



Kraus & Naimer

BLUE LINE switchgear

since 1907

CATALOG 302 ^{07/2007}

Push Buttons and Pilot Lights, 22,5 mm ø



Kraus & Naimer

The development of the Blue Line rotary switch, contactor and motor starter product ranges is based on more than seventy-five years experience by Kraus & Naimer in the design and manufacture of electrical switchgear. Kraus & Naimer pioneered the introduction of the cam operated rotary switch and continues to be recognized as the world leader in that product field.

BLUE LINE

Blue Line products are protected by numerous patents throughout the industrial world. They are built to national and international standards and designed to withstand adverse temperatures and climates.

Blue Line products are accepted and universally recognized for their quality and workmanship. They are supported by a worldwide sales and service organization.

The Kraus & Naimer Registered Trademark



WORLDWIDE SYMBOL
FOR QUALITY SWITCHGEAR

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Programs

Push Buttons and Pilot Lights, 22,5 mm Ø

Push buttons and pilot lights by Kraus & Naimer represent an ideal combination of functional security and economical efficiency in a modular design.

Push Buttons

- non-illuminated or illuminated
- flush, extended or with extended front ring
- momentary or latched (for converting into spring return function)

Pilot Lights

- Standard units flush or conical
- Solid pilot lights (direct wire)

Double-Push Buttons

- non-illuminated or illuminated

Emergency Stop Push Buttons

- fool-proof
- non-illuminated or illuminated
- without and with key
- optional mounting in enclosure

Potentiometer

- incl. resistor

Reset Push Buttons

- incl. reset rod

Rotary Switches

- non-illuminated or illuminated
- without and with key
- momentary (for converting into spring return function)

Cam Switches

- ON/OFF switches and double-throw switches
- protection IP 65
- for further cam switches, refer to Catalog 120

Enclosures

- plastic yellow or gray
- with 1, 2, 3, 4 or 6 positions

Legend Options

- front plates and color caps
- legend inserts

Accessories

- a wide range of accessories are available, e.g. protection shrouds and protection caps

Environmentally compatible Materials

- cadmium and asbestos-free
- recyclable

Selection

- complete units
- pre-assembled front elements
- individual components

Front Element



Legend Plate



Fixation Ring



Coupling Plate



Contact Blocks LED Pilot Light Assemblies



Front Elements

- ergonomical design, front rings metallic colored or black
- illuminated elements offer excellent brightest and contrast in all light conditions
- pilot lights with perfect light due to special lenses
- any inscription, abrasion-resistant by laser
- latched push buttons and rotary switches are convertible into spring return function
- mushroom push buttons with large points
- high protection and food resistance: push buttons and pilot lights IP 67/IP 69K, double-push buttons and rotary switches IP 66
- for special operating available with protection caps

Legend Plates

- for front elements and double-push buttons
- with legend inserts
- available with lasered or engraved inscription

Fixation Nut

- is part of the front element
- nut key for fixation nut as accessories

Coupling Plate

- for contact blocks and LED pilot light assemblies
- for max. 3 elements per contact level
- up to 6 contacts on 2 contact levels are possible

Contact Blocks and LED Pilot Light Assemblies

- finger-proof and open terminals (IP 20)
- captive mounting screws
- low overall depth, for mounting in commercial plaster depth box

Contact Blocks

- available as N/C and N/O
- high switching capacity, both in AC-15- and DC-13-operation (technical data see page 22)

LED Pilot Light Assemblies

- in green, red and white color
- long life (100 000 running hours) by especially low power consumption and vibration resistance
- with only 2 voltage ranges the worldwide common applications are covered
- for decoupled function control LED series elements are available

Program Completion

For extensive and complicated switching programs we recommend the use of cam switches size S00 described in Catalog 120. The design and appearance closely match the described push buttons and pilot lights.

Order Information

By changing the order text from P SN to P SB the unit will be specified with black front ring.

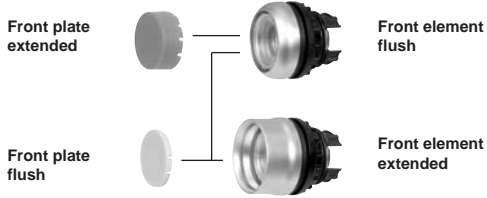
Description

Push Buttons and Pilot Lights, 22,5 mm Ø

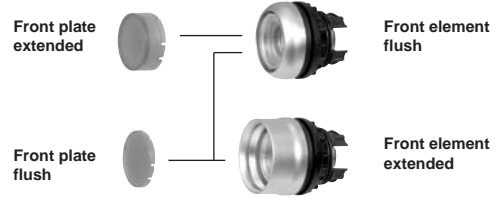
The modular design of the series push buttons and pilot lights meets your personal requirements in every respect.

Front Elements

Push buttons non-illuminated



Push buttons illuminated



Mushroom push buttons



Rotary switches



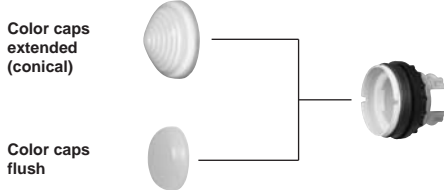
Double-push buttons



Emergency stop push buttons



Pilot lights

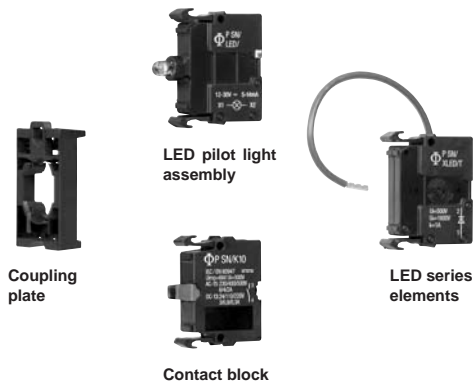


Complete Standard Units

Solid pilot lights



Contact Blocks and LED Pilot Light Assemblies




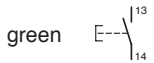
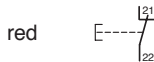
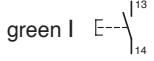


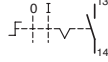
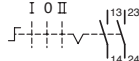


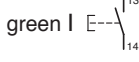




Potentiometer




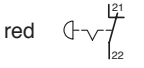
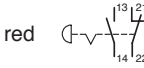



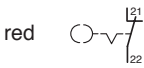



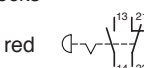
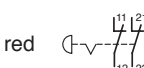



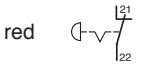


Cam switches











Complete Standard Units

| Push Buttons Pilot Lights | Code | Rotary Switches Double-Push Buttons, Potentiometer | Code |
|---|------|--|------|
| <p>Push buttons flush, IP 67/IP 69K non-illuminated</p>  <p>green  P SN-WD0001</p> <p>red  P SN-WD0002</p> <p>green I  P SN/D/G/X1-K10</p> <p>red O  P SN/D/R/X0-K01</p> | | <p>Rotary switches, IP 66 non-illuminated, latched (changeable by coding pieces to spring return function)</p>  <p>2 positions  P SNWRK-K10</p> <p>3 positions  P SNWRK3-K20</p> | |
| <p>Pilot lights flush, IP 67/IP 69K with LED element</p>  <p>green 12 V-30 V AC/DC P SN-WD0003</p> <p>red 12 V-30 V AC/DC P SN-WD0004</p> <p>green 85 V-264 V AC P SN-WD0005</p> <p>red 85 V-264 V AC P SN-WD0006</p> | | <p>Double-push buttons, IP 67/IP 69K with LED element, color cap opaque</p>  <p>85 V-264 V AC</p> <p>green I  P SN/DDL/GR/X1-X0-K11</p> <p>red O </p> | |
| <p>Solid pilot lights, IP 67/IP 69K for direct wire (without bulb), bulb holder BA 9s</p> <p>flush</p>  <p>green P SN/LC/G</p> <p>red P SN/LC/R</p> <p>yellow P SN/LC/Y</p> <p>blue P SN/LC/B</p> <p>opaque P SN/LC/W</p> | | <p>Potentiometer, IP 66 3 separate screw terminals, $P_{max.} = 0,5 W$</p>  <p>1 kΩ P SN/R1K</p> <p>4,7 kΩ P SN/R4K7</p> <p>10 kΩ P SN/R10K</p> | |
| <p>extended (conical)</p>  <p>green P SN/LCH/G</p> <p>red P SN/LCH/R</p> <p>yellow P SN/LCH/Y</p> <p>blue P SN/LCH/B</p> <p>opaque P SN/LCH/W</p> | | <p>Other resistance values on request.</p> | |

