

modular tact switch



recommended accessories:

- 🛒 Lense → Cosmos.2
- 🛒 square key → Cosmos.2
- 🛒 cap square → Cosmos.3
- 🛒 round key → Cosmos.2
- 🛒 cap round → Cosmos.4

|                                         | contacts | material of contacts       | illumination | part no.    | circuit drawing | technical drawing | mounting dimension | components layout |
|-----------------------------------------|----------|----------------------------|--------------|-------------|-----------------|-------------------|--------------------|-------------------|
| modular tact switch<br>momentary action | 1NO      | gold plated (tropicalized) | green        | 81.22151.03 | 2               | 1                 | 1                  | 1                 |
|                                         |          |                            | red          | 81.22151.02 | 2               | 1                 | 1                  | 1                 |
|                                         |          |                            | without      | 81.12151.00 | 1               | 1                 | 1                  | 1                 |
|                                         |          |                            | yellow       | 81.12151.04 | 2               | 1                 | 1                  | 1                 |
|                                         |          | silver (standard)          | green        | 81.20101.03 | 2               | 1                 | 1                  | 1                 |
|                                         |          |                            | red          | 81.20101.02 | 2               | 1                 | 1                  | 1                 |
|                                         |          |                            | without      | 81.10101.00 | 1               | 1                 | 1                  | 1                 |
|                                         |          |                            | yellow       | 81.20101.04 | 2               | 1                 | 1                  | 1                 |

contacts: NO = normally open  
technical drawing as of page Cosmos.6, mounting dimensions, components layouts as of page Cosmos.7, circuit drawing as of page Cosmos.8

| Lense                   |             |                         |                     |                   |                                                                                     |
|-------------------------|-------------|-------------------------|---------------------|-------------------|-------------------------------------------------------------------------------------|
| for mounting under foil |             |                         |                     |                   |                                                                                     |
|                         |             |                         |                     | technical drawing |                                                                                     |
|                         | colour      | 7,8 mm dia.<br>part no. | Ø 11 mm<br>part no. |                   |                                                                                     |
| Lense                   | transparent | 80.00000.11             | 80.00000.97         | 2                 |  |

technical drawing as of page Cosmos.6

| square key                            |            |  |                            |                   |                                                                                       |
|---------------------------------------|------------|--|----------------------------|-------------------|---------------------------------------------------------------------------------------|
| for mounting with front panel cut-out |            |  |                            |                   |                                                                                       |
|                                       |            |  |                            | technical drawing |                                                                                       |
|                                       | colour     |  | 12,3 x 12,3 mm<br>part no. |                   |                                                                                       |
| square key                            | dark grey  |  | 80.11011.07                | 3                 |  |
|                                       | light grey |  | 80.11011.09                | 3                 |                                                                                       |
|                                       | red        |  | 80.11011.02                | 3                 |                                                                                       |

technical drawing as of page Cosmos.6

| round key                             |            |  |                        |                   |                                                                                       |
|---------------------------------------|------------|--|------------------------|-------------------|---------------------------------------------------------------------------------------|
| for mounting with front panel cut-out |            |  |                        |                   |                                                                                       |
|                                       |            |  |                        | technical drawing |                                                                                       |
|                                       | colour     |  | 10 mm dia.<br>part no. |                   |                                                                                       |
| round key                             | dark grey  |  | 80.33033.07            | 4                 |  |
|                                       | light grey |  | 80.33033.09            | 4                 |                                                                                       |
|                                       | red        |  | 80.33033.02            | 4                 |                                                                                       |

