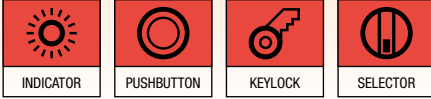


Series 51

16 mm IP65 5A 250VAC



Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.

Product Profile

The Series 51 is a high quality switch range that includes pushbuttons, indicators, selector switches and keylock switches.

It is possible to choose up to 4NO/4NC snap-action switching elements per switch.

Low level switching elements are also available.

Technical data see page 80

- IP65 Protection
- Switch Rating, 5A, 250VAC
- Raised Mounting into 16 mm cut out
- Illumination using midget-grooved T1¾ lamps or single chip LED's
- All standard lenses are transparent with translucent diffuser available in different colours
- For keylock switches 2 key systems and 145 different keys are available

Indicator



Indicator bodies, raised in round, square and rectangular, black plastic, 16 mm mounting, solder terminals

Image	Part No.	Size
1	51-040.005	18x24 mm
2	51-050.005	18x18 mm
3	51-030.005	18 mm Ø

Illuminated pushbutton



Illuminated pushbutton, snap-action, raised, rectangular, black plastic, 16 mm mounting

Part No.	Moment/Maint	Contact type	Size
51-121.0252	Momentary	1NO/1NC	18x24 mm
51-122.0252	Momentary	2NO/2NC	18x24 mm
51-261.0252	Maintained	1NO/1NC	18x24 mm
51-262.0252	Maintained	2NO/2NC	18x24 mm

For complete switch also order **A**

For complete switch also order **A**

Illuminated pushbutton



Illuminated pushbutton, snap-action, raised, square, black plastic, 16 mm mounting

Part No.	Function	Contact type	Size
51-151.0252	Momentary	1NO/1NC	18x18 mm
51-152.0252	Momentary	2NO/2NC	18x18 mm
51-281.0252	Maintained	1NO/1NC	18x18 mm
51-282.0252	Maintained	2NO/2NC	18x18 mm

Illuminated pushbutton



Illuminated pushbutton, snap-action, raised, round, black plastic, 16 mm mounting

Part No.	Function	Contact type	Size
51-131.0252	Momentary	1NO/1NC	18 mm Ø
51-132.0252	Momentary	2NO/2NC	18 mm Ø
51-271.0252	Maintained	1NO/1NC	18 mm Ø
51-272.0252	Maintained	2NO/2NC	18 mm Ø

For complete switch also order **A**

Keylock switch

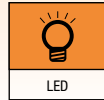


Keylock switch, 2 position, raised, snap-action, round, black plastic, 18 mm Ø

Graphic	Part No.	Function	Contact	Key rem.
	51-135.025D2	Maint.	1NO/1NC	A + C
	51-136.025D2	Maint.	2NO/2NC	A + C
	51-235.025D2	Maint.	1NO/1NC	A
	51-335.025D2	Maint.	1NO/1NC	C
	51-141.025D2	Mom.	1NO/1NC	A

For complete switch also order **A**

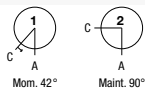
Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.



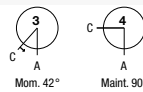
Keylock switch



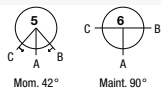
Keylock switch, 2 position, raised, snap-action, square, black plastic, 18x18 mm



Keylock switch, 2 position, raised, snap-action, rectangular, black plastic, 18x24 mm



Keylock switch, 3 position, raised, snap-action, rectangular, black plastic, 18x24 mm