Complete Standard Units

| Emergency Stop Push Buttons | Code | Cam Switches | Code |
|--|---|--|---|
| <p>Emergency stop push buttons, IP 66/IP 69K fool-proof acc. to ISO 13850/EN 418 reset by pulling complement max: 4 contact blocks</p>  <p>red </p> <p>red </p> | <p>P SN/PV-K01</p> <p>P SN/PV-K11</p> | <p>Cam switches, IP 65 ON/OFF switches</p> <p>1 pole</p>   | <p>CG4 A200-600 FS1</p> <p>CG4 A290-600 FS1</p> |
| <p>reset by key operation 1 key, locking MS1</p>  <p>red </p> | <p>P SN/PVS-K01</p> | <p>Double-throw switches</p>   <p>1 pole</p> <p>2 pole</p> | <p>CG4 A210-600 FS1</p> <p>CG4 A211-600 FS1</p> |
| <p>top yellow, bottom black reset by pulling complement max: 3 contact blocks</p>  <p>red </p> <p>red </p> | <p>P SN/PV-KC11-IY</p> <p>P SN/PV-KC02-IY</p> | <p>Double-throw switches with spring return to center</p> <p>1 pole</p>   | <p>CG4 A214-600 FS1</p> |
| <p>foot and palm switch, IP 67/IP 69K top yellow, bottom black reset by pulling</p>  <p>red </p> | <p>P FT/R-V-KC01-IY</p> | <p>Double-throw switches with electrically isolated contacts</p> <p>1 pole</p>   <p>For further cam switches, refer to Catalog 120.</p> | <p>CG4 A710-600 FS1</p> |








Pre-assembled Front Elements

| Push Buttons Pilot Lights | Code | Rotary Switches Double-Push Buttons | Code | | | |
|--|---------------------------|--|---|--|---|--------------|
| Push buttons, IP 67/IP 69K  | flush, non-illuminated | Rotary switches, IP 66 switching angle 60°, latched ¹  | 2 positions, non-illuminated ↓ P SN/WRK P SN/WKV 3 positions, non-illuminated ↓↓ P SN/WRK3 | | | |
| | green | | | P SN/D/G | | |
| | red | | | P SN/D/R | | |
| | green I | | | P SN/D/G/X1 | | |
| | red O | | | P SN/D/R/X0 | | |
| | flush, illuminated | | | 2 positions, illuminated  | green ↓ P SN/WRLK/G red ↓ P SN/WRLK/R yellow ↓ P SN/WRLK/Y blue ↓ P SN/WRLK/B opaque ↓ P SN/WRLK/W 3 positions, illuminated ↓↓ green P SN/WRLK3/G red P SN/WRLK3/R yellow P SN/WRLK3/Y blue P SN/WRLK3/B opaque P SN/WRLK3/W | |
| | green I | | | | | P SN/DL/G |
| | red | | | | | P SN/DL/R |
| | green I | | | | | P SN/DL/G/X1 |
| | red O | | | | | P SN/DL/R/X0 |
| Push buttons, IP 67/IP 69K  | extended, non-illuminated | Rotary switches, key operated, IP 66 switching angle 60°, latched ¹ 1 key, locking MS1 2 positions key can be removed in O I ↓ P SN/WRS key can be only removed in O ↓ P SN/WRS/A1  | P SN/DH/G P SN/DH/R extended, illuminated green P SN/DLH/G red P SN/DLH/R | | | |
| | green | | | P SN/DH/G | | |
| | red | | | P SN/DH/R | | |
| | extended, illuminated | | | 3 positions key can be removed in I O II ↓↓ P SN/WRS3 key can be only removed in O ↓↓ P SN/WRS3/A1 | | |
| green | P SN/DLH/G | | | | | |
| Pilot lights, IP 67/IP 69K flush  | green | P SN/L/G | Double-push buttons, IP 67/IP 69K color cap opaque  | green red green I P SN/DDL/GR/X1-X0 red O P SN/DDL/GR/GB1-GB0 green START P SN/DDL/GR/GB1-GB0 red STOP black ↑ P SN/DDL/S/X7-X7 black ↓ | | |
| | red | P SN/L/R | | | | |
| | yellow | P SN/L/Y | | | | |
| | blue | P SN/L/B | | | | |
| | opaque | P SN/L/W | | | | |
| extended (conical)  | green | P SN/LH/G | green red yellow blue opaque | P SN/DDL/GR P SN/DDL/GR/X1-X0 P SN/DDL/GR/GB1-GB0 P SN/DDL/S/X7-X7 | | |
| | red | P SN/LH/R | | | | |
| | yellow | P SN/LH/Y | | | | |
| | blue | P SN/LH/B | | | | |
| | opaque | P SN/LH/W | | | | |











¹changeable by coding pieces to spring return function (40° switching angle)

Pre-assembled Front Elements









Front Element Components

| Emergency Stop Push Buttons Reset Units | Code | Push Buttons Front Plates | Code |
|---|---|---|---|
| <p>Emergency stop push buttons IP 67/IP 69K (turning) IP 66/IP 69K (pulling) fool-proof acc. to ISO 13 850/EN 418 complement max.: 4 contact blocks</p> <p>non-illuminated</p> <p>reset by pulling red</p> <p>reset by turning red</p> | <p>P SN/PV</p> <p>P SN/PVT</p> | <p>Push buttons, IP 67/IP 69K without front plate with flush front ring, non-illuminated</p>  <p>momentary</p> <p>latched</p> | <p>P SN/D/X</p> <p>P SN/DR/X</p> |
|  <p>illuminated</p> <p>reset by pulling red</p> <p>reset by turning red</p> | <p>P SN/PVL</p> <p>P SN/PVLT</p> | <p>Push buttons, IP 67/IP 69K without front plate with extended front ring, non-illuminated</p>  <p>momentary</p> | <p>P SN/DG/X</p> |
|  <p>reset by key operation 1 key, locking MS1</p> <p>red</p> | <p>P SN/PVS</p> | <p>Front plates, flush</p>  <p>green</p> <p>red</p> <p>yellow</p> <p>blue</p> <p>white</p> <p>black</p> <p>legends see page 13</p> | <p>P SN/XD/G</p> <p>P SN/XD/R</p> <p>P SN/XD/Y</p> <p>P SN/XD/B</p> <p>P SN/XD/W</p> <p>P SN/XD/S</p> |
| <p>Reset units, IP 67/IP 69K non-illuminated</p>  <p>blue RESET</p> <p>blue R</p> | <p>P SN/DZ/B/GB14</p> <p>P SN/DZ/B/X6</p> | <p>Front plates, extended</p>  <p>green</p> <p>red</p> <p>yellow</p> <p>blue</p> <p>white</p> <p>black</p> <p>legends see page 13</p> | <p>P SN/XDH/G</p> <p>P SN/XDH/R</p> <p>P SN/XDH/Y</p> <p>P SN/XDH/B</p> <p>P SN/XDH/W</p> <p>P SN/XDH/S</p> |

Front Element Components and Legend Plates




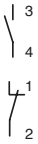


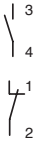




| Mushroom Push Buttons Front Plates, Push Buttons | Code | Front Plates, Pilot Lights Color Caps, Emergency Stop Plates | Code |
|---|--|--|--|
| <p>Mushroom push buttons, IP 67/IP 69K without front plate</p>  <p>momentary</p> <p>green</p> <p>red</p> <p>yellow</p> <p>black</p> <p>latched</p> <p>green</p> <p>red</p> <p>yellow</p> <p>black</p> <p>Front plates</p>  <p>green</p> <p>red</p> <p>yellow</p> <p>white</p> <p>black</p> <p>legends see page 15</p> | <p>P SN/DP/G/X</p> <p>P SN/DP/R/X</p> <p>P SN/DP/Y/X</p> <p>P SN/DP/S/X</p> <p>P SN/DRP/G/X</p> <p>P SN/DRP/R/X</p> <p>P SN/DRP/Y/X</p> <p>P SN/DRP/S/X</p> <p>P SN/XDP/G</p> <p>P SN/XDP/R</p> <p>P SN/XDP/Y</p> <p>P SN/XDP/W</p> <p>P SN/XDP/S</p> | <p>Front plates, flush</p> <p>green</p> <p>red</p> <p>yellow</p> <p>blue</p> <p>opaque</p> <p>legends see page 14</p>  <p>Front plates, extended</p> <p>green</p> <p>red</p> <p>yellow</p> <p>blue</p> <p>opaque</p> <p>legends see page 14</p>  <p>Pilot light, IP 67, IP 69K flush, without color cap</p>  <p>Color caps</p> <p>green</p> <p>red</p> <p>yellow</p> <p>blue</p> <p>opaque</p> <p>legends see page 16</p>  | <p>P SN/XDL/G</p> <p>P SN/XDL/R</p> <p>P SN/XDL/Y</p> <p>P SN/XDL/B</p> <p>P SN/XDL/W</p> <p>P SN/XDLH/G</p> <p>P SN/XDLH/R</p> <p>P SN/XDLH/Y</p> <p>P SN/XDLH/B</p> <p>P SN/XDLH/W</p> <p>P SN/L/X</p> <p>P SN/XL/G</p> <p>P SN/XL/R</p> <p>P SN/XL/Y</p> <p>P SN/XL/B</p> <p>P SN/XL/W</p> |
| <p>Push buttons, IP 67/IP 69K without front plate with flush front ring, illuminated</p>  <p>momentary</p> <p>latched</p> | <p>P SN/DL/X</p> <p>P SN/DRL/X</p> | | |
| <p>Push buttons, IP 67/IP 69K without front plate with extended front ring, illuminated</p>  <p>momentary</p> | <p>P SN/DGL/X</p> | <p>Emergency stop plates, IP 66 rectangular</p>  <p>33 mm x 50 mm</p> <p>German</p> <p>English</p> <p>square, in four languages</p>  <p>50 mm x 50 mm</p> | <p>P SN/XZK/D99</p> <p>P SN/XZK/GB99</p> <p>P SN/XYK1</p> |

