



Index

Series 14

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General Notes

The illuminated pushbuttons with 1 metre Immersion proof front (IP 67) combine the robust actuators of series 04 with gold plated silver snap-action, low-level switching elements silver contacts for switching elements 2.8 mm plug-in terminals can be supplied on request for 1 changeover only.
The range includes pushbuttons, keylock switches and selector switches.

Mounting

Mounting from the front through the mounting hole either 22.5 mm diameter for raised or 30.5 mm diameter for flush.
The pushbuttons are screwed to the panel by means of a front ring and prevented from twisting by two screws.
To ensure correct positioning of the pushbuttons we can provide a positioning insert on request.
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.

Lenses

The flat lenses, made of polyamide, are available in various colours, as well as translucent or transparent.

Marking

For engravings, hot stamping and film inserts, see "Marking" on page 366.

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-LEDs T 5,5 (6, 12, 24, 48 V) are available in the colours white, red, yellow and green.

Position Indicating

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.

Keylock switches

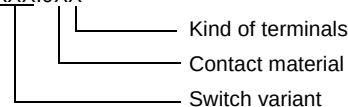
Safety lock (Index K).
Single locks (2 positions).
10 different locks with standard numbers 1001-1010. If the lock number is not specified, we will supply No. 1001. An additional 690 locks with numbers 1011-1700 are available on request. For numbers 1001-1700 no master key can be supplied. Two keys are supplied with each keylock switch.
Spare keys for KABA safety locks may be ordered by quoting No. 14-987 (please state the lock number).

Combined locking systems

Information supplied on request.

Number structure

14-XXX.OXX



Example:

- Illuminated pushbutton; momentary action, gold-plated silver contact; soldering terminals; 1 switching element
14-131.025
- Lens red, transparent
704.602.2
- Front ring; aluminium, natural anodized
704.600.1
- Marking plate; white, translucent
704.609.9

Specimen order

Indicator front illumination

- indicator front illumination, soldering terminal 14-040.005

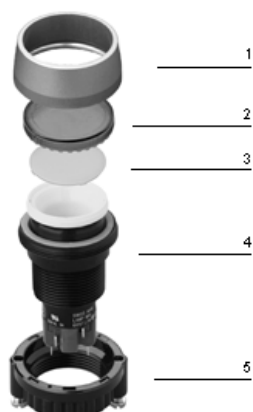
Recommended accessories:

- lens plastic, opaque black 704.6020
- marking foil for lens plastic/metal black 704.609.0
- front ring, aluminium black 704.6020
- LED. 1 chip, 12 VDC, white 10-2109.3139

All dimensions in mm.

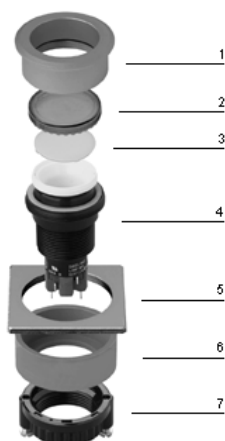
We reserve the right to modify technical data.

illuminated-/pushbutton



- 1 front ring
- 2 lens
- 3 marking plate
- 4 switch housing
- 5 fixing nut

pushbutton-/illuminated pushbutton for flush mounting



- 1 front bezel bracket for flush mounting
- 2 lens
- 3 marking plate
- 4 switch housing
- 5 front panel
- 6 pressure ring
- 7 fixing nut

indicator front illumination



recommended accessories:

- d lens plastic → 345
- d marking foil for lens plastic/metal → 346
- d front ring → 347
- d incandescent lamp → 350; LED → 350

	connection method	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e
indicator front illumination	ST/ PT	14-040.002	2	1	1	-	0,050
	ST	14-040.005	2	1	1	-	0,050
	UT	14-041.006	1	1	1	1	0,050

connection method: ST = soldering terminal; PT = plug-in terminal; UT = universal terminal; PCB plug-in base page 349

marking see page 366

technical drawing as of page 355, mounting dimensions as of page 361, components layouts as of page 362, circuit drawing as of page 364

indicator full face illumination



recommended accessories:

- d lens cap for indicator full face illumination → 346
- d marking cap for lens cap for indicator full face illumination → 347
- d incandescent lamp → 350; LED → 350

	diodes	connection method	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e
indicator full face illumination	-	ST/ PT	14-030.002	2	1	1	-	0,010
		ST	14-030.005	2	1	1	-	0,010
		UT	14-031.006	1	1	1	1	0,011
	1	UT	14-741.006	3	2	1	1	0,011
	2	UT	14-742.006	4	2	1	1	0,011

connection method: ST = soldering terminal; PT = plug-in terminal; UT = universal terminal; PCB plug-in base page 349

marking see page 366

technical drawing as of page 355, mounting dimensions as of page 361, components layouts as of page 362, circuit drawing as of page 364

illuminated-/pushbutton front illumination



recommended accessories:

- d lens plastic → 345; lens metal → 345
- d marking foil for lens plastic/metal → 346
- d lens raised, plastic → 345
- d marking cap for lens raised plastic/metal → 346
- d front ring → 347
- d incandescent lamp → 350; LED → 350

	switching system	contacts	diode (1N 4007)	switching action	connection method	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e
illuminated-/pushbutton front illumination	LL	1NC	-	main	UT	14-476.036	13	5	1	1	0,015
				mom	UT	14-436.036	26	5	1	1	0,015
		1NC + 1NO	-	main	UT	14-473.036	16	5	1	1	0,015
				mom	UT	14-433.036	29	5	1	1	0,015
		1NO	-	main	UT	14-475.036	15	5	1	1	0,015
				mom	UT	14-435.036	28	5	1	1	0,015
		2NC	-	main	UT	14-472.036	14	5	1	1	0,015
				mom	UT	14-432.036	27	5	1	1	0,015
		2NO	-	main	UT	14-471.036	17	5	1	1	0,015
				mom	UT	14-431.036	30	5	1	1	0,015
	SA	1NC + 1NO	-	main	ST/PT	14-271.022	12	3	1	-	0,013
					ST	14-271.025	12	3	1	-	0,013
				mom	ST/PT	14-131.022	25	3	1	-	0,013
					ST	14-131.025	25	3	1	-	0,013
			1	main	UT	14-747.029	10	4	1	1	0,014
				mom	UT	14-743.029	23	4	1	1	0,014
			2	main	UT	14-748.029	11	4	1	1	0,014
				mom	UT	14-744.029	24	4	1	1	0,014
		2NC + 2NO	-	main	ST	14-272.025	9	3	1	-	0,015
				mom	ST	14-132.025	22	3	1	-	0,015
			1	main	UT	14-749.029	7	4	1	1	0,016
				mom	UT	14-745.029	20	4	1	1	0,016
			2	main	UT	14-750.029	8	4	1	1	0,016
				mom	UT	14-746.029	21	4	1	1	0,016
		3NC + 3NO	-	main	ST	14-273.025	6	3	1	-	0,017
				mom	ST	14-133.025	19	3	1	-	0,017
		4NC + 4NO	-	main	ST	14-274.025	5	3	1	-	0,019
				mom	ST	14-134.025	18	3	1	-	0,019

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 349

contacts: NC = normally closed, NO = normally open

marking see page 366

technical drawing as of page 355. mounting dimensions as of page 361. components layouts as of page 362. circuit drawing as of page 364

pushbutton with mushroom-head cap



recommended accessories:

- d mushroom-head cap → 346
- d marking plate for mushroom-head cap → 346
- d front ring → 347

	switching system	contacts	switching action	connection method	40 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e
pushbutton with mushroom-head cap	LL	1NC	main	UT	14-476.036	13	7	2	1	0,015
			mom	UT	14-436.036	26	7	2	1	0,015
		1NC + 1NO	main	UT	14-473.036	16	7	2	1	0,015
			mom	UT	14-433.036	29	7	2	1	0,015
		1NO	main	UT	14-475.036	15	7	2	1	0,015
			mom	UT	14-435.036	28	7	2	1	0,015
		2NC	main	UT	14-472.036	14	7	2	1	0,015
			mom	UT	14-432.036	27	7	2	1	0,015
		2NO	main	UT	14-471.036	17	7	2	1	0,015
			mom	UT	14-431.036	30	7	2	1	0,015
	SA	1NC + 1NO	main	ST/ PT	14-271.022	12	6	2	-	0,013
				ST	14-271.025	12	6	2	-	0,013
			mom	ST/ PT	14-131.022	25	6	2	-	0,013
				ST	14-131.025	25	6	2	-	0,013
		2NC + 2NO	main	ST	14-272.025	9	6	2	-	0,015
			mom	ST	14-132.025	22	6	2	-	0,015
		3NC + 3NO	main	ST	14-273.025	6	6	2	-	0,017
			mom	ST	14-133.025	19	6	2	-	0,017
		4NC + 4NO	main	ST	14-274.025	5	6	2	-	0,019
			mom	ST	14-134.025	18	6	2	-	0,019

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 349

contacts: NC = normally closed, NO = normally open

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illuminated pushbutton with mushroom-head cap



recommended accessories:

- d mushroom-head cap illuminated → 346
- d marking plate for mushroom-head cap → 346
- d front ring → 347
- d incandescent lamp → 350; LED → 350

	switching system	contacts	diode (1N 4007)	switching action	connection method	40 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e
illuminated pushbutton with mushroom-head cap	LL	1NC	-	main	UT	14-476.036	18	7	2	1	0,015
				mom	UT	14-436.036	19	7	2	1	0,015
		1NC + 1NO	-	main	UT	14-473.036	9	7	2	1	0,015
				mom	UT	14-433.036	12	7	2	1	0,015
		1NO	-	main	UT	14-475.036	22	7	2	1	0,015
				mom	UT	14-435.036	25	7	2	1	0,015
		2NC	-	main	UT	14-472.036	12	7	2	1	0,015
				mom	UT	14-432.036	25	7	2	1	0,015
		2NO	-	main	UT	14-471.036	5	7	2	1	0,015
				mom	UT	14-431.036	6	7	2	1	0,015
	SA	1NC + 1NO	-	main	ST/PT	14-271.022	27	6	2	-	0,013
					ST	14-271.025	26	6	2	-	0,013
				mom	ST/PT	14-131.022	30	6	2	-	0,013
					ST	14-131.025	28	6	2	-	0,013
			1	main	UT	14-747.029	10	8	2	1	0,014
				mom	UT	14-743.029	23	8	2	1	0,014
			2	main	UT	14-748.029	11	8	2	1	0,014
				mom	UT	14-744.029	24	8	2	1	0,014
		2NC + 2NO	-	main	ST	14-272.025	15	6	2	-	0,015
				mom	ST	14-132.025	27	6	2	-	0,015
			1	main	UT	14-749.029	7	8	2	1	0,016
				mom	UT	14-745.029	20	8	2	1	0,016
			2	main	UT	14-750.029	8	8	2	1	0,016
				mom	UT	14-746.029	21	8	2	1	0,016
		3NC + 3NO	-	main	ST	14-273.025	13	6	2	-	0,017
				mom	ST	14-133.025	17	6	2	-	0,017
		4NC + 4NO	-	main	ST	14-274.025	16	6	2	-	0,019
				mom	ST	14-134.025	14	6	2	-	0,019

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 349

contacts: NC = normally closed, NO = normally open

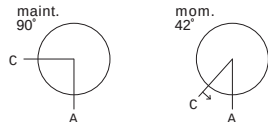
marking see page 366

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keylock switch 2 positions



recommended accessories:



	switching system	contacts	switching action	connection method	key removable in	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e		
keylock switch 2 positions pos. A: basic position pos. C: maintaining position standard lock 1001, other lock numbers on request	LL	1NC + 1NO	main	UT	A	14-415.036K	41	10	1	1	0,030		
					A+C	14-412.036K	41	10	1	1	0,030		
					C	14-418.036K	41	10	1	1	0,030		
		2NO	main	UT	A	14-414.036K	42	10	1	1	0,030		
					A+C	14-411.036K	42	10	1	1	0,030		
					C	14-417.036K	42	10	1	1	0,030		
	SA	1NC + 1NO	main	ST/ PT	A	14-235.022K	37	9	1	-	0,029		
					A+C	14-135.022K	37	9	1	-	0,029		
					C	14-335.022K	37	9	1	-	0,029		
				ST	A	14-235.025K	37	9	1	-	0,029		
					A+C	14-135.025K	43	9	1	-	0,029		
					C	14-335.025K	37	9	1	-	0,029		
				2NC + 2NO	main	ST	A	14-236.025K	38	9	1	-	0,031
							A+C	14-136.025K	38	9	1	-	0,031
							C	14-336.025K	38	9	1	-	0,031
3NC + 3NO		main	ST	A	14-237.025K	39	9	1	-	0,033			
				A+C	14-137.025K	39	9	1	-	0,033			
				C	14-337.025K	39	9	1	-	0,033			
4NC + 4NO	main	ST	A	14-238.025K	40	9	1	-	0,035				
			A+C	14-138.025K	40	9	1	-	0,035				
			C	14-338.025K	40	9	1	-	0,035				
pos. A: basic position pos. C: momentary position standard lock1001, other lock numbers on request	LL	1NC + 1NO	mom	UT	A	14-438.036K	35	10	1	1	0,030		
		2NO	mom	UT	A	14-437.036K	36	10	1	1	0,030		
	SA	1NC + 1NO	mom	ST/ PT	A	14-141.022K	31	9	1	-	0,029		
				ST	A	14-141.025K	31	9	1	-	0,029		
		2NC + 2NO	mom	ST	A	14-142.025K	32	9	1	-	0,031		
		3NC + 3NO	mom	ST	A	14-143.025K	33	9	1	-	0,033		
		4NC + 4NO	mom	ST	A	14-144.025K	34	9	1	-	0,035		

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 349

contacts: NC = normally closed, NO = normally open

Keylock switches are supplied with 2 keys.

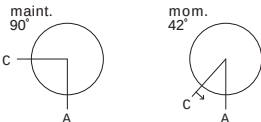
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selector switch 2 positions



recommended accessories:

 maint. 90° C A mom. 42° C A	lever	switching system	contacts	switching action	connection method	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e
selector switch 2 positions pos. A: basic position	long, black	LL	1NC + 1NO	main	UT	14-572.0360	56	12	3	1	0,025
				mom	UT	14-567.0360	49	12	3	1	0,025
			2NC	main	UT	14-571.0360	55	12	3	1	0,025
				mom	UT	14-566.0360	48	12	3	1	0,025
			2NO	main	UT	14-570.0360	57	12	3	1	0,025
				mom	UT	14-565.0360	50	12	3	1	0,025
		SA	1NC + 1NO	main	ST/ PT	14-556.0220	51	11	3	-	0,024
					ST	14-556.0250	51	11	3	-	0,024
				mom	PT	14-551.0220	44	11	3	-	0,024
					ST	14-551.0250	44	11	3	-	0,024
			2NC + 2NO	main	ST	14-557.0250	52	11	3	-	0,026
				mom	ST	14-552.0250	45	11	3	-	0,026
			3NC + 3NO	main	ST	14-558.0250	53	11	3	-	0,028
				mom	ST	14-553.0250	46	11	3	-	0,028
			4NC + 4NO	main	ST	14-559.0250	54	11	3	-	0,030
				mom	ST	14-554.0250	47	11	3	-	0,030
	short, black	LL	1NC + 1NO	main	UT	14-522.0360	56	14	1	1	0,025
				mom	UT	14-517.0360	49	14	1	1	0,025
			2NC	main	UT	14-521.0360	55	14	1	1	0,025
				mom	UT	14-516.0360	48	14	1	1	0,025
			2NO	main	UT	14-520.0360	57	14	1	1	0,025
				mom	UT	14-515.0360	50	14	1	1	0,025
		SA	1NC + 1NO	main	ST/ PT	14-506.0220	51	13	1	-	0,024
					ST	14-506.0250	51	13	1	-	0,024
				mom	ST/ PT	14-501.0220	44	13	1	-	0,024
					ST	14-501.0250	44	13	1	-	0,024
			2NC + 2NO	main	ST	14-507.0250	52	13	1	-	0,026
				mom	ST	14-502.0250	45	13	1	-	0,026
			3NC + 3NO	main	ST	14-508.0250	53	13	1	-	0,028
				mom	ST	14-503.0250	46	13	1	-	0,028
			4NC + 4NO	main	ST	14-509.0250	54	13	1	-	0,030
				mom	ST	14-504.0250	47	13	1	-	0,030