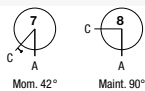


Graphic	Part No.	Function	Contact	Key rem.	Graphic	Part No.	Function	Contact	Key rem.	Graphic	Part No.	Function	Contact type	Key rem.
1	51-145.025D2	Moment.	1NO/1NC	A	4	51-195.025D2	Maint.	1NO/1NC	A + C	6	51-361.022D	Maint.	2x 1NO/1NC	A
1	51-146.025D2	Moment.	2NO/2NC	A	4	51-196.025D2	Maint.	2NO/2NC	A + C	6	51-362.022D	Maint.	2x 2NO/2NC	C + A + B
2	51-155.025D2	Maint.	1NO/1NC	A + C	4	51-295.025D2	Maint.	1NO/1NC	A	5	51-364.022D	Moment.	2x 1NO/1NC	A
2	51-255.025D2	Maint.	1NO/1NC	A	4	51-296.025D2	Maint.	2NO/2NC	A					
2	51-355.025D2	Maint.	1NO/1NC	C	4	51-395.025D2	Maint.	1NO/1NC	C					
					4	51-396.025D2	Maint.	2NO/2NC	C					
					3	51-495.025D2	Moment.	1NO/1NC	A					
					3	51-496.025D2	Moment.	2NO/2NC	A					

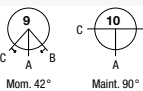
Selector switch



Selector switch, 2 position, raised, snap-action, round, black plastic, 18 mm Ø



Selector switch, 3 position, raised, snap-action, round, black plastic, 18 mm Ø



Graphic	Part No.	Function	Contact type	Graphic	Part No.	Function	Contact type
7	52-131.0252	Momentary	1NO/1NC	10	52-571.022A	Maintained	2x 1NO/1NC
7	52-132.0252	Momentary	2NO/2NC	9	52-572.022A	Momentary	2x 1NO/1NC
8	52-271.0252	Maintained	1NO/1NC				
8	52-272.0252	Maintained	2NO/2NC				

LED

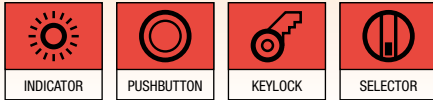


LED, T1¼ MG, single chip, 12 Volt and 28 Volt.
(Also available in 6 Volt, 24 Volt and 48 Volt)

Colour	Part No.	Contact type
Red	10-2J09.1062	12VAC/DC, 15 mA
Yellow	10-2J09.1064	12VAC/DC, 15 mA
Green	10-2J09.1065	12VAC/DC, 15 mA
Blue	10-2J09.1066	12VAC/DC, 15 mA
White	10-2J09.1069	12VAC/DC, 15 mA
Red	10-2J13.1062	28VAC/DC, 7/14 mA
Yellow	10-2J13.1064	28VAC/DC, 7/14 mA
Green	10-2J13.1065	28VAC/DC, 7/14 mA
Blue	10-2J13.1066	28VAC/DC, 7/14 mA
White	10-2J13.1069	28VAC/DC, 7/14 mA

For complete switch also order **A**

For complete switch also order **A**



Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.

A Accessories



Lens, opaque for rectangular pushbutton actuators, not for illumination



Lens, front transparent/rear translucent for rectangular indicator and pushbutton actuators



Lens, opaque for square pushbutton actuators, not for illumination

Colour	Part No.	Size	Colour	Part No.	Size	Colour	Part No.	Size
● Black	51-901.0	18 x 24 mm	● Red	51-903.2	18 x 24 mm	● Black	51-951.0	18 x 18 mm
			● Yellow	51-903.4	18 x 24 mm			
			● Green	51-903.5	18 x 24 mm			
			● Blue	51-903.6	18 x 24 mm			
			○ Clear	51-903.7	18 x 24 mm			

A Accessories



Lens, front transparent/rear translucent for square indicator and pushbutton actuators



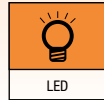
Lens, opaque for round pushbutton actuators, not for illumination



Lens, front transparent/rear translucent for round indicator and pushbutton actuators

Colour	Part No.	Size	Colour	Part No.	Size	Colour	Part No.	Size
● Red	51-953.2	18 x 18 mm	● Black	51-931.0	18 mm Ø	● Red	51-933.2	18 mm Ø
● Yellow	51-953.4	18 x 18 mm				● Yellow	51-933.4	18 mm Ø
● Green	51-953.5	18 x 18 mm				● Green	51-933.5	18 mm Ø
● Blue	51-953.6	18 x 18 mm				● Blue	51-933.6	18 mm Ø
○ Clear	51-953.7	18 x 18 mm				○ Clear	51-933.7	18 mm Ø

Choose one component from each of the coloured sections to assemble a complete switch.
For other options or further information please contact your local sales office.