Legend Plates, Coupling Plate and Pilot Light Assemblies









| Emergency Stop Plates Legend Carrier, Legend Insert | Code | Legend Plates, Coupling Plate LED Pilot Light Assemblies | Code |
|--|--|--|--|
| Emergency stop plates, IP 66 round, in four languages Ø 90 mm Ø 60 mm  | P SN/XAK1 P SN/XBK1 | Legend plates, IP 66 complete standard unit  | 0 I 0 I I 0 II STOP START Aus OFF Ein ON Störung FAULT Betrieb RUN HAND AUTO MAN. AUTO Aus Ein OFF ON HAND 0 AUTO MAN. 0 AUTO |
| Legend carrier, IP 66 without plate for push buttons  | P SB/ST/X | | P SB/ST/X88 P SB/ST/X89 P SB/ST/X93 P SB/ST/GB0 P SB/ST/GB1 P SB/ST/D5 P SB/ST/GB5 P SB/ST/D6 P SB/ST/GB6 P SB/ST/D8 P SB/ST/GB8 P SB/ST/D7 P SB/ST/GB7 P SB/ST/D11 P SB/ST/GB11 P SB/ST/D10 P SB/ST/GB10 P SB/ST/D12 P SB/ST/GB12 |
| for double-push buttons  | P SB/STDD/X | Coupling plate  | P SN/A |
| Legend insert  | P SN/XST | LED pilot light assemblies front mounting  | 12 V-30 V AC/DC green red white ¹ 85 V-264 V AC green red white ¹ |
| | | base mounting  | 12 V-30 V AC/DC green red white ¹ 85 V-264 V AC green red white ¹ |

¹can be combined with blue, yellow or white pilot lights







Series Elements, Contact Blocks, Enclosures and Accessories

| LED Series Elements Contact Blocks, Enclosures | Code | Enclosures Blanking Plug, Lamps | Code |
|--|--|--|---|
| <p>LED series elements for front mounting and base mounting</p>  <p>resistor element for 42 V-60 V AC/DC for pilot light assemblies 12 V-30 V AC/DC</p> <p>LED test elements for decoupled operational test for connecting to: 12 V-30 V AC/DC</p> <p>85 V-264 V AC</p> | <p>P SN/XLED60</p> <p>P SN/XLED/T</p> <p>P SN/XLED230/T</p> | <p>Plastic enclosure, IP 67/IP 69K totally insulated, lid screws made of stainless steel</p> <p>top gray, bottom black</p>  <p>control positions Ø 22,5 mm</p> <p>1</p> | <p>P SN/I1</p> |
| <p>Contact blocks front mounting</p>   | <p>P SN/K10</p> <p>P SN/K01</p> | <p>top gray, bottom black</p>  <p>control positions Ø 22,5 mm</p> <p>2</p> <p>3</p> <p>4</p> <p>6</p> | <p>P SN/I2</p> <p>P SN/I3</p> <p>P SN/I4</p> <p>P SN/I6</p> |
| <p>for plastic enclosures</p>   | <p>P SN/KC10</p> <p>P SN/KC01</p> | <p>Blanking plug, IP 67/IP 69K gray, for surplus control positions</p>  | <p>P SN/B</p> |
| <p>Plastic enclosure, IP 67/IP 69K totally insulated, lid screws made of stainless steel</p> <p>top yellow, bottom black</p>  <p>control positions Ø 22,5 mm</p> <p>1</p> | <p>P SN/IY1</p> | <p>Lamps, BA 9s for solid pilot lights</p> <p>filament bulbs</p> <p>6 V 2 W P SN/GL6</p> <p>12 V 2 W P SN/GL12</p> <p>24 V 2 W P SN/GL24</p> <p>48 V 2 W P SN/GL48</p> <p>60 V 2 W P SN/GL60</p> <p>110 V-130 V 2,4 W P SN/GL130</p> <p>neon bulbs</p> <p>110 V-130 V AC 0,1 W P SN/GIL110K</p> <p>220 V-240 V AC 0,33 W P SN/GIL220K</p>   | |

Accessories

| Bulb Extractor Protection Caps | Code | Protective Shrouds Rod Link, Coding Pieces | Code |
|---|------------------------|---|-------------------------|
| <p>Bulb extractor</p>  | <p>P SN/LG</p> | <p>Protective shroud, IP 66 protection against accidental operation for push buttons and rotary switches (cannot be combined with legend plates)</p>  | <p>P SN/XGWK</p> |
| <p>Protection caps, IP 67 transparent, for aggravating environments (not in food areas) (cannot be combined with legend plates)</p> <p>push buttons, flush pilot lights, flush</p>  | <p>P SN/T/D</p> | <p>Protective shroud, IP 65 yellow, for emergency stop buttons (cannot be combined with legend plates)</p>  | <p>P SN/XGPV</p> |
| <p>double-push buttons</p>  | <p>P SN/DD</p> | <p>Rod link for operating the middle contact block of non- illuminated rotary switches with 3 positions</p>  | <p>P SN/XW</p> |
| <p>Protection cap prevents dirt and dust from getting into the keyhole (not food resistant)</p> <p>rotary switches, key operated</p>  | <p>P SN/XWS</p> | <p>Coding pieces for rotary switches to convert the latched function into spring return function (1 kit = 2 pieces)</p>  | <p>P SN/XC/Y</p> |

Accessories

| Track Adapter Nut Key | Code | Fixation Nut Spare Key | Code |
|---|--------------------|---|--------------------|
| <p>Track adapter for tracks acc. to EN 50 022 for front mounted units</p>  | <p>P SN/IVS</p> | <p>Fixation nut for push buttons, pilot lights and rotary switches</p>  | <p>P SN/GR</p> |
| <p>Nut key for push buttons, pilot lights and rotary switches</p>  | <p>P SN/MS</p> | <p>for cam switches</p>  | <p>S00 T170 10</p> |
| <p>for cam switches</p>  | <p>S00 T170 09</p> | <p>Spare key locking MS1</p>  | <p>P SN/ES/MS1</p> |

Front Plates for Push Buttons

| Front Plates for Push Buttons non-illuminated | | | | Code | Code |
|--|------------|----------------|-----------------|--------------------|-----------------------|
| Color | Legend | Symbol | Meaning | Front Plates flush | Front Plates extended |
| black | Zu | | | P SN/XD/S/D2 | P SN/XDH/S/D2 |
| | Auf | | | P SN/XD/S/D3 | P SN/XDH/S/D3 |
| | Ab | | | P SN/XD/S/D4 | P SN/XDH/S/D4 |
| red | Aus | | | P SN/XD/R/D5 | P SN/XDH/R/D5 |
| black | Ein | | | P SN/XD/S/D6 | P SN/XDH/S/D6 |
| blue | Entsperren | | | P SN/XD/B/D14 | P SN/XDH/B/D14 |
| black | Vorwärts | | | P SN/XD/S/D15 | P SN/XDH/S/D15 |
| | Rückwärts | | | P SN/XD/S/D16 | P SN/XDH/S/D16 |
| | Heben | | | P SN/XD/S/D17 | P SN/XDH/S/D17 |
| | Senken | | | P SN/XD/S/D18 | P SN/XDH/S/D18 |
| red | STOP | | | P SN/XD/R/GB0 | P SN/XDH/R/GB0 |
| black | STOP | | | P SN/XD/S/GB0 | P SN/XDH/S/GB0 |
| green | START | | | P SN/XD/G/GB1 | P SN/XDH/G/GB1 |
| white | START | | | P SN/XD/W/GB1 | P SN/XDH/W/GB1 |
| black | CLOSE | | | P SN/XD/S/GB2 | P SN/XDH/S/GB2 |
| | UP | | | P SN/XD/S/GB3 | P SN/XDH/S/GB3 |
| | DOWN | | | P SN/XD/S/GB4 | P SN/XDH/S/GB4 |
| red | OFF | | | P SN/XD/R/GB5 | P SN/XDH/R/GB5 |
| black | ON | P SN/XD/S/GB6 | P SN/XDH/S/GB6 | | |
| | TEST | P SN/XD/S/GB9 | P SN/XDH/S/GB9 | | |
| blue | RESET | P SN/XD/B/GB14 | P SN/XDH/B/GB14 | | |
| black | FORWARD | P SN/XD/S/GB15 | P SN/XDH/S/GB15 | | |
| | REVERSE | P SN/XD/S/GB16 | P SN/XDH/S/GB16 | | |
| | RAISE | P SN/XD/S/GB17 | P SN/XDH/S/GB17 | | |
| | LOWER | P SN/XD/S/GB18 | P SN/XDH/S/GB18 | | |
| red | | ○ | stop | P SN/XD/R/X0 | P SN/XDH/R/X0 |
| black | | ○ | | P SN/XD/S/X0 | P SN/XDH/S/X0 |
| green | | I | start | P SN/XD/G/X1 | P SN/XDH/G/X1 |
| black | | I | | P SN/XD/S/X1 | P SN/XDH/S/X1 |
| white | | I | | P SN/XD/W/X1 | P SN/XDH/W/X1 |
| green | | II | | P SN/XD/G/X2 | P SN/XDH/G/X2 |
| black | | II | | P SN/XD/S/X2 | P SN/XDH/S/X2 |
| | | + | increase | P SN/XD/S/X4 | P SN/XDH/S/X4 |
| | | - | decrease | P SN/XD/S/X5 | P SN/XDH/S/X5 |
| blue | | R | reset | P SN/XD/B/X6 | P SN/XDH/B/X6 |
| black | | ↑ | guide motion | P SN/XD/S/X7 | P SN/XDH/S/X7 |
| | | ↙ | | P SN/XD/S/X8 | P SN/XDH/S/X8 |
| | | ✋ | hand-control | P SN/XD/S/X9 | P SN/XDH/S/X9 |
| | | @ | automatic cycle | P SN/XD/S/X10 | P SN/XDH/S/X10 |
| | | ⊕ | inching | P SN/XD/S/X11 | P SN/XDH/S/X11 |
| | | ↶ | disengaging | P SN/XD/S/X12 | P SN/XDH/S/X12 |
| | | ⊕ | unlock | P SN/XD/S/X13 | P SN/XDH/S/X13 |
| | ⊕ | tighten | P SN/XD/S/X14 | P SN/XDH/S/X14 | |
| | ⊕ | release | P SN/XD/S/X15 | P SN/XDH/S/X15 | |
| | ⊕ | liquid | P SN/XD/S/X16 | P SN/XDH/S/X16 | |
| | ⊕ | horn | P SN/XD/S/X17 | P SN/XDH/S/X17 | |

