

General Notes

The Series 01 illuminated pushbuttons are equipped with snap-action, low level switching elements.

In addition to the standard contacts (gold-plated silver), on request silver contacts for switching elements 2.8 mm plug-in terminals are available. The front dimensions of these units are 18 x 24 mm, 18 x 18 mm or 18 mm dia.

In addition to a number of illuminated pushbuttons, the customer can choose from a wide range of other units and accessories having the same front and mounting dimensions.

Mounting

Mount from the front through the mounting hole.

The universal terminals of the low-level switching elements permit them to be mounted on printed circuit boards (PCB).

These terminals are also suitable for dip soldering. For these terminals we can also supply a plug-in base which, when soldered on to the board, enables the switch to be plugged in. All rectangular switches are secured against rotation.

Lenses

The flat lenses, made of polymethyl methacrylate, are obtainable in various colours, as well as translucent or transparent.

Marking

For engraving, hot stamping and film inserts, see under "Marking" on page 33.

Illumination

Perfect illumination of the different coloured lenses is assured by lamps T 5,5 (6-60 V).

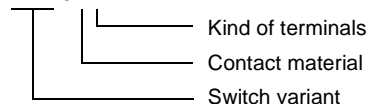
For supply voltages above 60 V, it is necessary to use a voltage reduction element (external series resistor, capacitor, or transformer). Do not solder the terminals directly, because of the high surface temperature. Multi-LED lamps T 5,5 (6, 12, 24, 48 V) are available in the colours white, red, yellow and green.

Position Indication

When a switch with maintained action is actuated, the lens remains in the depressed position mechanically. The state of the switch is apparent at all times from the position of the lens.

Number structure

01-XXX.OXX



01-9XX.X

Lens

Example:

-Illuminated pushbutton, circular; momentary action, gold-plated silver contact; soldered terminals, 1 switching element
01-131.025

-Lens red

01-983.2

Specimen order

Indicator:

- indicator, soldering terminals, 18 x 24 mm 01-040.005

Recommended accessories:

- lens, blue, 18 x 24 mm 01-982.6

- LED, 1 chip, 12 VDC, white 10-2109.3139

All dimensions in mm.

We reserve the right to modify technical data.

illuminated-/pushbutton



recommended accessories:

lens → 19

incandescent lamp → 21; LED → 22

illuminated-/pushbutton	switching system	contacts	diode (1N 4007)	switching action	connection method	18 x 24 mm			circuit drawing	technical drawing	mounting dimension	components layout		
						part no.	part no.	part no.						
illuminated-/pushbutton	LL	1NC	-	main	UT	01-466.036	01-486.036	01-476.036	14	3	1	1	0,009	
				mom	UT	01-426.036	01-456.036	01-436.036	28	3	1	1	0,009	
		1NC + 1NO	-	main	UT	01-463.036	01-483.036	01-473.036	17	3	1	1	0,009	
				mom	UT	01-423.036	01-453.036	01-433.036	31	3	1	1	0,009	
		1NO	-	main	UT	01-465.036	01-485.036	01-475.036	16	3	1	1	0,009	
				mom	UT	01-425.036	01-455.036	01-435.036	30	3	1	1	0,009	
		2NC	-	main	UT	01-462.036	01-482.036	01-472.036	15	3	1	1	0,009	
				mom	UT	01-422.036	01-452.036	01-432.036	29	3	1	1	0,009	
		2NO	-	main	UT	01-461.036	01-481.036	01-471.036	18	3	1	1	0,009	
				mom	UT	01-421.036	01-451.036	01-431.036	32	3	1	1	0,009	
		SA	1NC + 1NO	-	main	ST/PT	01-261.022	01-281.022	01-271.022	10	4	1	-	0,008
						ST	01-261.025	01-281.025	01-271.025	13	4	1	-	0,008
	mom				ST/PT	01-121.022	01-151.022	01-131.022	24	4	1	-	0,008	
					ST	01-121.025	01-151.025	01-131.025	27	4	1	-	0,008	
	1			main	UT	01-713.029	01-717.029	01-747.029	11	5	1	1	0,010	
					mom	UT	01-705.029	01-709.029	01-743.029	25	5	1	1	0,010
				2	main	UT	01-714.029	01-718.029	01-748.029	12	5	1	1	0,010
					mom	UT	01-706.029	01-710.029	01-744.029	26	5	1	1	0,010
	2NC + 2NO		-	main	ST	01-262.025	01-282.025	01-272.025	9	4	1	-	0,010	
				mom	ST	01-122.025	01-152.025	01-132.025	23	4	1	-	0,010	
			1	main	UT	01-715.029	01-719.029	01-749.029	7	5	1	1	0,012	
				mom	UT	01-707.029	01-711.029	01-745.029	21	5	1	1	0,012	
	2	main	UT	01-716.029	01-720.029	01-750.029	8	5	1	1	0,012			
		mom	UT	01-708.029	01-712.029	01-746.029	22	5	1	1	0,012			
3NC + 3NO	-	main	ST	01-263.025	01-283.025	01-273.025	6	4	1	-	0,012			
		mom	ST	01-123.025	01-153.025	01-133.025	20	4	1	-	0,012			
4NC + 4NO	-	main	ST	01-264.025	01-284.025	01-274.025	5	4	1	-	0,014			
		mom	ST	01-124.025	01-154.025	01-134.025	19	4	1	-	0,014			