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 349

contacts: NC = normally closed, NO = normally open

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buzzer



recommended accessories:

-

			connection method	29 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	e
buzzer	operation voltage 24 VDC	brass chromium-plated	ST/ PT	14-810.902	58	15	1	0,016
		plastic, black	ST/ PT	14-810.002	58	15	1	0,016

connection method: ST = soldering terminal; PT = plug-in terminal; PCB plug-in base page 349
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indicator for flush mounting



- recommended accessories:
- d lens plastic → 345
 - d marking foil for lens plastic/metal → 346
 - d front bezel-set for flush mounting → 347
 - d incandescent lamp → 350; LED → 350

	connection method	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e
indicator for flush mounting	ST/ PT	14-040.002	2	16	4	-	0,050
	ST	14-040.005	2	16	4	-	0,050
	UT	14-041.006	2	16	4	1	0,050

connection method: ST = soldering terminal; PT = plug-in terminal; UT = universal terminal; PCB plug-in base page 349
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illuminated-/pushbutton for flush mounting



recommended accessories:

- d lens plastic → 345; lens metal → 345
- d marking foil for lens plastic/metal → 346
- d lens raised, plastic → 345
- d marking cap for lens raised plastic/metal → 346
- d front bezel-set for flush mounting → 347
- d incandescent lamp → 350; LED → 350

	switching system	contacts	diode (1N 4007)	switching action	connection method	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e
illuminated-/pushbutton for flush mounting	LL	1NC	-	main	UT	14-476.036	13	18	4	1	0,015
				mom	UT	14-436.036	26	18	4	1	0,015
		1NC + 1NO	-	main	UT	14-473.036	16	18	4	1	0,015
				mom	UT	14-433.036	29	18	4	1	0,015
		1NO	-	main	UT	14-475.036	15	18	4	1	0,015
				mom	UT	14-435.036	28	18	4	1	0,015
		2NC	-	main	UT	14-472.036	14	18	4	1	0,015
				mom	UT	14-432.036	27	18	4	1	0,015
		2NO	-	main	UT	14-471.036	17	18	4	1	0,015
				mom	UT	14-431.036	30	18	4	1	0,015
	SA	1NC + 1NO	-	main	ST/PT	14-271.022	12	18	4	-	0,013
					ST	14-271.025	12	18	4	-	0,013
				mom	ST/PT	14-131.022	25	18	4	-	0,013
					ST	14-131.025	25	18	4	-	0,013
			1	main	UT	14-747.029	10	17	4	1	0,014
				mom	UT	14-743.029	23	17	4	1	0,014
			2	main	UT	14-748.029	11	17	4	1	0,014
				mom	UT	14-744.029	24	17	4	1	0,014
		2NC + 2NO	-	main	ST	14-272.025	9	18	4	-	0,015
				mom	ST	14-132.025	22	18	4	-	0,015
			1	main	UT	14-749.029	7	17	4	1	0,016
				mom	UT	14-745.029	20	17	4	1	0,016
			2	main	UT	14-750.029	8	17	4	1	0,016
				mom	UT	14-746.029	21	17	4	1	0,016
		3NC + 3NO	-	main	ST	14-273.025	6	18	4	-	0,017
				mom	ST	14-133.025	19	18	4	-	0,017
		4NC + 4NO	-	main	ST	14-274.025	5	18	4	-	0,019
				mom	ST	14-134.025	18	18	4	-	0,019

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 349

contacts: NC = normally closed, NO = normally open

[description see page 331](#)

[technical drawing as of page 355](#), [mounting dimensions as of page 361](#), [components layouts as of page 362](#), [circuit drawing as of page 364](#)

keylock switch 2 positions for flush mounting



recommended accessories:

d front bezel-set for flush mounting → 347

d anti-twisting ring → 352

	switching system	contacts	switching action	connection method	key removable in	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	components layout	e
keylock switch 2 positions for flush mounting pos. A: basic position pos. C: maintaining position standard lock 1001, other lock numbers on request	LL	1NC + 1NO	main	UT	A	14-415.036K	41	19	4	1	0,030
					A+C	14-412.036K	41	19	4	1	0,030
					C	14-418.036K	41	19	4	1	0,030
		2NO	main	UT	A	14-414.036K	42	19	4	1	0,030
					A+C	14-411.036K	42	19	4	1	0,030
					C	14-417.036K	42	19	4	1	0,030
	SA	1NC + 1NO	main	ST/PT	A	14-235.022K	37	19	4	-	0,029
					A+C	14-135.022K	37	19	4	-	0,029
					C	14-335.022K	37	19	4	-	0,029
			main	ST	A	14-235.025K	37	19	4	-	0,029
					A+C	14-135.025K	37	19	4	-	0,029
					C	14-335.025K	37	19	4	-	0,029
		2NC + 2NO	main	ST	A	14-236.025K	38	19	4	-	0,031
					A+C	14-136.025K	38	19	4	-	0,031
					C	14-336.025K	38	19	4	-	0,031
		3NC + 3NO	main	ST	A	14-237.025K	39	19	4	-	0,033
					A+C	14-137.025K	39	19	4	-	0,033
					C	14-337.025K	39	19	4	-	0,033
		4NC + 4NO	main	ST	A	14-238.025K	40	19	4	-	0,035
					A+C	14-138.025K	40	19	4	-	0,035
					C	14-338.025K	40	19	4	-	0,035
pos. A: basic position pos. C: momentary position standard lock 1001, other lock numbers on request	LL	1NC + 1NO	mom	UT	A	14-438.036K	35	19	4	1	0,030
		2NO	mom	UT	A	14-437.036K	36	19	4	1	0,030
	SA	1NC + 1NO	mom	ST/PT	A	14-141.022K	31	19	4	-	0,029
				ST	A	14-141.025K	31	19	4	-	0,029
		2NC + 2NO	mom	ST	A	14-142.025K	32	19	4	-	0,031
		3NC + 3NO	mom	ST	A	14-143.025K	33	19	4	-	0,033
		4NC + 4NO	mom	ST	A	14-144.025K	34	19	4	-	0,035

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 349

contacts: NC = normally closed, NO = normally open

description see page 331

technical drawing as of page 355, mounting dimensions as of page 361, components layouts as of page 362, circuit drawing as of page 364

buzzer for flush mounting



recommended accessories:

			connection method	35 mm dia. part no.	circuit drawing	technical drawing	mounting dimension	e
buzzer for flush mounting	24 VDC	brass chromium-plated	ST/ PT	14-810.918	58	21	4	0,016
		plastic, black	ST/ PT	14-810.910	58	21	4	0,016

connection method: ST = soldering terminal; PT = plug-in terminal; PCB plug-in base page 349
technical drawing as of page 355. mounting dimensions as of page 361. circuit drawing as of page 364

at front

lens plastic

for version IP 67 use marking plate 704.609.9

	shape	lens	colour	29 mm dia. part no.	e	
lens plastic	flat	opaque	black	704.602.0	0,001	
		transparent	blue	704.602.6	0,001	
			colourless, clear	704.602.7	0,001	
			green	704.602.5	0,001	
			red	704.602.2	0,001	
			yellow	704.602.4	0,001	

marking see page 366

lens raised, plastic

for version IP 67 use marking cap 704.610.9

	shape	lens	colour	29 mm dia. part no.	e	
lens raised, plastic	flat	transparent	colourless, clear	704.611.7	0,002	
			green	704.611.5	0,002	
			red	704.611.2	0,002	
			yellow	704.611.4	0,002	

marking see page 366

lens metal with window

for version IP 67 use marking plate 704.609.9

	shape	lens	colour	29 mm dia. part no.	e	
lens metal with window	flat	aluminium anodized	black	704.601.01	0,001	
			natural	704.601.81	0,001	
		stainless steel	natural	704.601.91	0,001	