Front Plates for Push Buttons

| Front Plates for Push Buttons illuminated | | | | Code | Code |
|---|------------|-----------------|------------------|--------------------|-----------------------|
| Color | Legend | Symbol | Meaning | Front Plates flush | Front Plates extended |
| opaque | Zu | | | P SN/XDL/W/D2 | P SN/XDLH/W/D2 |
| | Auf | | | P SN/XDL/W/D3 | P SN/XDLH/W/D3 |
| | Ab | | | P SN/XDL/W/D4 | P SN/XDLH/W/D4 |
| red | Aus | | | P SN/XDL/R/D5 | P SN/XDLH/R/D5 |
| opaque | Ein | | | P SN/XDL/W/D6 | P SN/XDLH/W/D6 |
| blue | Entsperren | | | P SN/XDL/B/D14 | P SN/XDLH/B/D14 |
| opaque | Vorwärts | | | P SN/XDL/W/D15 | P SN/XDLH/W/D15 |
| | Rückwärts | | | P SN/XDL/W/D16 | P SN/XDLH/W/D16 |
| | Heben | | | P SN/XDL/W/D17 | P SN/XDLH/W/D17 |
| | Senken | | | P SN/XDL/W/D18 | P SN/XDLH/W/D18 |
| red | STOP | | | P SN/XDL/R/GB0 | P SN/XDLH/R/GB0 |
| opaque | STOP | | | P SN/XDL/W/GB0 | P SN/XDLH/W/GB0 |
| green | START | | | P SN/XDL/G/GB1 | P SN/XDLH/G/GB1 |
| opaque | START | | | P SN/XDL/W/GB1 | P SN/XDLH/W/GB1 |
| | CLOSE | | | P SN/XDL/W/GB2 | P SN/XDLH/W/GB2 |
| | UP | | | P SN/XDL/W/GB3 | P SN/XDLH/W/GB3 |
| | DOWN | | | P SN/XDL/W/GB4 | P SN/XDLH/W/GB4 |
| red | OFF | | | P SN/XDL/R/GB5 | P SN/XDLH/R/GB5 |
| opaque | ON | P SN/XDL/W/GB6 | P SN/XDLH/W/GB6 | | |
| | TEST | P SN/XDL/W/GB9 | P SN/XDLH/W/GB9 | | |
| blue | RESET | P SN/XDL/B/GB14 | P SN/XDLH/B/GB14 | | |
| opaque | FORWARD | P SN/XDL/W/GB15 | P SN/XDLH/W/GB15 | | |
| | REVERSE | P SN/XDL/W/GB16 | P SN/XDLH/W/GB16 | | |
| | RAISE | P SN/XDL/W/GB17 | P SN/XDLH/W/GB17 | | |
| | LOWER | P SN/XDL/W/GB18 | P SN/XDLH/W/GB18 | | |
| red | | ○ | stop | P SN/XDL/R/X0 | P SN/XDLH/R/X0 |
| opaque | | ○ | | P SN/XDL/W/X0 | P SN/XDLH/W/X0 |
| green | | I | start | P SN/XDL/G/X1 | P SN/XDLH/G/X1 |
| opaque | | I | | P SN/XDL/W/X1 | P SN/XDLH/W/X1 |
| green | | II | | P SN/XDL/G/X2 | P SN/XDLH/G/X2 |
| opaque | | II | | P SN/XDL/W/X2 | P SN/XDLH/W/X2 |
| | | + | increase | P SN/XDL/W/X4 | P SN/XDLH/W/X4 |
| | | - | decrease | P SN/XDL/W/X5 | P SN/XDLH/W/X5 |
| blue | | R | reset | P SN/XDL/B/X6 | P SN/XDLH/B/X6 |
| opaque | | ↑ | guide motion | P SN/XDL/W/X7 | P SN/XDLH/W/X7 |
| | | ↙ | | P SN/XDL/W/X8 | P SN/XDLH/W/X8 |
| | | ✋ | hand-control | P SN/XDL/W/X9 | P SN/XDLH/W/X9 |
| | | ⌚ | automatic cycle | P SN/XDL/W/X10 | P SN/XDLH/W/X10 |
| | | ⊕ | inching | P SN/XDL/W/X11 | P SN/XDLH/W/X11 |
| | | ⬆️ | disengaging | P SN/XDL/W/X12 | P SN/XDLH/W/X12 |
| | | ↔️ | unlock | P SN/XDL/W/X13 | P SN/XDLH/W/X13 |
| | | ⚙️ | tighten | P SN/XDL/W/X14 | P SN/XDLH/W/X14 |
| | 🔓 | release | P SN/XDL/W/X15 | P SN/XDLH/W/X15 | |
| | 🍷 | liquid | P SN/XDL/W/X16 | P SN/XDLH/W/X16 | |
| | 📣 | horn | P SN/XDL/W/X17 | P SN/XDLH/W/X17 | |

Front Plates for Mushroom Push Buttons

| Front Plates for Mushroom Push Buttons | | | | Code |
|--|-----------|-----------------|-----------------|----------------|
| Color | Legend | Symbol | Meaning | |
| black | Zu | | | P SN/XDP/S/D2 |
| | Auf | | | P SN/XDP/S/D3 |
| | Ab | | | P SN/XDP/S/D4 |
| red | Aus | | | P SN/XDP/R/D5 |
| black | Ein | | | P SN/XDP/S/D6 |
| | Vorwärts | | | P SN/XDP/S/D15 |
| | Rückwärts | | | P SN/XDP/S/D16 |
| | Heben | | | P SN/XDP/S/D17 |
| | Senken | | | P SN/XDP/S/D18 |
| red | STOP | | | P SN/XDP/R/GB0 |
| black | STOP | | | P SN/XDP/S/GB0 |
| green | START | | | P SN/XDP/G/GB1 |
| white | START | | | P SN/XDP/W/GB1 |
| black | CLOSE | | | P SN/XDP/S/GB2 |
| | UP | | | P SN/XDP/S/GB3 |
| | DOWN | | | P SN/XDP/S/GB4 |
| red | OFF | | | P SN/XDP/R/GB5 |
| black | ON | | | P SN/XDP/S/GB6 |
| | TEST | P SN/XDP/S/GB9 | | |
| | FORWARD | P SN/XDP/S/GB15 | | |
| | REVERSE | P SN/XDP/S/GB16 | | |
| | RAISE | P SN/XDP/S/GB17 | | |
| | LOWER | P SN/XDP/S/GB18 | | |
| red | | ○ | stop | P SN/XDP/R/X0 |
| black | | ○ | | P SN/XDP/S/X0 |
| green | | I | start | P SN/XDP/G/X1 |
| black | | I | | P SN/XDP/S/X1 |
| white | | I | | P SN/XDP/W/X1 |
| green | | II | | P SN/XDP/G/X2 |
| black | | II | | P SN/XDP/S/X2 |
| | | + | increase | P SN/XDP/S/X4 |
| | | - | decrease | P SN/XDP/S/X5 |
| | | ↑ | guide motion | P SN/XDP/S/X7 |
| | | ↖ | | P SN/XDP/S/X8 |
| | | ✋ | hand-control | P SN/XDP/S/X9 |
| | | ⌚ | automatic cycle | P SN/XDP/S/X10 |
| | | ⊕ | inching | P SN/XDP/S/X11 |
| | | ↕ | disengaging | P SN/XDP/S/X12 |
| | | ⚙ | unlock | P SN/XDP/S/X13 |
| | | ⚙ | tighten | P SN/XDP/S/X14 |
| 👉 | release | P SN/XDP/S/X15 | | |
| 👉 | liquid | P SN/XDP/S/X16 | | |
| 📣 | horn | P SN/XDP/S/X17 | | |