switching system: LL = Low Level switching element, SA = snap-action switching element

switching action: main = maintained action, mom = momentary action

connection method: ST = soldering terminal; PT = plug-in terminal; UT = universal terminal; PCB plug-in base page 20

contacts: NC = normally closed, NO = normally open

power rating: Low Level switching element: 42 V/100 mA, snap-action switching element: 250 V/5 A

marking see page 33

technical drawing as of page 27, mounting dimensions, components layouts as of page 29, circuit drawing as of page 31

actuator with snap-action switching element

switching system

Self-cleaning, double-break, snap action switching system. (with contact gap 2 x 0.5 mm).

1 normally closed or 1 normally open contact per element. snap-action switching elements with soldering terminals at the sides: up to 4 switching element can be on a pushbutton (max. 4 normally closed and 4 normally open contacts).

snap-action switching element with axial plug-in terminals 2,8 mm not stachable, only 1 switching element can be on a pushbutton.

material

actuator case

polyphenylene PPO, self-extinguishing

material of contacts

gold-plated silver

switching element

axial plug-in-/soldering terminal 2.8 mm:

diallyl phthalate DAP, polyamide 66, polysulfone, heat-resistant and self-extinguishing

soldering terminal: PA 6.6 Ultramid

mechanical characteristics

actuating force

2-5.5 N, depending on the number of switching elements

actuating travel

3 mm

ambient air temperature

-25°C to +55°C

for indicators and illuminated pushbuttons mounted as a block, make sure the heat can escape freely (as per DIN IEC 68-)

connection method

snap-action switching element with tinned soldering terminals at the sides:

max. wire diameter: 2 wires of 1.2 mm

max. wire cross-section of stranded cable: 1x 1 mm².

snap-action switching element with axial plug-in terminals, which can also be used as soldering terminals:

plug-in terminal: 2.8 x 0.5 mm

soldering terminal:

max. wire diameter: 2 wires of 1 mm²

max. wire cross-section of stranded cable: 2 x 0.75 mm² or 1 x 1.0 mm²

degree of protection

front as per IEC 529:

IP 40

IP 67 with spray cover

mechanical life

momentary action 2 million cycles of operation

maintained action 1 million cycles of operation

rebound time

<= 5ms

resistance to climate

standard condition as per IEC 68-2-3 and 2-30

changing condition as per IEC 68-2-14 and 2-33

resistance to shock

(single impacts, semi-sinusoidal)