marking see page 366

lens metal

for version IP 67 use marking plate 704.609.9

	shape	lens	colour	29 mm dia. part no.	e	
lens metal	flat	aluminium anodized	black	704.601.0	0,001	
			blue	704.601.6	0,001	
			green	704.601.5	0,001	
			natural	704.601.8	0,001	
			red	704.601.2	0,001	
			yellow	704.601.4	0,001	
		stainless steel	natural	704.601.9	0,001	

marking see page 366

lens cap for indicator full face illumination

for version IP 67 use marking cap 704.608.9

	lens cap	colour	29 mm dia. part no.	e	
lens cap for indicator full face illumination	transparent	blue	704.603.6	0,003	
		colourless, clear	704.603.7	0,003	
		green	704.603.5	0,003	
		red	704.603.2	0,003	
		yellow	704.603.4	0,003	

marking see page 366

mushroom-head cap

for version IP 67 use marking plate 704.609.9

	mushroom	colour	40 mm dia. part no.	e	
mushroom-head cap	opaque	black	704.604.0	0,001	
		green	704.604.5	0,001	
		red	704.604.2	0,001	
		yellow	704.604.4	0,001	

mushroom-head cap illuminated

for version IP 67 use marking plate 704.609.9

	mushroom	colour	40 mm dia. part no.	e	
mushroom-head cap illuminated	transparent	blue	704.614.6	0,007	
		clear	704.614.7	0,007	
		green	704.614.5	0,007	
		red	704.614.2	0,007	
		yellow	704.614.4	0,007	

marking foil for lens plastic/metal

	front shape	marking plate	colour	part no.	e	
marking foil for lens plastic/metal	round	opaque	black	704.609.0	0,001	
		translucent	white	704.609.9	0,001	
		translucent, ribbed, for neon lamps	colourless, clear	704.609.7	0,001	

marking plate for mushroom-head cap

	front shape	marking plate	colour	part no.	e	
marking plate for mushroom-head cap	round	translucent	white	704.609.9	0,001	

marking cap for lens raised plastic/metal

	front shape	marking cap	colour	part no.	e	
marking cap for lens raised plastic/metal	round	translucent, ribbed	white	704.610.9	0,001	
		transparent, ribbed, for neon lamps	colourless, clear	704.610.7	0,001	

marking cap for lens cap for indicator full face illumination

	front shape	marking cap	colour	part no.	e	
marking cap for lens cap for indicator full face illumination	round	translucent, ribbed	white	704.608.9	0,002	
		transparent, ribbed, for neon lamps	colourless, clear	704.608.7	0,002	

front ring

	material	colour	29 mm dia. part no.	e	
front ring	aluminium anodized	black	704.600.1A	0,005	
		natural	704.600.1	0,005	
	plastic	black	704.600.0	0,003	
		chromium-plated	704.600.4	0,003	
		light grey	704.600.6	0,003	
	stainless steel	natural	704.600.9	0,006	

front bezel-set for flush mounting

	material	colour	35 mm dia. part no.	mounting dimension	e	
front bezel-set for flush mounting	aluminium anodized	black	704.955.0	4	0,016	
		natural	704.955.1	4	0,016	
	stainless steel	natural	704.955.9	4	0,016	

mounting dimensions as of page 361

legend plate

	front dimension	part no.	e	
legend plate adhesive, aluminium anodized, natural, can also be engraved	30 x 42 mm for 22.5 mm dia. mounting hole	704.962.0	0,002	
	42 x 42 mm for 22.5 mm dia. mounting hole	704.962.5	0,003	
	42 x 48 mm for 30.5 mm dia. mounting hole	704.962.6	0,004	
	48 x 48 mm for 22.5 mm dia. mounting hole	704.962.7	0,004	

protective cover

	29 mm dia. part no.	technical drawing	e	
protective cover hinged, transparent, with means for sealing	704.925.0	22	0,007	

technical drawing as of page 355

protective cover for flush mounting

	use	35 mm dia. part no.	e	
protective cover for flush mounting hinged, transparent, with means for sealing, aluminium anodized, natural	for pushbutton, selector switch	704.928.38	0,007	
	for pushbuttons	704.928.18	0,007	

protective front ring

	front ring	part no.	e	
protective front ring with transparent silicone membrane temperature resistance: -25°C to +85°C	aluminium anodized	704.600.3	0,005	
	brass, nickel plated	704.600.2	0,005	

protective front ring for flush mounting

	front ring	part no.	e	
protective front ring for flush mounting with transparent silicone membrane	aluminium anodized, black	704.955.4	0,005	
	aluminium anodized, natural	704.955.3	0,005	

blind plug

	colour	28 mm dia. part no.	mounting dimension	e	
blind plug	black	704.960.7	1	0,004	

mounting dimensions as of page 361

spare key

	part no.	e	
spare key for standard lock 1001, else on request	14-987.1001	0,006	

description as of page 331

at back

PCB plug-in base

	for	pin orientation	part no.	components layout	e	
PCB plug-in base 16.4 mm dia. x 9.8 mm high	Low Level switching element	axial	31-940	2	0,002	
17,9 x 8,4 mm high With the extendable mounting the distance between PCB plug-in base and PCB can be varied up to 3mm.	Low Level switching element	right-angled	31-941	3	0,004	
17.8 mm dia. x 9.8 mm high	snap-action switching element 2.8 mm	axial	31-942	4	0,002	

components layouts as of page 362

cable shoe

	connection method	part no.	e	
cable shoe	plug-in terminal 2.8 x 0.5 mm	31-946	0,001	
	universal terminal 2.0 x 0.5 mm	31-945	0,001	

insulation socket

	part no.	e	
insulation socket for connector 31-945	31-928	0,001	
for connector 31-946	31-929	0,001	
for snap-action switching element 2.8 mm to cover the plug-in terminals	01-928	0,001	

terminal cover

	part no.	e	
terminal cover for snap-action switching element	01-929	0,010	

for illumination

incandescent lamp

	voltage/current	part no.	e	
incandescent lamp base T 5.5	6 AC/DC/200 mA	10-1106.1369 (01-903.0)	0,001	
	12 AC/DC/100 mA	10-1109.1329 (01-903.1)	0,001	
	12 AC/DC/50 mA	10-1109.1279 (01-913.12)	0,001	
	24 AC/DC/25 mA	10-1112.1199 (01-913.24)	0,001	
	24 AC/DC/50 mA	10-1112.1279 (01-903.2)	0,001	
	28 AC/DC/40 mA	10-1113.1249 (01-903.28)	0,001	
	30 AC/DC/40 mA	10-1114.1249 (01-903.3)	0,001	
	36 AC/DC/35 mA	10-1116.1229 (01-903.4)	0,001	
	48 AC/DC/25 mA	10-1119.1199 (01-903.5)	0,001	
	60 AC/DC/20 mA	10-1120.1179 (01-903.6)	0,001	

LED

	number of chips	voltage/current	colour	part no.	e	
LED base T 5.5	1 chip	12 VDC/14 mA	white	10-2109.3139	0,001	
		24 VDC/14 mA	white	10-2112.3139	0,001	
		28 VDC/14 mA	white	10-2113.3139	0,001	
	6 chips	6 V/45 mA	green	10-5106.3255 (01-968.05)	0,001	
			red	10-5106.3252 (01-968.02)	0,001	
			yellow	10-5106.3254 (01-968.04)	0,001	
		12 V/30 mA	green	10-5109.3205 (01-968.15)	0,001	
			red	10-5109.3202 (01-968.12)	0,001	
			yellow	10-5109.3204 (01-968.14)	0,001	
		24 V/15 mA	green	10-5112.3145 (01-968.25)	0,001	
			red	10-5112.3142 (01-968.22)	0,001	
			yellow	10-5112.3144 (01-968.24)	0,001	
		28 VDC/15 mA	green	10-5113.3145 (01-968.35)	0,001	
			red	10-5113.3142 (01-968.32)	0,001	
			yellow	10-5113.3144 (01-968.34)	0,001	
		48 V/14 mA	green	10-5119.3135 (01-968.45)	0,001	
			red	10-5119.3132 (01-968.42)	0,001	
			yellow	10-5119.3134 (01-968.44)	0,001	

capacitor

for lamp voltage reduction

	value	part no.	e	
capacitor use with 60 VAC/20 mA, 50 Hz lamp voltage	230 VAC/0.27 μ F	02-917.0	0,004	