technical drawing as of page Cosmos.6

cap square

for mounting with front panel cut-out

|            |                   |              | ⌀           | technical drawing |  |
|------------|-------------------|--------------|-------------|-------------------|--|
|            | colour            | text         | part no.    |                   |  |
| cap square | black transparent | ÷            | 83.11055.01 | 5                 |  |
|            |                   | →            | 83.11077.01 | 5                 |  |
|            |                   | *            | 83.11074.01 | 5                 |  |
|            |                   | #            | 83.11075.01 | 5                 |  |
|            |                   | +            | 83.11071.01 | 5                 |  |
|            |                   | -            | 83.11072.01 | 5                 |  |
|            |                   | .            | 83.11076.01 | 5                 |  |
|            |                   | 0            | 83.11036.01 | 5                 |  |
|            |                   | 1            | 83.11027.01 | 5                 |  |
|            |                   | 2            | 83.11028.01 | 5                 |  |
|            |                   | 3            | 83.11029.01 | 5                 |  |
|            |                   | 4            | 83.11030.01 | 5                 |  |
|            |                   | 5            | 83.11031.01 | 5                 |  |
|            |                   | 6            | 83.11032.01 | 5                 |  |
|            |                   | 7            | 83.11033.01 | 5                 |  |
|            |                   | 8            | 83.11034.01 | 5                 |  |
|            |                   | 9            | 83.11035.01 | 5                 |  |
|            |                   | =            | 83.11069.01 | 5                 |  |
|            |                   | A            | 83.11001.01 | 5                 |  |
|            |                   | B            | 83.11002.01 | 5                 |  |
|            |                   | C            | 83.11003.01 | 5                 |  |
|            |                   | D            | 83.11004.01 | 5                 |  |
|            |                   | E            | 83.11005.01 | 5                 |  |
|            |                   | f            | 83.11006.01 | 5                 |  |
|            |                   | x            | 83.11070.01 | 5                 |  |
|            | dark grey opaque  | without text | 82.00000.07 | 6                 |  |
|            | light grey opaque | →            | 82.01077.09 | 5                 |  |
|            |                   | ÷            | 82.01055.09 | 5                 |  |
|            |                   | *            | 82.01074.09 | 5                 |  |
|            |                   | #            | 82.01075.09 | 5                 |  |
|            |                   | +            | 82.01071.09 | 5                 |  |
|            |                   | -            | 82.01072.09 | 5                 |  |
|            |                   | .            | 82.01076.09 | 5                 |  |
|            |                   | 0            | 82.01036.09 | 5                 |  |
|            |                   | 1            | 82.01027.09 | 5                 |  |
|            |                   | 2            | 82.01028.09 | 5                 |  |
|            |                   | 3            | 82.01029.09 | 5                 |  |
|            |                   | 4            | 82.01030.09 | 5                 |  |
|            |                   | 5            | 82.01031.09 | 5                 |  |
|            |                   | 6            | 82.01032.09 | 5                 |  |
|            |                   | 7            | 82.01033.09 | 5                 |  |
|            |                   | 8            | 82.01034.09 | 5                 |  |
|            |                   | 9            | 82.01035.09 | 5                 |  |
|            |                   | =            | 82.01069.09 | 5                 |  |
|            |                   | A            | 82.01001.09 | 5                 |  |
|            |                   | B            | 82.01002.09 | 5                 |  |

To be continued on next side

|            |                                   |              | Ø<br>part no. | technical drawing |                                                                                     |
|------------|-----------------------------------|--------------|---------------|-------------------|-------------------------------------------------------------------------------------|
| cap square | light grey opaque                 | colour       |               |                   |  |
|            |                                   | text         |               |                   |                                                                                     |
|            |                                   | C            | 82.01003.09   | 5                 |                                                                                     |
|            |                                   | D            | 82.01004.09   | 5                 |                                                                                     |
|            |                                   | E            | 82.01005.09   | 5                 |                                                                                     |
|            |                                   | f            | 82.01006.09   | 5                 |                                                                                     |
|            |                                   | without text | 82.00000.09   | 6                 |  |
|            |                                   | x            | 82.01070.09   | 5                 |                                                                                     |
|            | red opaque                        | without text | 82.00000.02   | 6                 |                                                                                     |
|            | transparent with diffuser disc    | without text | 83.00000.11   | 6                 |  |
|            | transparent without diffuser disc | without text | 83.00000.00   | 6                 |                                                                                     |
|            |                                   |              |               |                   |  |

technical drawing as of page Cosmos.6

cap round

for mounting with front panel cut-out

|           |                   |        | 8,3 mm dia.<br>part no. | technical drawing |                                                                                       |
|-----------|-------------------|--------|-------------------------|-------------------|---------------------------------------------------------------------------------------|
| cap round | light grey opaque | colour |                         |                   |  |
|           |                   |        | 82.33000.09             | 7                 |                                                                                       |
|           | dark grey opaque  |        | 82.33000.07             |                   |                                                                                       |
|           | red opaque        |        | 82.33000.02             |                   |                                                                                       |