A Accessories



Lever for selector switch, coloured lever bar options available as indicated

Flap guard, raised in square and rectangular

Blanking plate

Colour	Part No.	Image	Part No.	Size	Image	Part No.	Size
● Black	52-928.0	1	51-925	18x24 mm	1	51-947.0	18x24 mm
● Red	52-928.20	2	51-920	18x18 mm	2	51-948.0	18x18 mm
● Yellow	52-928.40				3	51-949.0	18mm Ø
● Green	52-928.50						
● Blue	52-928.60						

A Accessories



Mounting tool, lens and LED remover

Image	Part No.	Product description
1	01-907	Mounting tool
2	02-905	Lens remover
3	61-9740.0	LED remover

Actuator with snap-action switching element**Switching system**

Self-cleaning, double-break, snap action switching system (with contact gap 2x0.5mm).

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 2.8mm stachable, only 1 switching element can be on a pushbutton.

Material**Material of contact**

Gold plated silver

Switch housing

Axial soldering-/plug-in terminal 2.8mm:

Diallylphthalate DAP, Polyamide 66, Polysulfone, heat-resistant and self-extinguishing.

Soldering terminal: PA 6.6 Ultramid

Actuator housing

Polyetherimide, self-extinguishing

Mechanical characteristics**Terminals**

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

Max. wire diameter 2 wires à 1.2mm

Max. wire cross-section of stranded cable 1 x 1 mm²

Snap-action switching element with axial soldering terminals, which can also be used as plug-in terminals 2.8x0.5mm:

Max. wire diameter 2 wires of 1mm

Max. wire cross-section of stranded cable 2 of 0.75mm² or 1x1.0mm²

Actuating torque

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

Actuating force

4N ... 6N, depending on the number of switching elements

Actuating travel

Illuminated pushbutton 3mm

Keylock-/selector switch actuator 2 positions:

1x ca. 42° deflection momentary action

1x ca. 90° deflection maintained action

Rebound time

≤5ms

Mechanical lifetime

Momentary action 2 million cycles of operation

Maintained action 1 million cycles of operation

Keylock switch 50 000 cycles of operation

Electrical characteristics**Standards**

IEC 61058, EN 61058

Rated voltage

250VAC/VDC

Rated current

5A

Contact resistance

Starting value (initial) ≤50mΩ

Electrostatic discharge

≤15KV (Keylock switch)

Conventional free air thermal current

5A

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

Switch rating

250VAC, 5A (cosφ 1)

250VAC, 3A (cosφ 0.3)

Switch rating AC (cosφ 0.7)

Voltage	125VAC	250VAC
Current	3A	2A

Voltage	125VAC	250VAC
Current	3A	2A

Switch rating DC (inductive) L:R = 30ms

Voltage	24VDC	60VDC	110VDC	220VDC
Current	2A	0.7A	0.2A	0.1A

Voltage	24VDC	60VDC	110VDC	220VDC
Current	2A	0.7A	0.2A	0.1A

Electric strength

2500VAC, 50Hz, 1min. between all terminals and earth, as per IEC 60512-2-11

Protection class

Class II

Environmental conditions**Storage temperature**

-40°C ... +85°C

Service temperature

-25°C ... +55°C

For indicators and illuminated pushbuttons mounted as a block, make sure the heat can escape freely.

Protection degree

IP65 front side, as per IEC 60529

Shock resistance

(Single impacts, semi-sinusoidal)

15g for 11ms, as per IEC 60512-4-3, IEC 60068-2-27

Vibration resistance

(Sinusoidal)

10g at 10Hz ... 1500Hz, amplitude 1.5mm, as per IEC 60512-4-4, IEC 60068-2-6

Climate resistance

Standard condition, as per IEC 60068-2-3 and 2-30

Changing condition, as per IEC 60068-2-14 and 2-33

Approvals

Approbations

CB (IEC 61058)
 CSA
 ENEC (EN 61058)
 Germanischer Lloyd
 UL

Declaration of conformity

CE

Actuator with snap-action switching element block (Keylock-/selector switch 3 positions)

Switching system

Self-cleaning, double-break, snap action switching system
 1 normally closed or 1 normally open contact per element.