Please keep to the country specific security rules.

series resistor

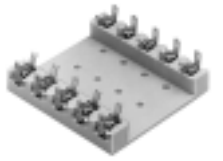
for lamp voltage reduction

	value	part no.	e	
series resistor use with 60 VAC/20 mA lamp rating	110 V/2.7 kOhm	02-904.0	0,003	
	125 V/3.3 kOhm	02-904.1	0,003	
	145 V/4.7 kOhm	02-904.3	0,003	
	230-240 V/10 kOhm	02-904.7	0,003	

Wire in accordance with local electrical safety regulations.

terminal plate empty

for fitting with series resistors and capacitors

	no. of spaces	part no.	e	
terminal plate empty	5 spaces	02-912.1	0,025	
	10 spaces	02-912.2	0,045	
	15 spaces	02-912.3	0,090	
	20 spaces	02-912.4	0,095	

terminal plate with capacitor

	value	no. of components	part no.	e	
terminal plate with capacitor use with 60 VAC/20 mA lamp rating	0.27 μ F/230/60 V	5 spaces	02-914.10	0,045	
		10 spaces	02-914.20	0,090	
		15 spaces	02-914.30	0,135	
		20 spaces	02-914.40	0,180	

Wire in accordance with local electrical safety regulations.

terminal plate with series resistor

	value	no. of components	part no.	e	
terminal plate with series resistor use with 60 VAC/20 mA lamp rating	2.7 kOhm/110/60 V	5 spaces	02-913.10	0,040	
		10 spaces	02-913.20	0,075	
		15 spaces	02-913.30	0,115	
		20 spaces	02-913.40	0,155	
	3.3 kOhm/125/60 V	5 spaces	02-913.11	0,040	
		10 spaces	02-913.21	0,075	
		15 spaces	02-913.31	0,115	
		20 spaces	02-913.41	0,155	
	10 kOhm/230-240/60 V	5 spaces	02-913.17	0,040	
		10 spaces	02-913.27	0,075	
		15 spaces	02-913.37	0,115	
		20 spaces	02-913.47	0,155	

Wire in accordance with local electrical safety regulations.

assembling

positioning insert

	part no.	mounting dimension	e	
positioning insert	14-910	1	0,001	

mounting dimensions as of page 361

anti-twisting ring

	part no.	e	
anti-twisting ring for flush mounting	704.954.0	0,002	

reducing ring

	colour	part no.	e	
reducing ring for mounting of pushbutton 22.5 mm dia. in mounting hole 30.5 mm dia.	black anodized	704.967.0	0,004	
	natural anodized	704.960.8	0,004	

lens remover

	part no.	e	
lens remover for pushbuttons for flush mounting	700.006.0	0,003	

lamp remover

	part no.	e	
lamp remover	02-906	0,002	

LED remover

	part no.	e	
LED remover	51-996	0,024	

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**

polyamide

material of contacts

gold-plated silver

switching element

plug-in-/soldering terminal

diallylphthalate DAP, polyamide 66, polysulfone, heat-resistant and self-extinguishing

soldering terminal: PA 6.6 Ultramid

mechanical characteristics**actuating force**

3.5-5.5 N, depending on the number of switching elements

actuating torque

measured at the key or lever of the keylock- or selector switch: 2.5-5.5 Ncm, depending on the number of switching elements

actuating travel

illuminated pushbutton :3 mm

switch actuator with 2 positions:

1 x ca. 42° deflection momentary action

1 x ca. 90° deflection maintained action

switch actuator with 3 positions:

2 x ca. 42° deflection momentary action

2 x ca. 90° deflection maintained action

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 à 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 mm

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 67

mechanical life

momentary action 2 mio. cycles of operation

maintained action 1 mio. 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

(sinussoidal)

10 g at 10-2000 Hz, amplitude 1.5 mm as per 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.

electrostatic breakdown value

<= 15 KV (keylock switch)

protection class

II

rated current

5 A

rated insulation voltage

250 VAC/DC as per VDE 0110, group B

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

EN 61 058

approvals

- SEV 250 VAC/5 A

- CSA 300 VAC

- UL

- German Lloyd

- ÖVE

- VDE

- Russian Marine Register

declaration of conformity

- CE

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 $\mu\text{A}/\mu\text{V}$ 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

polyamide

material of contacts

gold-plated

switching element

polysulfone, heat-resistant and self-extinguishing

mechanical characteristics

actuating force

3-4 N

actuating torque

measured at the key or lever of the keylock- or selector switch: 2.5-5.5 Ncm, depending on the number of switching elements

actuating travel

illuminated pushbutton :3 mm

switch actuator with 2 positions:

1 x ca. 42° deflection momentary action

1 x ca. 90° deflection maintained action

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 of 1 mm

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

plug-in terminal: 2.0 x 0.5 mm

degree of protection

front as per IEC 529: IP 67

mechanical life

momentary action 5 mio. cycles of operation

maintained action 1 mio. cycles of operation

rebound time

Typ. < 100 μs

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.

electrostatic breakdown value

≤ 15 KV (keylock switch)

protection class

II

switch rating

10 $\mu\text{A}/100 \mu\text{V}$ to 100 mA at 42 VAC/VDC

volume resistance

starting value (initial) $\leq 50 \text{ m}\Omega$

buzzer

buzzer system

system

Piezo disc

material

alarm buzzer case

polyamide

front cap

plastic: polyamide

metal: nickel-plated brass

sea-water proof

mechanical characteristics

ambient air temperature

-25°C to + 50°C

(as per DIN IEC 68-)

connection method

plug-in terminal 2.8 x 0.5 mm

degree of protection

IP 65 as per IEC 529

storage temperature

-25°C to + 50°C

(as per DIN IEC 68-)

electrical characteristics

frequency (tone)

ca.2.8 kHz continuous tone only

operation voltage/current

operation voltage: 24 VDC $\pm 10\%$

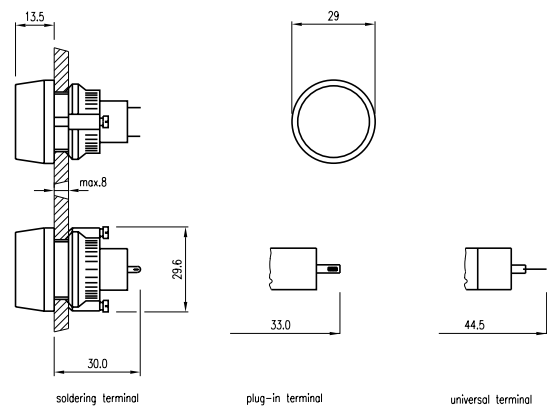
operation current: $\leq 25 \text{ mA}$

sound pressure

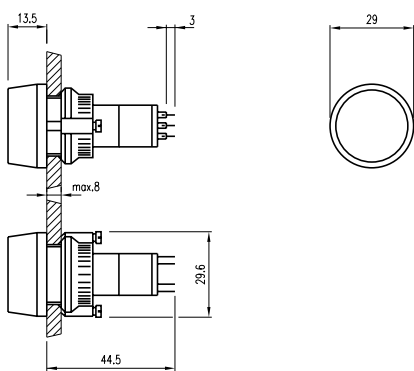
95 db (A) ± 8 at a distance of 0.1 m

technical drawing

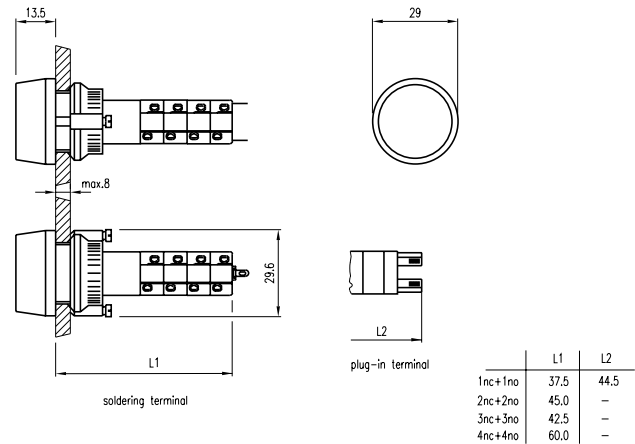
1 indicator front illumination, indicator full face illumination
page 333