Color Caps for Pilot Lights

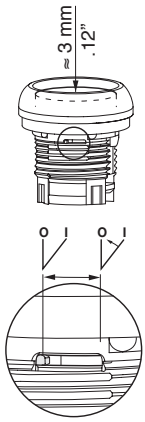
| Color Caps for Pilot Lights flush | | | | Code |
|-----------------------------------|-----------|----------------|-----------------|--------------------|
| Color | Legend | Symbol | Meaning | Front Plates flush |
| opaque | Zu | | | P SN/XL/W/D2 |
| | Auf | | | P SN/XL/W/D3 |
| | Ab | | | P SN/XL/W/D4 |
| red | Aus | | | P SN/XL/R/D5 |
| opaque | Ein | | | P SN/XL/W/D6 |
| | Vorwärts | | | P SN/XL/W/D15 |
| | Rückwärts | | | P SN/XL/W/D16 |
| | Heben | | | P SN/XL/W/D17 |
| | Senken | | | P SN/XL/W/D18 |
| red | STOP | | | P SN/XL/R/GB0 |
| opaque | STOP | | | P SN/XL/W/GB0 |
| green | START | | | P SN/XL/G/GB1 |
| opaque | START | | | P SN/XL/W/GB1 |
| | CLOSE | | | P SN/XL/W/GB2 |
| | UP | | | P SN/XL/W/GB3 |
| | DOWN | | | P SN/XL/W/GB4 |
| red | OFF | | | P SN/XL/R/GB5 |
| opaque | ON | | | P SN/XL/W/GB6 |
| | TEST | | | P SN/XL/W/GB9 |
| | FORWARD | | | P SN/XL/W/GB15 |
| | REVERSE | P SN/XL/W/GB16 | | |
| | RAISE | P SN/XL/W/GB17 | | |
| | LOWER | P SN/XL/W/GB18 | | |
| red | | ○ | stop | P SN/XL/R/X0 |
| opaque | | ○ | | P SN/XL/W/X0 |
| green | | I | start | P SN/XL/G/X1 |
| opaque | | I | | P SN/XL/W/X1 |
| green | | II | | P SN/XL/G/X2 |
| opaque | | II | P SN/XL/W/X2 | |
| | | + | increase | P SN/XL/W/X4 |
| | | - | decrease | P SN/XL/W/X5 |
| | | ↑ | guide motion | P SN/XL/W/X7 |
| | | ↖ | | P SN/XL/W/X8 |
| | | ✋ | hand-control | P SN/XL/W/X9 |
| | | ⌚ | automatic cycle | P SN/XL/W/X10 |
| | | ⊕ | inching | P SN/XL/W/X11 |
| | | ↕ | disengaging | P SN/XL/W/X12 |
| | | ⚙ | unlock | P SN/XL/W/X13 |
| | | ⚙ | tighten | P SN/XL/W/X14 |
| | | 🔧 | release | P SN/XL/W/X15 |
| | 🔧 | liquid | P SN/XL/W/X16 | |
| | 🔧 | horn | P SN/XL/W/X17 | |

Design

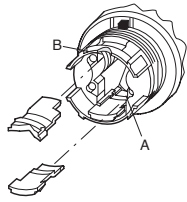
Programming and Circuit Design

Programming for converting the latched function into spring return function

Push buttons

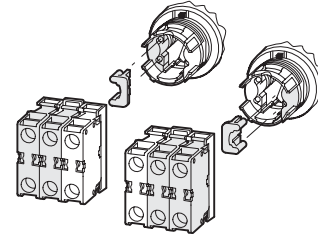


Rotary switches



P SN/XC/Y

Rod link for operating the middle contact block of non-illuminated rotary switches with 2 and 3 positions



P SN/XC/Y in B

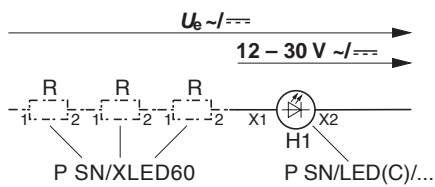


P SN/XC/Y in A and B

Key cannot be removed in spring return position

LED resistor element

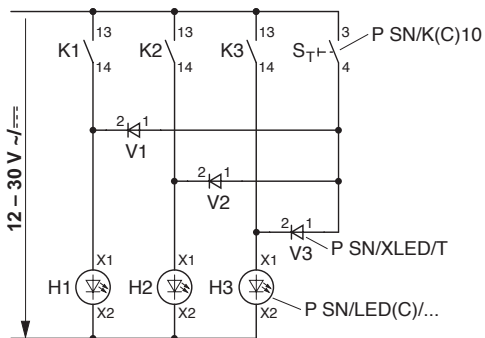
P SN/XLED60



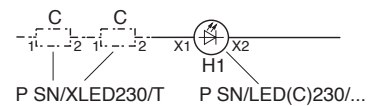
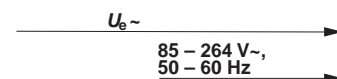
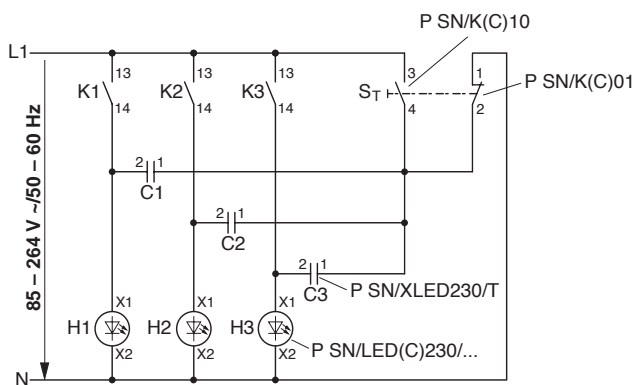
| P SN/XLED60 | 1x | 2x | 3x | 4x | 5x | 6x | 7x |
|-------------|------|------|-------|-------|-------|-------|-------|
| $U_e \leq$ | 60 V | 90 V | 120 V | 150 V | 180 V | 210 V | 240 V |

LED test element

P SN/XLED/T



P SN/XLED230/T



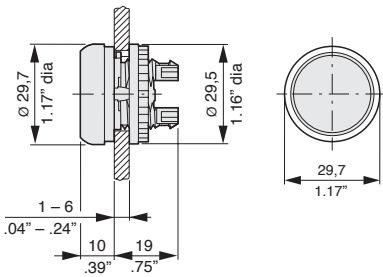
| P SN/XLED230/T | 1x | 2x |
|----------------|----------|----------|
| $U_e \leq$ | 400 V AC | 500 V AC |



Dimensions mm
inch

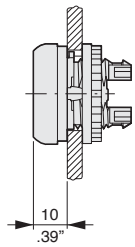
Operating and Indicator Devices, Push Buttons, Rotary Switches, Rotary Switches key operated, Pilot Lights, Push Buttons illuminated, Mushroom Push Buttons, Solid Pilot Lights, Emergency Stop Push Button, Potentiometer

Operating and indicator devices

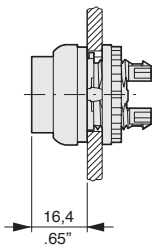


Push buttons

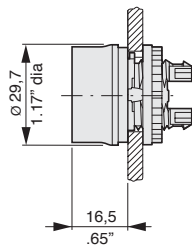
P SN/D



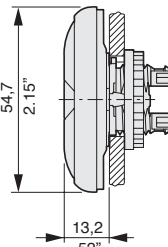
P SN/DH



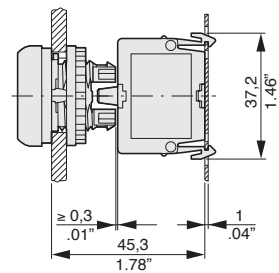
P SN/DG(L)



P SN/DD

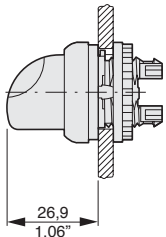


Push buttons P SN/D base mounting



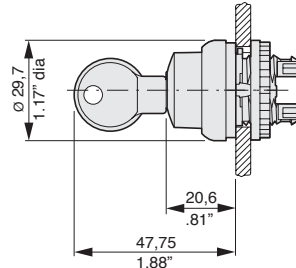
Rotary switches

P SN/W(R)K...
P SN/W(R)LK...