15 g for 11 ms as per IEC 512-4-3, IEC 68-2-27

resistance to vibration

(sinusoidal)

10 g at 0-2000 Hz, amplitude 1.5 mm as per IEC 512-4-4, IEC 68-2-6

storage temperature

-40°C to + 85°C

(as per DIN IEC 68-)

electrical characteristics

continuous thermal current I_{th2}

5 A

The maximum current in continuous operation and at ambient temperature not exceeding the quoted maximum values.

electric strength

2500 VAC, 50 Hz, 1 min. between all terminals and earth, as per IEC 512-2-11.

protection class

II

rated current

5 A

rated voltage

250 VAC/VDC

switch rating

250 VAC/5 A (cos φ 1)

250 VAC/3 A (cos φ 0.3)

switch rating AC, cos φ 0,7:

voltage 125 V 250 V

current 3 A 2 A

switch rating DC (inductive), L:R = 30 ms:

voltage 24 V 60 V 110 V 220 V

current 2 A 0,7 A 0,2 A 0,1 A

volume resistance

starting value (initial) <= 50 mΩ

rules

IEC 1058 EN 61 058

approvals

- SEV 250 VAC/5A

- CSA 300 VAC

- UL

actuator with Low Level switching element

switching system

This low level switching element was designed for switching low powers in electronic circuits. The mechanism assures reliable switching of loads ranging from a few μA/μV up to 100 mA/42 VAC/ VDC.

Single-break momentary contact, as normally open or normally closed with 4 independent points of contact. 2 momentary contacts per switching element; combination of normally open and normally closed is possible.

Special features are the long life, extremely short rebound time and stable contact resistance.

material

actuator case

polyphenylene PPO, self-extinguishing

material of contacts

gold-plated

Technical Data

switching element

polysulfone, heat-resistant and self-extinguishing

mechanical characteristics

actuating force

3-3.5 N

actuating travel

3 mm

ambient air temperature

-25°C to +55°C

for indicators and illuminated pushbuttons mounted as a block ,
make sure the heat can escape freely
(as per DIN IEC 68-)

connection method

The universal terminals permit these units to be mounted on printed circuit boards (PCB). These terminals can also be used as soldering or plug-in terminals.

For these terminals we can also supply a plug-in base which, when soldered on to the board, enables the switch to be plugged in.

soldering terminal:

max. wire diameter: 2 wires à 0.8 mm

max. wire cross-section of stranded cable: 1x 0.75 mm²

plug-in terminal:

2.0 x 0.5 mm

degree of protection

front as per IEC 529:

IP 40

IP 67 with spray cover

mechanical life

momentary action 5 mio. cycles of operation

maintained action 1 mio. cycles of operation

rebound time

Typ. < 100 µs

resistance to climate

standard condition as per IEC 68-2-3 and 2-30

changing condition as per IEC 68-2-14 and 2-33

resistance to shock

(single impacts, semi-sinusoidal)

15 g for 11 ms as per IEC 512-4-3, IEC 68-2-27

storage temperature

-40°C to + 85°C

(as per DIN IEC 68-)