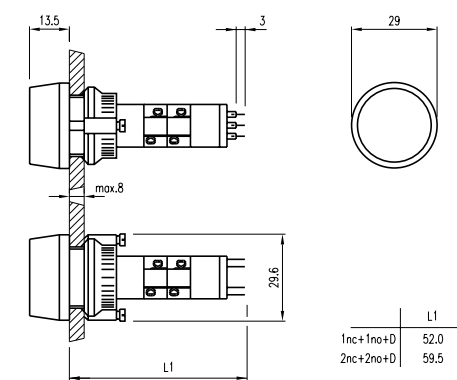
2 indicator full face illumination
page 333



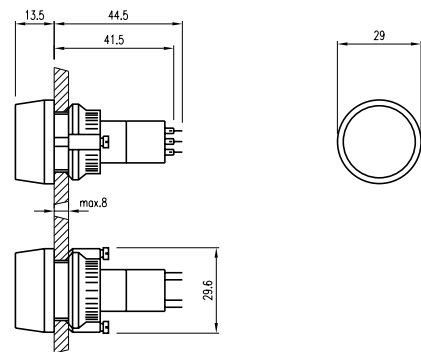
3 illuminated-/pushbutton front illumination
page 334



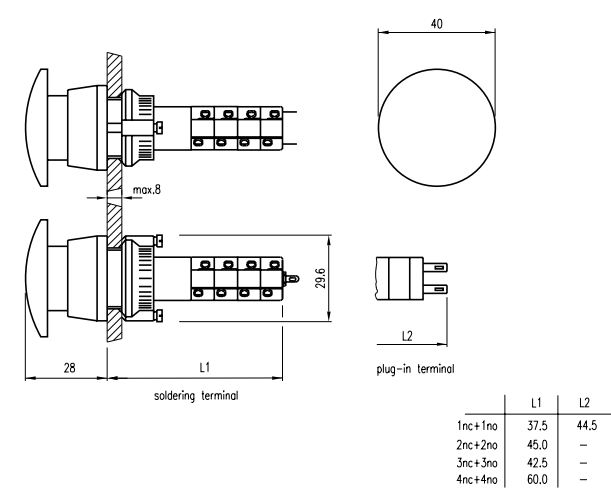
4 illuminated-/pushbutton front illumination
page 334



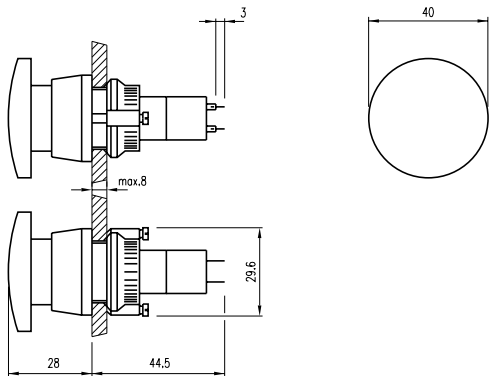
5 illuminated-/pushbutton front illumination
page 334



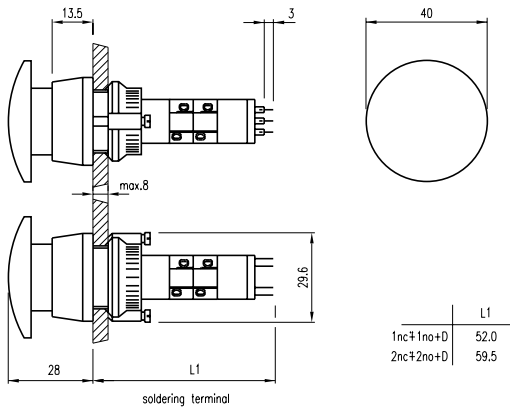
6 pushbutton with mushroom-head cap, illuminated pushbutton with mushroom-head cap
page 335, 336



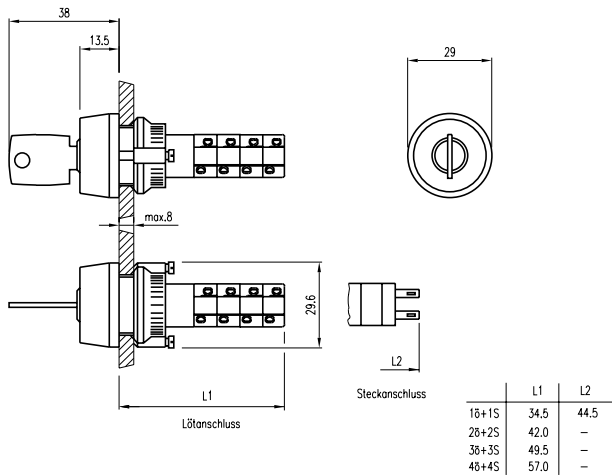
7 pushbutton with mushroom-head cap, illuminated pushbutton with mushroom-head cap
page 335, 336



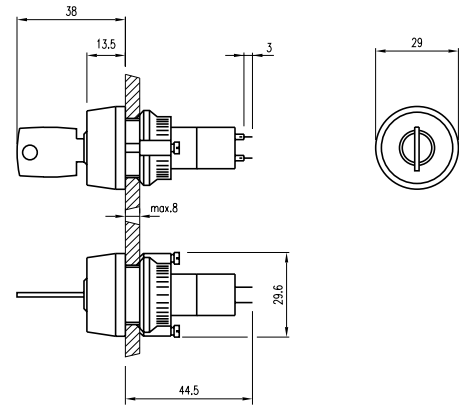
8 illuminated pushbutton with mushroom-head cap
page 336