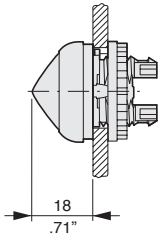
Rotary switches key operated

P SN/WRS

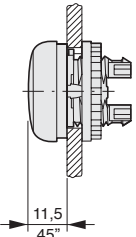


Pilot lights

P SN/LH

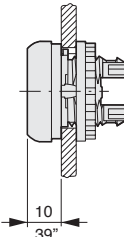


P SN/L

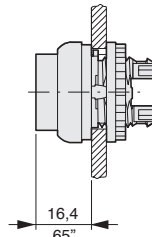


Push buttons illuminated

P SN/DL

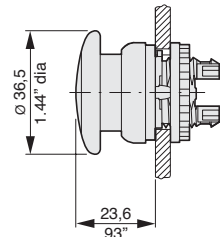


P SN/DLH



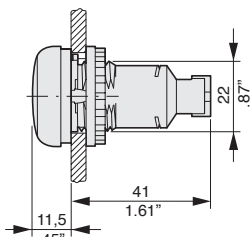
Mushroom push buttons

P SN/DP

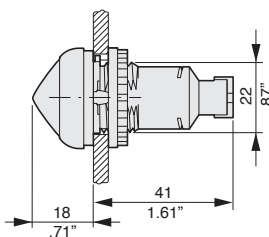


Solid pilot lights

P SN/LC...

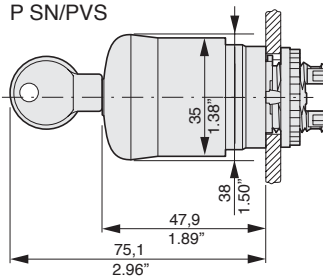


P SN/LCH...



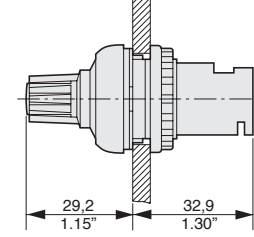
Emergency stop push button

P SN/PV.
P SN/PVT.
P SN/PVL.
P SN/PVS



Potentiometer

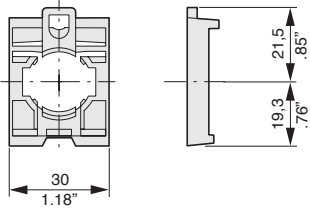
P SN/R...K



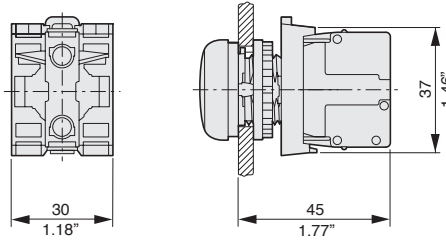
Dimensions mm
inch

Front Mounting

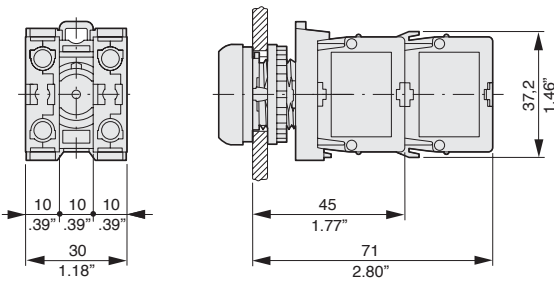
Fixing adapter
P SN/A



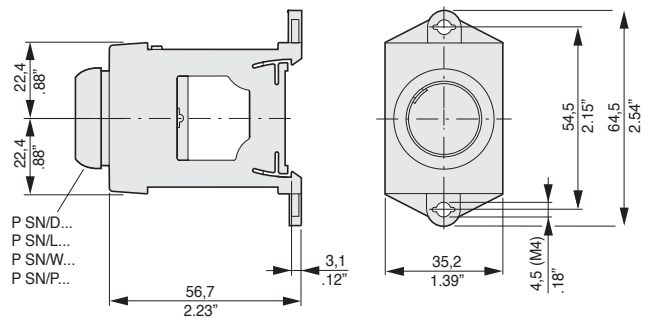
Pilot lights and illuminated push buttons



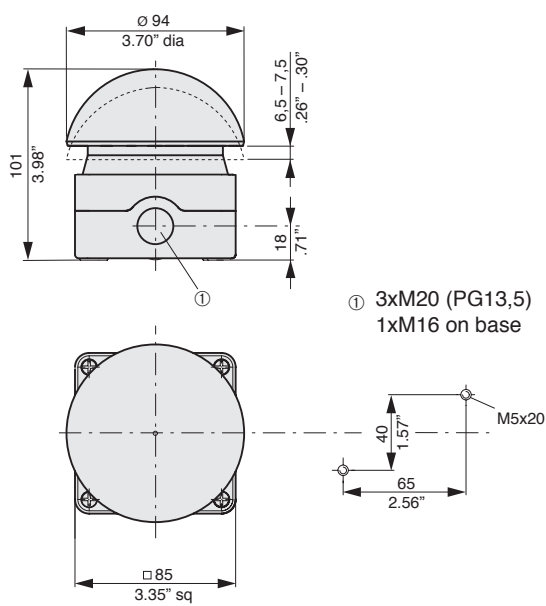
**Push buttons with P SN/K...
Push buttons with P SN/LED... + P SN/XLED...**



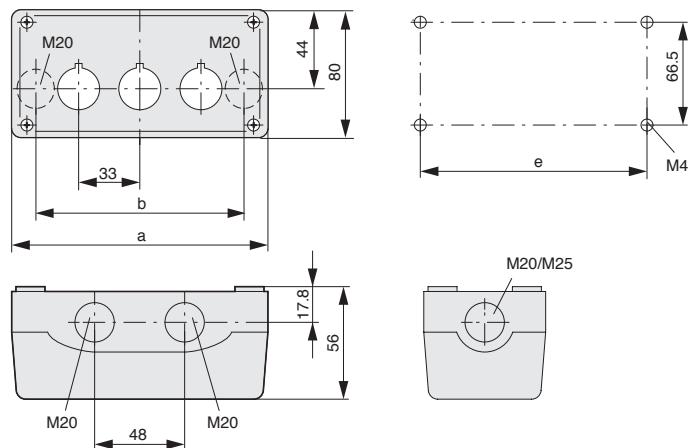
Track adapter



Foot and palm switches
P FT/R-V-KC01-IY



Plastic enclosure

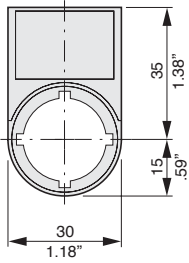


| Type | Control positions | a | b | e | Cable entries |
|-------------|-------------------|-----|-------|-------|-------------------|
| P SN/I (Y)1 | 1 | 72 | 42,6 | 58,5 | 2xM16 3xM20 2xM25 |
| P SN/I2 | 2 | 120 | 85,6 | 106,5 | 2xM20 3xM20 2xM25 |
| P SN/I3 | 3 | 153 | 118,6 | 139,5 | 2xM20 2xM25 4xM20 |
| P SN/I4 | 4 | 186 | 151,6 | 172,5 | 2xM20 2xM25 4xM20 |
| P SN/I6 | 6 | 252 | 217,6 | 238,5 | 2xM20 2xM25 4xM20 |