Material

Material of contact

Gold plated hardsilver

Switch housing

Diallylphthalate (DAP), heat-resistant and self-extinguishing

Actuator housing

Polyetherimide, self-extinguishing

Mechanical characteristics

Terminals

Soldering terminal which can also be used as plug-in terminal
 2.8x0.5mm:
 Max. wire diameter 2 wires of 1 mm
 Max. wire cross-section of stranded cable 2x0.75 mm²

Actuating torque

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

Actuating travel

Keylock-/selector switch actuator with 3 positions
 2x ca. 42° deflection momentary action
 2x ca. 90° deflection maintained action

Rebound time

≤5ms

Mechanical lifetime

Keylock switch	50 000 cycles of operation
Selector switch	100 000 cycles of operation

Electrical characteristics

Electrostatic discharge

≤15 KV (Keylock switch)

Conventional free air thermal current

5A

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

Switch rating

250 VAC, 5 A (cosφ 0.75)

Electric strength

2500 VAC, 50 Hz, 1 min. between all terminals and earth, as per IEC 60512-2-11

Protection class

Class II

Environmental conditions

Storage temperature

-40 °C ... +85 °C

Service temperature

-25 °C ... +55 °C

for selector switches mounted as a block, make sure the heat can escape freely

Protection degree

Front side, as per IEC 60529
 IP65 keylock switch
 IP40 selector switch

Approvals

Approbations

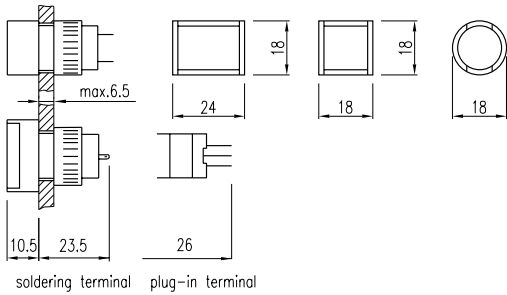
CB (IEC 61058)
 CSA
 ENEC (EN 61058)
 Germanischer Lloyd
 UL