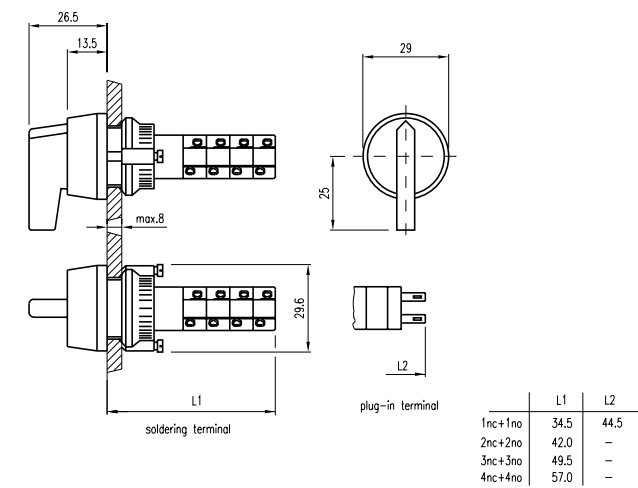
9 keylock switch 2 positions
page 337



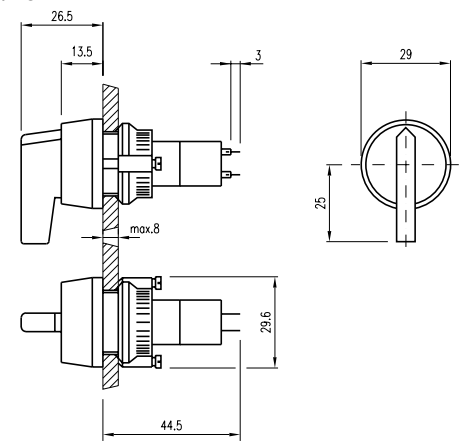
10 keylock switch 2 positions
page 337



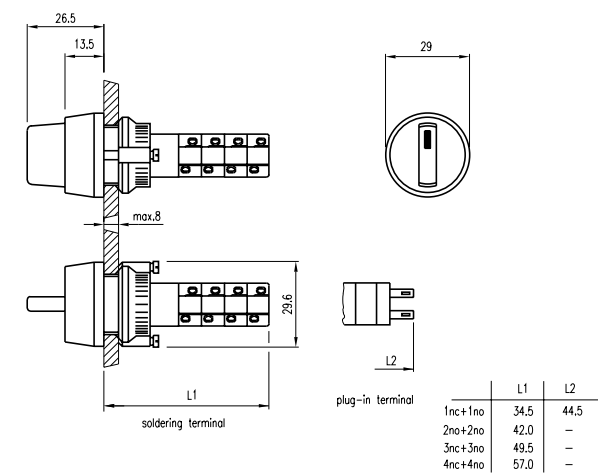
11 selector switch 2 positions
page 338



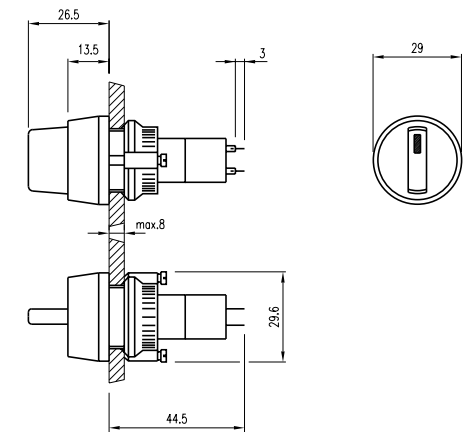
12 selector switch 2 positions
page 338



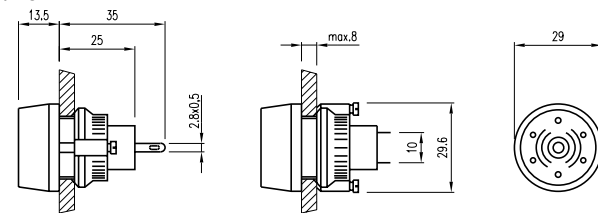
13 selector switch 2 positions
page 338



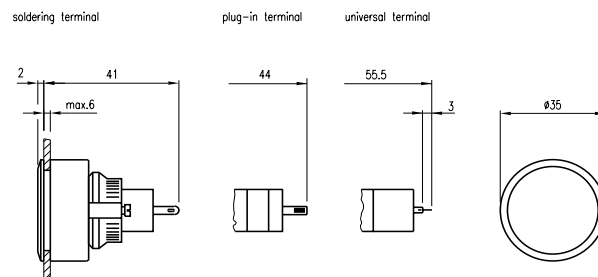
14 selector switch 2 positions
page 338



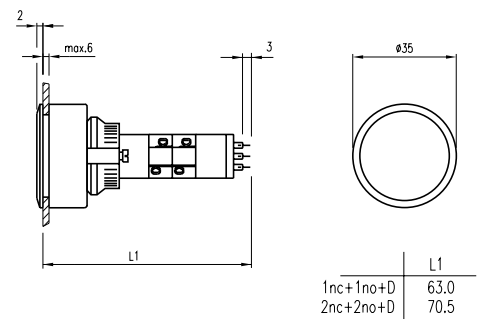
15 buzzer
page 339



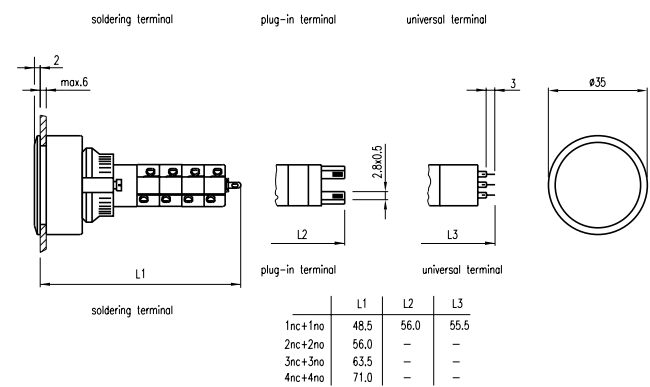
16 indicator for flush mounting
page 340



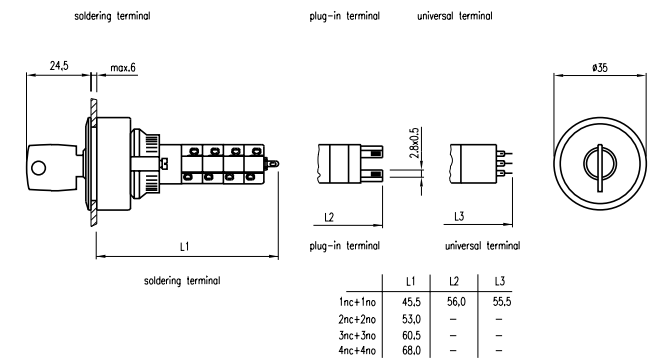
17 illuminated-/pushbutton for flush mounting
page 341



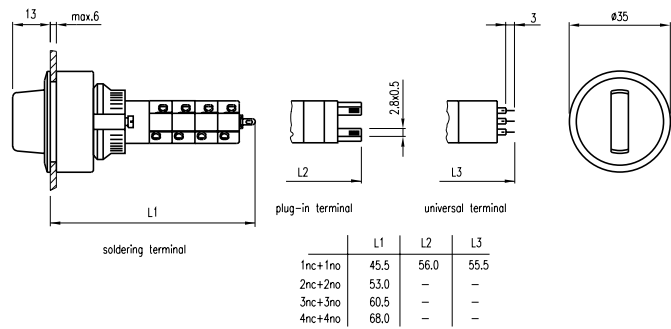
18 illuminated-/pushbutton for flush mounting
page 341



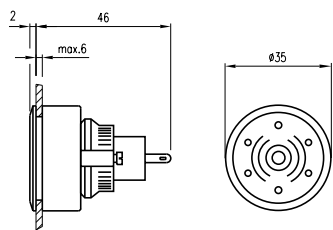
19 keylock switch 2 positions for flush mounting
page 341



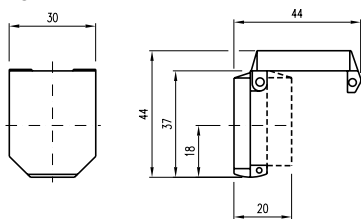
20 selector switch 2 positions for flush mounting
page 343



21 buzzer for flush mounting
page 344



22 protective cover
page 347

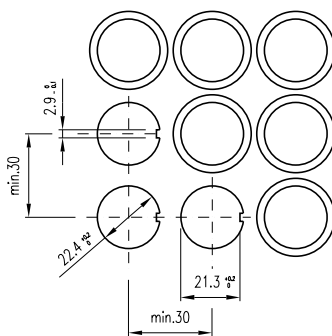
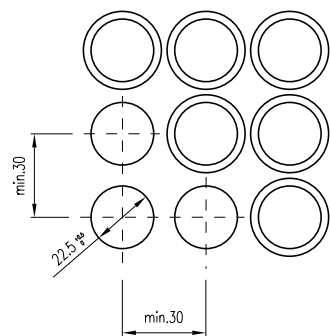


mounting dimension

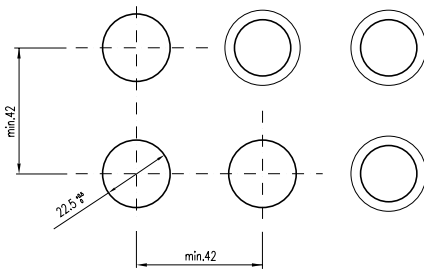
1 indicator front illumination, indicator full face illumination, illuminated-/pushbutton front illumination, keylock switch 2 positions, selector switch 2 positions, buzzer, blind plug, positioning insert
page 333, 334, 337, 339, 338, 348, 351

for pushbuttons
without anti-twisting device

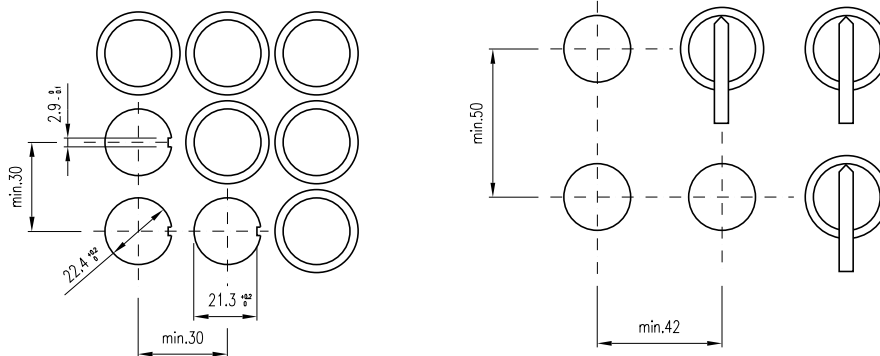
for pushbuttons
with anti-twisting device (rotary)
recommended for keylock switch