electrical characteristics

electric strength

2500 VAC, 50 Hz, 1 min. between all terminals and earth, as per IC 512-2-11.

protection class

II

switch rating

10 µA/100 µV to 100 mA at 42 VAC/VDC

volume resistance

starting value (initial) <= 50 mΩ

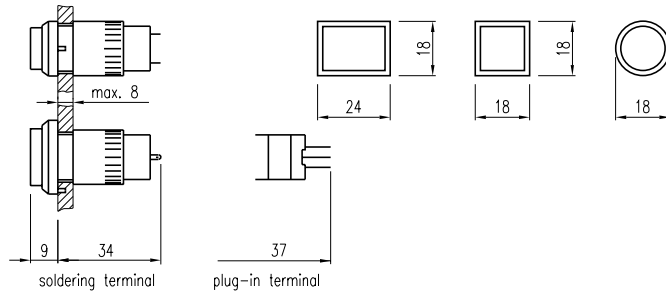
rules

EN 61 058

technical drawing

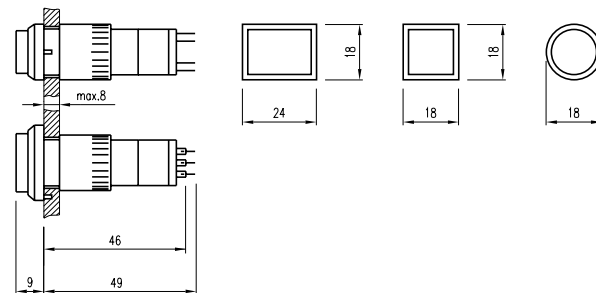
1 indicator

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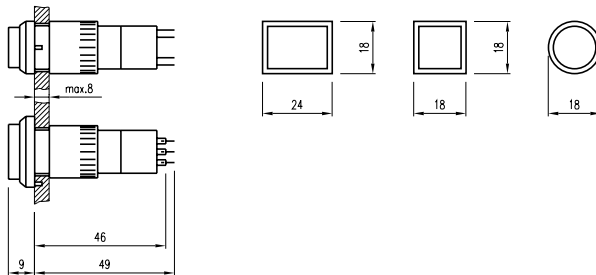
2 indicator

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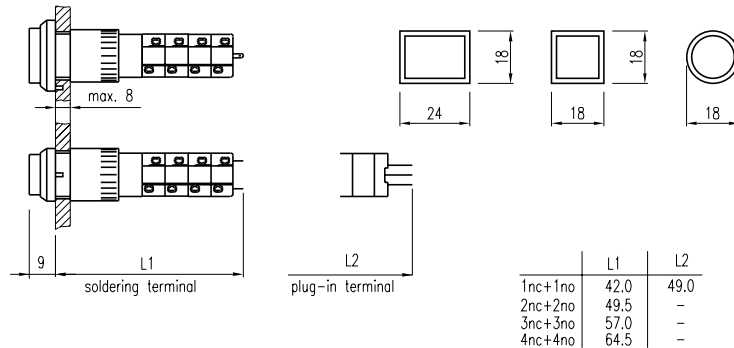
3 indicator, illuminated-/pushbutton

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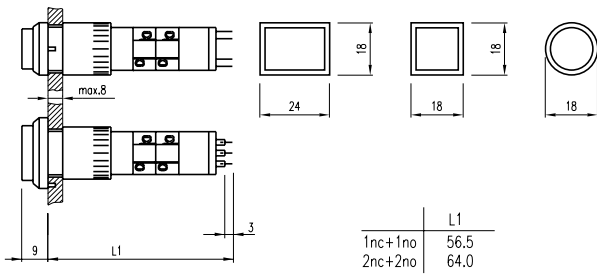
4 illuminated-/pushbutton

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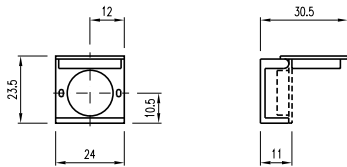
5 illuminated-/pushbutton

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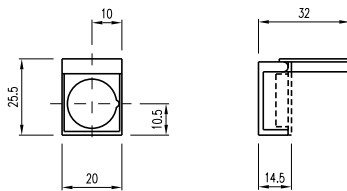
6 protective cover

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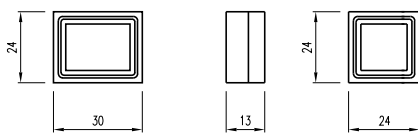
7 protective cover

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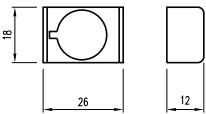
8 sprayproof cover

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9 protective guard

page 20



10 protective guard

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