Declaration of conformity

CE

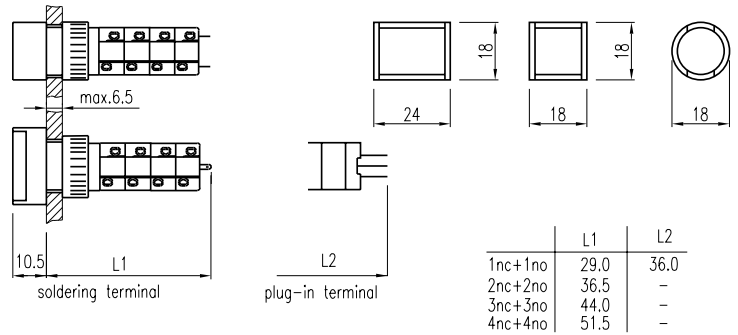
51 Indicator

Raised, Round, Square, Rectangular



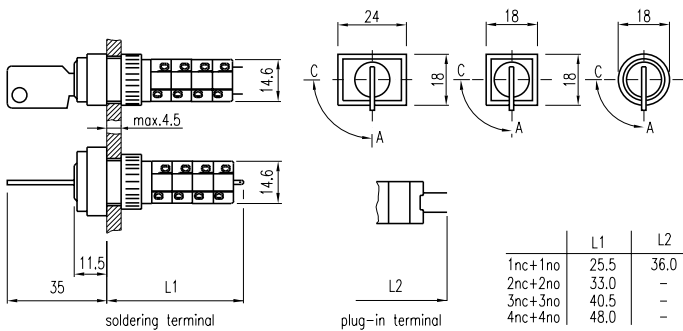
51 Pushbutton

Raised, Round, Square, Rectangular



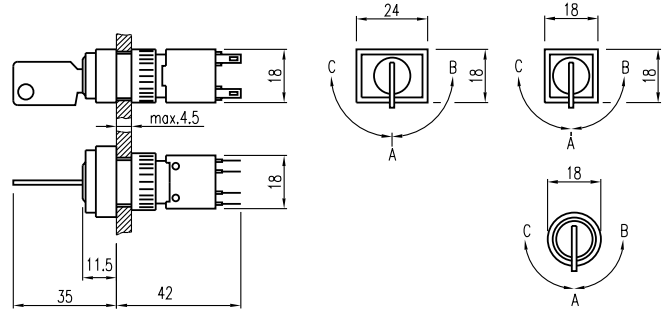
51 Keylock switch

Raised, 2-Position, Round, Square, Rectangular



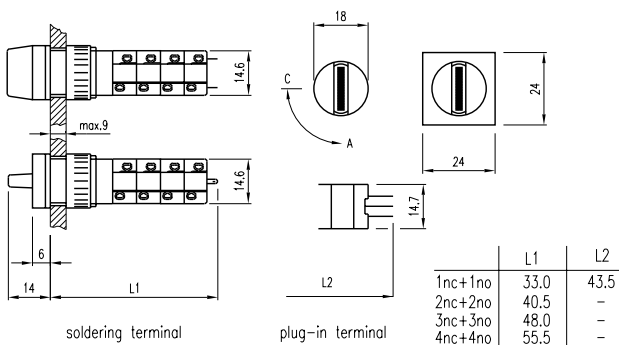
51 Keylock switch

Raised, 3-Position, Round, Square, Rectangular



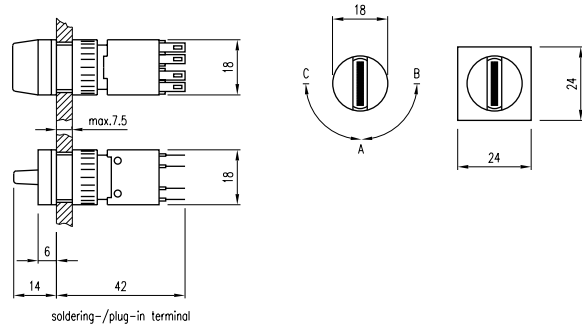
52 Selector switch

Raised, 2-Position, Round



52 Selector switch

Raised, 3-Position, Round



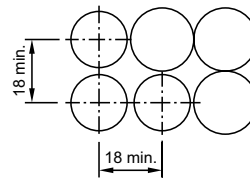
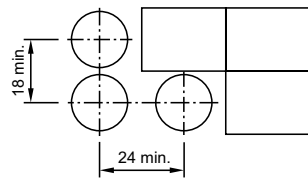
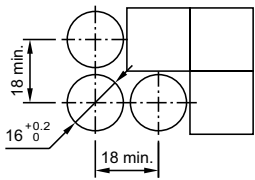
51 Cut-outs

Indicator, Pushbutton, Round, Square, Rectangular

18 x 18 mm

18 x 24 mm

Ø 18 mm



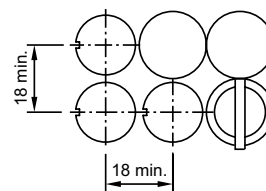
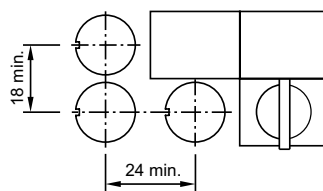
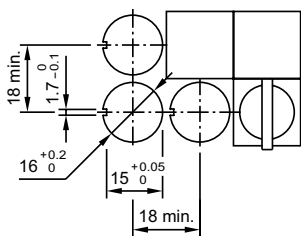
51 Cut-outs

Keylock 2-Position Round, Keylock 2-Position Square,
Keylock 2-Position Rectangular, 2 & 3-Position Selector Round

18 x 18 mm

18 x 24 mm

Ø 18 mm



Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



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