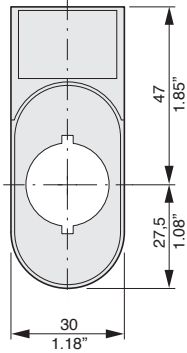
Legend Carrier

Legend carrier

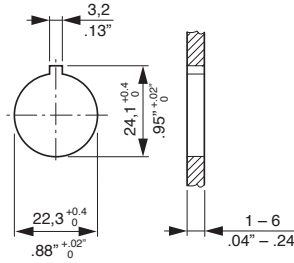
P SB/ST



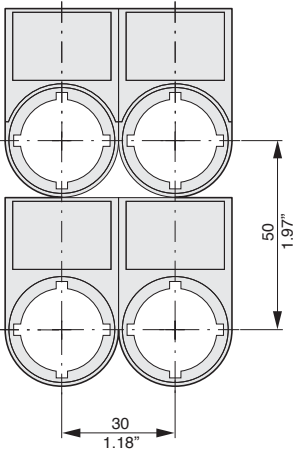
P SB/STDD



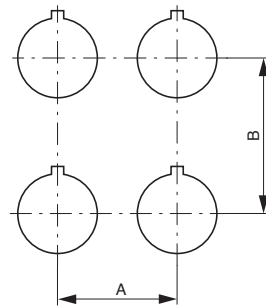
Mounting drilling with slot



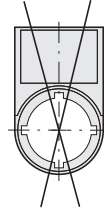
Grid dimension acc. to IEC/EN 60947



Grid dimension for different combinations

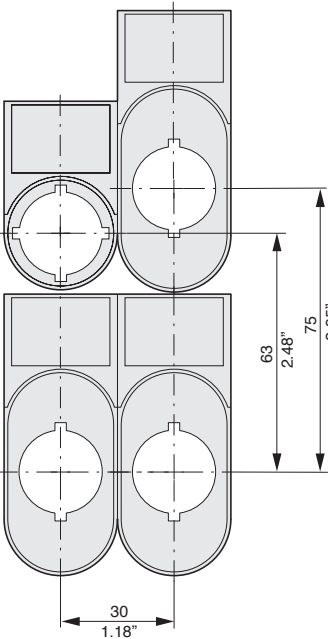


Protection cap with legend carrier cannot be combined

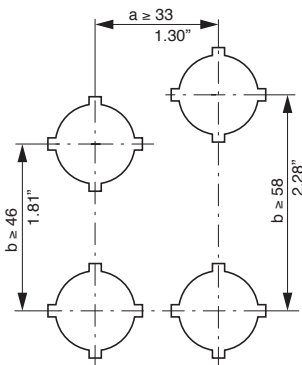


| Type | A \geq | | B \geq | |
|---------------------------------|----------|------|----------|------|
| | mm | inch | mm | inch |
| P SN/...(IEC/EN 60947) | 30 | 1.18 | 50 | 1.97 |
| P SN/... | 30 | 1.18 | 40 | 1.57 |
| P SN/D... + P SN/T/D | 33 | 1.30 | 40 | 1.57 |
| P SN/D(R)P... | 38 | 1.50 | 40 | 1.57 |
| P SN/PV... | 38 | 1.50 | 40 | 1.57 |
| P SN/PV(L...)(S...) + P SN/D... | 33 | 1.30 | 40 | 1.57 |
| P SN/DDL... | 30 | 1.18 | 55 | 2.17 |
| P SN/DDL... + P SN/T/DD | 33 | 1.30 | 58 | 2.28 |
| P SB/ST | 30 | 1.18 | 50 | 1.97 |
| P SB/STDD | 30 | 1.18 | 75 | 2.95 |
| P SN/XAK... | 90 | 3.54 | 90 | 3.54 |
| P SN/XZK... | 33 | 1.30 | 52 | 2.05 |
| P SN/XBK... | 60 | 2.36 | 60 | 2.36 |
| P SN/XYK... | 50 | 1.97 | 50 | 1.97 |

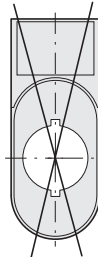
Grid dimension for P SN/DD...



Grid dimension for P SN/DD... with protection cap P SN/T/DD



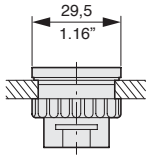
Protection cap and protection shroud with legend carrier cannot be combined



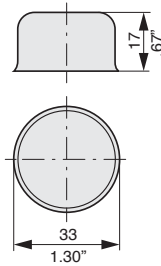
Dimensions mm
 inch

Blanking Plug, Protection Caps, Protective Shroud, Emergency Stop Plates, Cam Switches

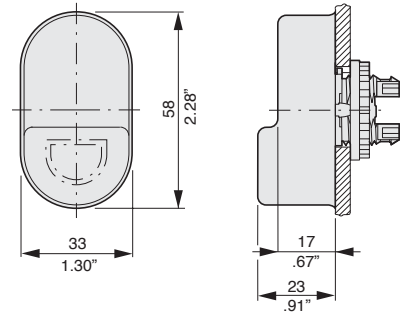
Blanking plug
P SN/B



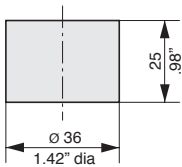
Protection cap
P SN/T/D



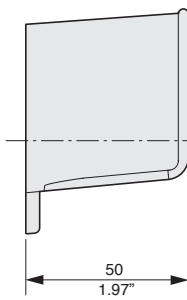
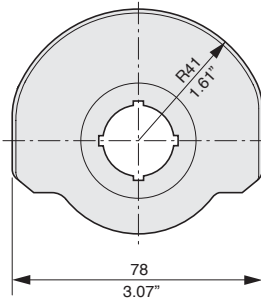
Protection cap
P SN/T/DD



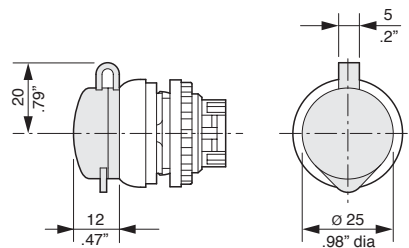
Protective shroud
P SN/XGWK



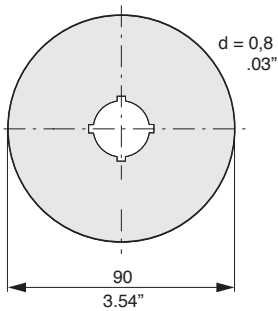
P SN/XGPV



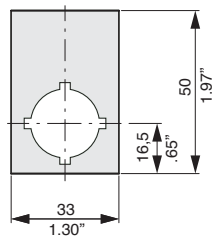
Protection cap
P SN/XWS



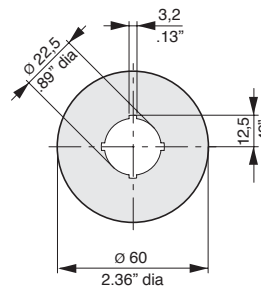
Emergency stop plates
P SN/XAK



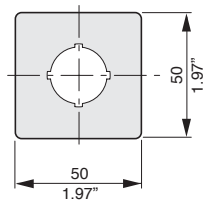
P SN/XZK...



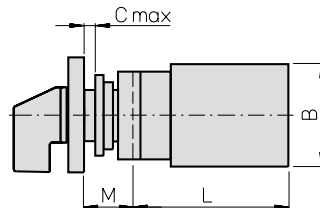
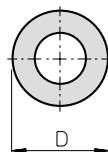
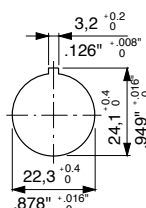
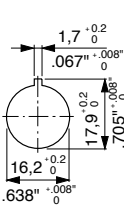
P SN/XBK...



P SN/XYK1



Cam switches



| B | C | D | M |
|-----------|----|------------|------|
| 28 | 5 | 29,5 | 12,5 |
| 1.1 | .2 | 1.16 | .49 |
| L 1 stage | | L 2 stages | |
| 38,5 | | 50,5 | |
| 1.52 | | 1.99 | |

Technical Data

| | | | Contact Blocks | LED Elements | Push Buttons Mushroom P/B momentary | Double-Push Buttons | Rotary Switches Rotary Switches illuminated |
|---|--|-------------------|---|-------------------------|-------------------------------------|---------------------|---|
| General | | | | | | | |
| Standards and requirements | | | IEC/EN 60947, VDE 0660 | | | | |
| Mechanical life | operations | x 10 ⁶ | 5 | – | 5 | 0,2 | 0,1 |
| Max. operating frequency | | S/h | 3600 | – | 3600 | 3600 | 2000 |
| Operating force | | N | ≤ 5 | – | ≤ 5 | ≤ 5 | – |
| Operating torque | | Nm | ≤ 0,8 (screw terminals) | ≤ 0,8 (screw terminals) | – | – | ≤ 0,3 |
| Protection IEC/EN 60529 | | | IP 20 | IP 20 | IP 67/IP 69K | IP 67/IP 69K | IP 66 |
| Environmental resistance | | | humidity, constant, acc. to IEC 60068-2-78 | | | | |
| Ambient temperature | open | min./max. | humidity, cyclic, acc. to IEC 60068-2-30 | | | | |
| | | °C | -25/+70 | -25/+70 ¹ | -25/+70 | -25/+70 | -25/+70 |
| Mounting position | | | any | any | any | any | any |
| Shock withstand acc. to IEC 60068-2-27 | | g | > 30 | > 30 | > 30 | > 30 | > 30 |
| Shock period 11 ms, 1/2 sinus wave | | | | | | | |
| Max. permissible wire gage | | | | | | | |
| single core | min.-max. | mm ² | 0,75-2,5 | 0,75-2,5 | – | – | – |
| stranded wire | min.-max. | mm ² | 0,5-2,5 | 0,5-2,5 | – | – | – |
| Current Paths | | | | | | | |
| Rated impulse withstand voltage U _{imp} | | V | 6000 | 6000 | – | – | – |
| Rated insulation voltage U _i | | V | 500 | 500 | – | – | – |
| Overtoltage category/ Pollution degree | | | III/3 | III/3 | – | – | – |
| Control circuit reliability at 24 V DC/5 mA 5 V DC/1 mA | fault frequency H _F | | < 10 ⁻⁷ , < 1 failure per 10 ⁷ operations | | | | |
| Max. fuse size | fault frequency H _F characteristic | A gL/gG | < 5 x 10 ⁻⁶ , < 1 failure per 5 x 10 ⁶ operations | | | | |
| | | | 10 | – | – | – | – |
| Switching Capacity | | | | | | | |
| Rated operational current I _e | | | | | | | |
| AC-15 | | | | | | | |
| 115 V | | A | 6 | – | – | – | – |
| 230 V | | A | 6 | – | – | – | – |
| 400 V | | A | 4 | – | – | – | – |
| 500 V | | A | 2 | – | – | – | – |
| DC-13 | | | | | | | |
| 24 V | | A | 3 | – | – | – | – |
| 42 V | | A | 1,7 | – | – | – | – |
| 60 V | | A | 1,2 | – | – | – | – |
| 110 V | | A | 0,8 | – | – | – | – |
| 220 V | | A | 0,3 | – | – | – | – |
| Electrical life | | | | | | | |
| AC-15 | | | | | | | |
| 230 V/0,5 A | operations | x 10 ⁶ | 1,6 | – | – | – | – |
| 230 V/1,0 A | operations | x 10 ⁶ | 1,0 | – | – | – | – |
| 230 V/3,0 A | operations | x 10 ⁶ | 0,7 | – | – | – | – |
| DC-13 | | | | | | | |
| 12 V/2,8 A | operations | x 10 ⁶ | 1,2 | – | – | – | – |
| Approvals | | | | | | | |
| Technical data on request. | | | UL/CSA/GOST | UL/CSA/GOST | UL/CSA/GOST | UL/CSA/GOST | UL/CSA/GOST |

