Technical drawing from page 9

Key round

for mounting with front panel cut-out

	Key	Ø 10 mm Typ-Nr.	Technical drawing	
Key round	Plastic dark-grey	80.33033.07	7	0.001
	Plastic light-grey	80.33033.09	7	0.001
	Plastic red	80.33033.02	7	0.001



Technical drawing from page 9

Key cap square


for mounting with front panel cut-out



	Key cap	Lens	Marking	Typ-Nr.	Technical drawing	kg
Key cap square illuminative	Plastic black	transparent	-	83.11072.01	1	0.001
			#	83.11075.01	1	0.001
			÷	83.11055.01	1	0.001
			→	83.11077.01	1	0.001
			*	83.11074.01	1	0.001
			.	83.11076.01	1	0.001
			+	83.11071.01	1	0.001
			=	83.11069.01	1	0.001
			0	83.11036.01	1	0.001
			1	83.11027.01	1	0.001
			2	83.11028.01	1	0.001
			3	83.11029.01	1	0.001
			4	83.11030.01	1	0.001
			5	83.11031.01	1	0.001
			6	83.11032.01	1	0.001
			7	83.11033.01	1	0.001
			8	83.11034.01	1	0.001
			9	83.11035.01	1	0.001
			A	83.11001.01	1	0.001
			B	83.11002.01	1	0.001
C	83.11003.01	1	0.001			
D	83.11004.01	1	0.001			
E	83.11005.01	1	0.001			
F	83.11006.01	1	0.001			
x	83.11070.01	1	0.001			
illuminative, with diffusor disc	Plastic colourless	transparent	without text	83.00000.11	1	0.001
illuminative, without diffusor disc	Plastic colourless	transparent	without text	83.00000.00	1	0.001

Continuation see next page


Continued from previous page

	Key cap	Lens	Marking	Typ-Nr.	Technical drawing	
non-illuminative	Plastic dark grey	opaque	without text	82.00000.07	1	0.001
	Plastic light grey	opaque	-	82.01072.09	1	0.001
			#	82.01075.09	1	0.001
			÷	82.01055.09	1	0.001
			→	82.01077.09	1	0.001
			*	82.01074.09	1	0.001
			.	82.01076.09	1	0.001
			+	82.01071.09	1	0.001
			=	82.01069.09	1	0.001
			0	82.01036.09	1	0.001
			1	82.01027.09	1	0.001
			2	82.01028.09	1	0.001
			3	82.01029.09	1	0.001
			4	82.01030.09	1	0.001
			5	82.01031.09	1	0.001
			6	82.01032.09	1	0.001
			7	82.01033.09	1	0.001
			8	82.01034.09	1	0.001
			9	82.01035.09	1	0.001
			A	82.01001.09	1	0.001
			B	82.01002.09	1	0.001
	C	82.01003.09	1	0.001		
	D	82.01004.09	1	0.001		
E	82.01005.09	1	0.001			
F	82.01006.09	1	0.001			
			without text	82.00000.09	1	0.001
			x	82.01070.09	1	0.001
	Plastic red	opaque	without text	82.00000.02	1	0.001

Technical drawing from page 9

Key cap round

for mounting with front panel cut-out

	Key cap	Typ-Nr.	Technical drawing	
Key cap round non-illuminative	Plastic dark grey opaque	82.33000.07	2	0.001
	Plastic light grey opaque	82.33000.09	2	0.001
	Plastic red opaque	82.33000.02	2	0.001

Technical drawing from page 9



Modular tact switch

Switching system

Switching element

Funktion 1 Normally open

Material

Housing

Polyamide (PA) with Fibreglass, as per UL 94 V0, self-extinguishing

Pushbutton cap

Polycarbonate (PC)

Material of contact

Nickel with 0.5 µm Gold plating for Gold contact

Nickel with 2 µm Silver plating for Silver contact

Mechanical characteristics

Terminals

Plating mean values :

Gold contact 0.5 µm Au

Silver contact 2 µm Ag

LED 8 µm SnAgCu

Actuating force

3.6 N (mean value)

Actuating travel

Travel mean values :

Nominal operating travel 0.35 mm

Maximal travel incl. overtravel 0.5 mm

Over travel 0.15 mm

Rebound time

≤100 µs

Resistance to heat of soldering

Manual soldering 350 °C, 3 sec.

Flow soldering 260 °C, 5 sec.

270 °C, 5 sec., as per EN IEC 60068-20

Electrical characteristics

Operating voltage/-current

Nominal 24 VDC, 125 mA

Maximum Voltage 50 V DC

Minimum Voltage 10 mV (Gold contact), 100 mV (Silver contact)

Minimum Current 500 µA (Gold contact), 1 mA (Silver contact)

Illumination

LED current consumption :

20 mA at 2.1 V (yellow and green)

10 mA at 2.1 V (red)

Isolation resistance

≥1000 MΩ at 100 VDC

Contact resistance

≤20 mΩ

Electrical life

≥1 million cycles of operations at contact power rating

Switch rating

3 W

Electric strength

300 V_{rms}, 50 Hz

Environmental conditions

Storage temperature

-40 °C ... +85 °C (non-illuminated)

-30 °C ... +85 °C (illuminated)

Operating temperature

-25°C ... +85°C

Climate resistance

Damp heat steady :