technical drawing as of page Cosmos.6

## Cosmos

### electrical characteristics

- contact power rating**  
3 W
- contact resistance**  
< 20 mΩ
- current**  
nominal: 125 mA,  
minimum:
  - standard contacts Ag: 10 mA,
  - tropicalized Kontak Au: 500 μA
- electric strength**  
at 50 Hz V: 300 V eff.
- insulation resistance**  
at 100 V: > 1000 MΩ
- life time**  
at nominal rating: 10<sup>6</sup> operations
- rebound time**  
< 100 μs
- voltage**  
nominal: 24 V,  
minimum:
  - standard contacts Ag: 100 mV,
  - tropicalized contacts Au: 10 mVmaximum: 50 V

### mechanical characteristics

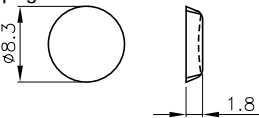
- LED terminal plating**  
8 μ Sn Pb on Ni
- actuating force**  
3 N
- actuating travel**  
mean value 0,4 mm,  
maximum incl. overtravel (mean value): 0,65 mm
- contact plating**  
mean value: standard contacts Ag: 2 μ Ag on Ni,  
tropicalized contacts Au: 0,5 μ Au on Ni
- insulation**  
glass filled polyimide self-extinguishing 94 V-0 (UL-94)
- overtravel**  
0,25 mm
- resistance to shock**  
(IEC 512-4) 100 g
- resistance to vibrations**  
amplitude 1,5 mm (IEC 512-4): 2000 Hz/10 g
- shaking resistance**  
(IEC 512-4) 40 g/1000 Hz
- soldering at 250°C**  
(IEC 512-6) 5 s
- terminal plating**  
mean value: standard contacts Ag: 2 μ Ag on Ni,  
tropicalized contacts Au: 0,5 μ Au on Ni

### climatic characteristics

- damp heat**  
(IEC 512-6) standard contacts Ag: 10 days,  
tropicalized contacts Au: 21 days
- sealing**  
(IEC 68-2-45) soldering and cleaning in solvents by immersion,  
CFC and HCFC compatible.
- service temperature**  
-25°C + 85°C
- soldering**  
250°C/5s
- storage temperature**  
-40°C + 85°C, illuminated version -30°C + 85°C



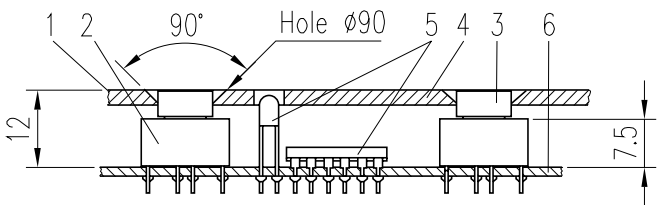
7 cap round  
page Cosmos.4



Mounting Dimension

1 modular tact switch  
page Cosmos.1

COSMOS under film layout



- ① Front panel film: silk-screen printing

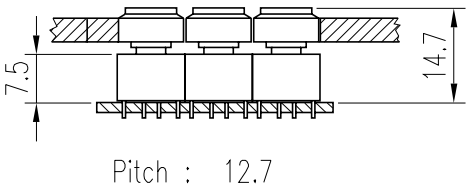
② COSMOS module

③ Protective lens  $\varnothing 11$  (if protection lens  $\varnothing 7.8$  is used, height on PCB is 11.1)
- ④ Device front panel

⑤ Components (LEDs, resistors, integrated circuits...)

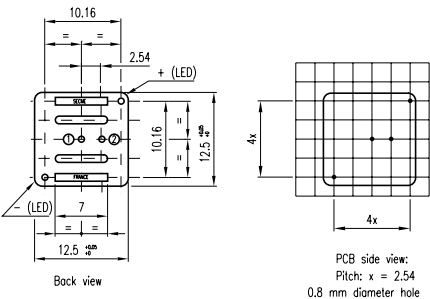
⑥ Printed circuit

COSMOS building block mounting



Components Layouts

1 modular tact switch  
page Cosmos.1



|   | circuit drawing                                                                   |
|---|-----------------------------------------------------------------------------------|
| 1 |  |
| 2 |  |