¹> 200 V AC/60 Hz: -25/+55 °C

Technical Data

| | | | Rotary Switches key operated | Potentiometer Solid Pilot Lights | Pilot Lights | Push Buttons Push Buttons, illuminated Mushroom P/B, latched | Emergency Stop Push Buttons |
|---|------------|-----------------|--|---|--------------|--|--|
| General | | | | | | | |
| Standards and requirements | | | IEC/EN 60947, VDE 0660 | | | | |
| Mechanical life | operations | $\times 10^6$ | > 0,1 | | | > 0,1 | > 0,1 |
| Max. operating frequency | | S/h | 100 | | | 1800 | 600 |
| Operating force | | N | | | | ≤ 5 | ≤ 50 |
| Operating torque | | Nm | $\leq 0,5$ | | | | |
| Protection acc. to IEC/EN 60529 | | | IP 66 | IP 66 (Potentiometer) IP 67/IP 69K (pilot light) | IP 67/IP 69K | IP 67/IP 69K | reset by turning IP 67/IP 69K reset by pulling IP 66/IP 69K |
| Environmental resistance | | | humidity, constant, acc. to IEC 60068-2-78 humidity, cyclic, acc. to IEC 60068-2-30 | | | | |
| Ambient temperature | open | min./max. | °C | -25/+70 | -25/+70 | -25/+70 | -25/+70 |
| Mounting position | | | | any | any | any | any |
| Shock withstand acc. to IEC 60068-2-27 | | | | > 30 | > 30 | > 30 | > 50 |
| Shock period 11 ms, 1/2 sinus wave | | | | | | | |
| Max. permissible wire gage | | | | | | | |
| single core | min.-max. | mm ² | | 0,5-1,5 | | | |
| stranded wire | min.-max. | mm ² | | 0,5-1,5 | | | |
| Current Paths | | | | | | | |
| Rated impulse withstand voltage U_{imp} | | V | | 4000 | | | |
| Rated insulation voltage U_i | | V | | 250 | | | |
| Overtoltage category/ Pollution degree | | | | III/3 | | | |
| Approvals | | | | | | | |
| Technical data on request. | | | UL/CSA/GOST | UL/CSA/GOST | UL/CSA/GOST | UL/CSA/GOST | UL/CSA/GOST |

Foot and Palm Switches latched

| | | | | | | | |
|--|------------|---------------|--|--|--|--|--|
| General | | | | | | | |
| Standards and requirements | | | IEC/EN 60947, VDE 0660 | | | | |
| Mechanical life | operations | $\times 10^6$ | > 0,1 | | | | |
| Max. operating frequency | | S/h | ≤ 600 | | | | |
| Operating force | | N | ≤ 60 | | | | |
| Protection acc. to IEC/EN 60529 | | | IP 67, IP 69K | | | | |
| Environmental resistance | | | humidity, constant, acc. to IEC 60068-2-78 humidity, cyclic, acc. to IEC 60068-2-30 | | | | |
| Ambient temperature | min./max. | °C | -25/+40 | | | | |
| Mounting position | | | any | | | | |
| Shock withstand acc. to IEC 60068-2-27 | | | | | | | |
| Shock period 11 ms, 1/2 sinus wave | | | | | | | |

Cam Switches CG4¹

| | | | | | | | |
|--|--------|-----------------|------------------------------|--|--|--|--|
| General | | | | | | | |
| Standards and requirements | | | IEC/EN 60947, VDE 0660 | | | | |
| Rated impulse withstand voltage U_e ² | | V | 440 | | | | |
| Rated insulation voltage U_{imp} ² | | V | 4000 | | | | |
| Rated thermal current I_U/I_{th} | | A | 10 | | | | |
| Rated operational current I_e | AC-21A | A | 10 | | | | |
| 220 V-240 V | AC-15 | A | 2,5 | | | | |
| 380 V-440 V | AC-15 | A | 1,5 | | | | |
| Max. fuse size gL/gG-characteristic | | A | 10 | | | | |
| Max. permissible wire gage | | | | | | | |
| single core or stranded wire | | mm ² | 2 x 1,5 | | | | |
| flexible wire | | mm ² | 2 x 1,5 | | | | |
| Approvals | | | | | | | |
| Technical data on request. | | | UL/CSA/GOST/CCC ³ | | | | |

¹For further cam switches, refer to Catalog 120. ²Valid for lines with grounded common neutral termination, overvoltage category III, pollution degree 3.

³If this approval is required, please request when ordering.

The Range of “Blue Line” Switchgear

Technical literature covering the following products is available on request.

| | Catalog Number |
|--|----------------|
| Main Switches and Main Switches with Emergency Function 16 A-315 A Maintenance Switches 20 A-315 A Switch Disconnectors 20 A-315 A According to IEC 60947-3, EN 60947-3, VDE 0660 part 107, IEC 60204, EN 60204 and VDE 0113 | 500 |
| CL Switches 10 A-20 A C, CA and CAD Switches 10 A-315 A and L Switches 350 A-2400 A C, CA and CAD switches are designed for universal application. They are recommended for instrument, isolator, double-throw and motor control. L switches are designed for load and off-load applications. They are used to switch resistive or low inductive loads. | 100 |
| Optional Extras and Enclosures The complete product line, a large number of optional extras is available, including door interlocks, push-pull devices, cylinder and padlock attachments, control and indicator devices, AC motor drives, as well as enclosures, both insulated and metal. | 101 |
| A and AD Switches 6 A-25 A A and AD switches have 4 contacts in each switching stage. These switches provide an extensive range of switch functions and require a minimum mounting depth. Up to 36 switching positions are possible, with availability of 48 contacts per 12 stage switch column. | 110 |
| CG, CH and CHR Switches 10 A-25 A Ultra compact CG, CH and CHR switches are ideally suited for control and instrumentation applications. Switch terminals are “finger-proof” and conveniently accessible for wiring and are delivered open. All CG4 switches offer specially designed gold plated contacts or H-bridges with “cross-wire” contact systems, which facilitates their use in electronic circuitry and chemically aggressive environments. | 120 |
| DH, DHR, DK and DKR Switches 6 A-16 A DH, DHR, DK and DKR switches incorporate unique corrosion resistant contacts that permit operation on system voltage as low as 1 V. They have fully enclosed and protected contacts which can be operated either by rotary and/or lateral handle movement. D switches are used in calibration and semiconductor circuits. They are also used for relay and contactor control. | 130 |
| X Switches 200 A-630 A X switches can be applied for load, tap and gang switching duties. They incorporate 6 contacts in each switching stage. Their compact design provides a minimum length dimension for mounting purposes. | 140 |
| KG Switches 20 A-315 A and KH and KHR Switches 16 A-80 A KG, KH and KHR switches are excellent circuit interruptors. They have high through fault and fault making capacities and are especially designed for use as isolators and safety switches for machine tools, distribution panels and switchboards. KG ON/OFF switches offer unusually high dimensioned air and creepage distances between terminals which are designed for time saving “straight-line” wiring. ON/OFF switches are available with up to 8 poles and double-throw switches are available with up to 4 poles. | 150 |
| Contactors 16 A-115 A and Motor Starters 1,1 kW-55 kW These include control relays, motor contactors, two and four pole output contactors, heating contactors, thermal overload relays. | 200 |
| Push Buttons and Pilot Lights, 22,5 mm Ø A complete range of state-of-the-art push buttons and pilot lights represent an ideal combination of functional security and economical efficiency in a modular design. | 302 |

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