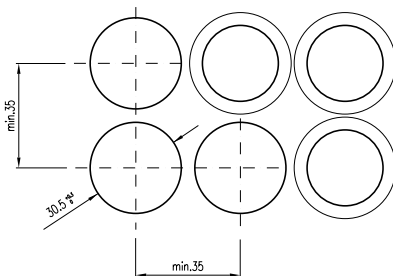
2 pushbutton with mushroom-head cap, illuminated pushbutton with mushroom-head cap page 335, 336



3 selector switch 2 positions page 338

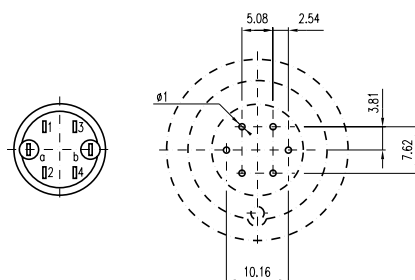


4 indicator for flush mounting, illuminated-/pushbutton for flush mounting, keylock switch 2 positions for flush mounting, selector switch 2 positions for flush mounting, front bezel-set for flush mounting, buzzer for flush mounting page 340, 341, 342, 343, 347, 344

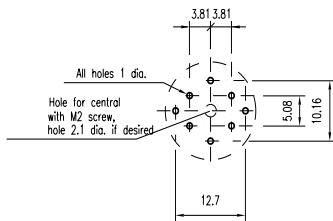


components layouts

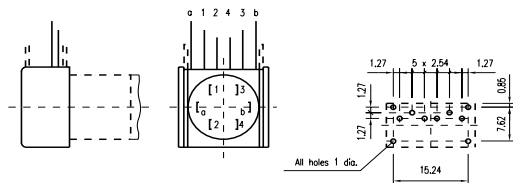
1 indicator front illumination, indicator full face illumination, illuminated-/pushbutton front illumination, pushbutton with mushroom-head cap, illuminated pushbutton with mushroom-head cap, keylock switch 2 positions, selector switch 2 positions, indicator for flush mounting, illuminated-/pushbutton for flush mounting, keylock switch 2 positions for flush mounting, selector switch 2 positions for flush mounting page 333, 334, 335, 336, 337, 338, 340, 341, 342, 343



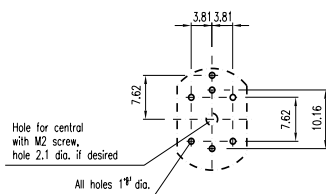
2 PCB plug-in base
page 349



3 PCB plug-in base
page 349



4 PCB plug-in base
page 349



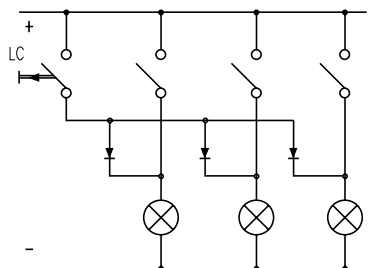
	circuit drawing
1	
2	
3	
4	
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6	
7	
8	
9	
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11	
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13	
14	
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	circuit drawing
21	
22	
23	
24	
25	
26	
27	
28	
29	
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31	
32	
33	
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36	
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41	

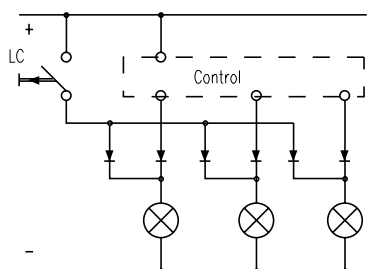
	circuit drawing
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	

With indicators and illuminated pushbuttons equipped with diodes, the user is able to perform a lamp check or wire an alarm circuit simply with a considerable saving of space.

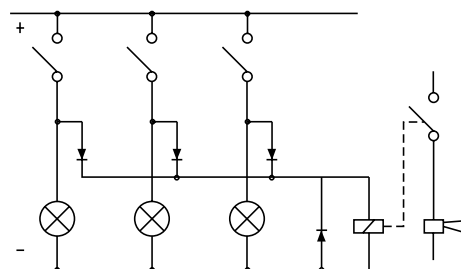
lamp check



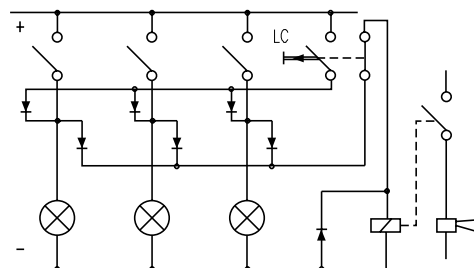
lamp check with blocking diodes



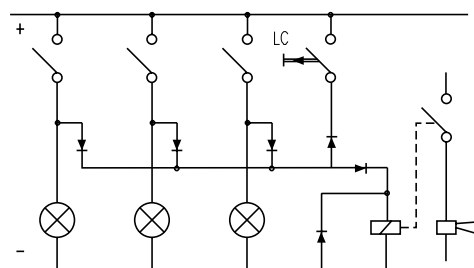
alarm circuit from fault
annunciating system



lamp check and alarm circuit



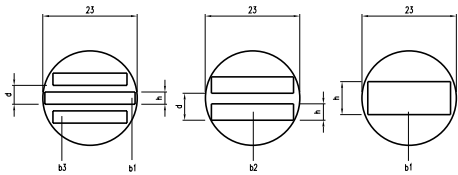
lamp check and alarm circuit with
only one diode and AC voltage



LC = lamp check

Indicator - Engraving of marking cap

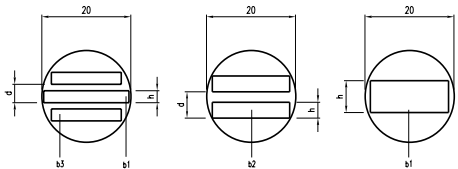
All marking plates and marking caps are engraved in lettering to DIN 1451, with black or white filling.
Can also be supplied with standard lettering or symbols.
For symbols see series 04.
Lettering to be engraved should be specified on a separate order sheet.
(available from us on request.)



Height of letters mm	Number of lines	Number of letters per line approx.			Line spacing mm
		b1	b2	b3	
3	3	11	10	9	4,6
4	2	8	7	-	6,6
8	1	4	-	-	-

Pushbutton/Illuminated pushbuttons - Engraving of marking plate or raised marking cap

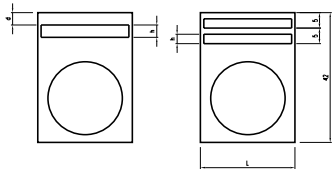
All marking plates and marking caps are engraved in lettering to DIN 1451, with black or white filling.
Can also be supplied with standard lettering or symbols.
Lettering to be engraved should be specified on a separate order sheet.
(available from us on request.)



Height of letters mm	Number of lines	Number of letters per line approx.			Line spacing mm
		b1	b2	b3	
3	3	9	9	7	4,6
4	2	7	6	-	6,6
8	1	3	-	-	-

Engraving of labels

All labels are engraved in lettering to DIN 1451, with black filling.
Lettering to be engraved should be specified on a separate order sheet.
(available from us on request.)



Height of letters mm	Number of lines	Number of letters per line approx.		Line spacing mm
		L = 30 mm	L = 42 mm	
3	2	14	20	4,5
4	1	10	14	4
8	1	5	7	2