21 days (Gold contact), 10 days (Silver contact),

as per EN IEC 60068-2-56

Saline mist :

96 hours (Gold contact), 24 hours (Silver contact),

as per EN IEC 60068-2-11

Shock resistance

1000 m/s², as per EN IEC 60512-4

Vibration resistance

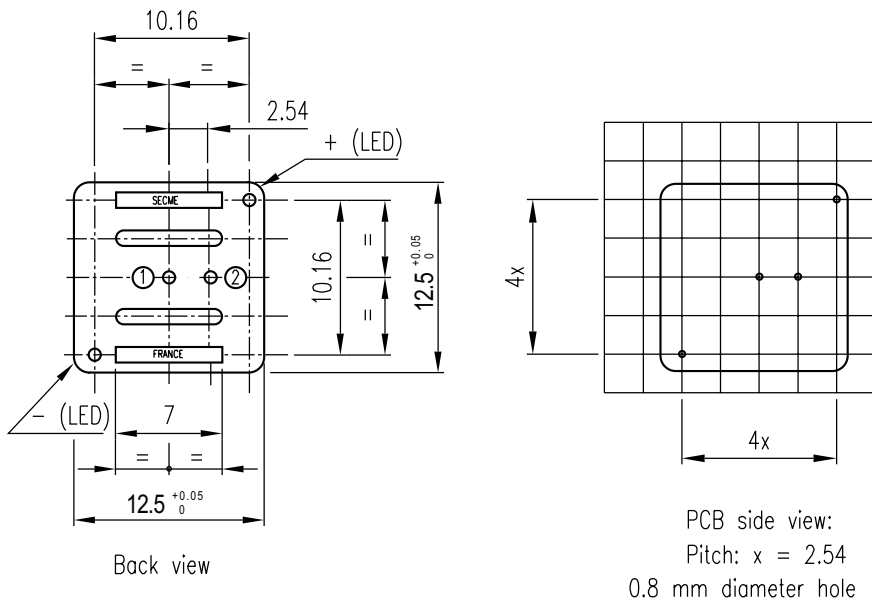
400 m/s², 1000 Hz, 1 min., as per EN IEC 60512-4

Approvals

RoHS compliant

Component layout

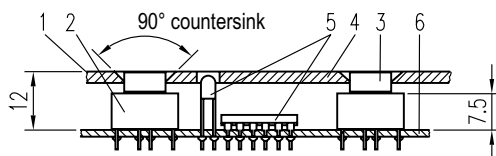
1 Modular tact switch page 4



Mounting dimensions

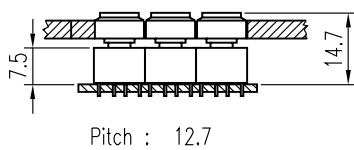
1 Modular tact switch page 4

COSMOS under film layout



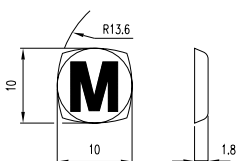
- ① Front panel film: silk-screen printing
- ② COSMOS module
- ③ Protective lens Ø11 (if protection lens Ø7.8 is used, height on PCB is 11.1)
- ④ Device front panel
- ⑤ Components (LEDs, resistors, integrated circuits...)
- ⑥ Printed circuit

COSMOS building block mounting

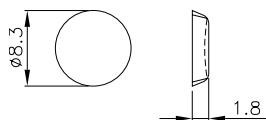


Technical drawing

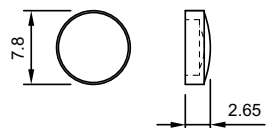
1 Key cap square page 6



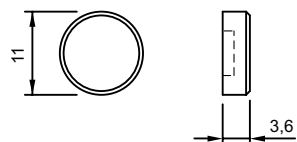
2 Key cap round page 7



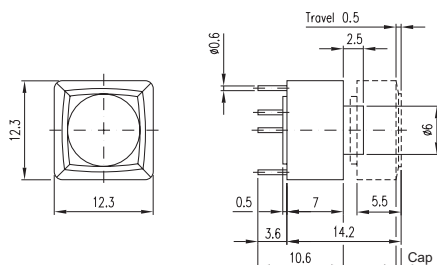
3 Protective lens page 5



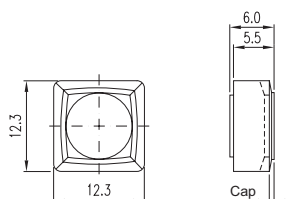
4 Protective lens page 5



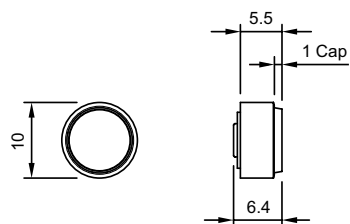
5 Modular tact switch page 4



6 Key square page 5

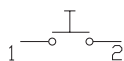


7 Key round page 5

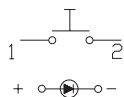


Circuit drawing

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2 Modular tact switch page 4



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80.11011.02	5	83.11055.01	6		
80.11011.07	5	83.11069.01	6		
80.11011.09	5	83.11070.01	6		
80.33033.02	5	83.11071.01	6		
80.33033.07	5	83.11072.01	6		
80.33033.09	5	83.11074.01	6		
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