



Kraus & Naimer

BLUE LINE switchgear

since 1907

Catalog 302

03/2018

Push Buttons and Pilot Lights, Ø 22,5 mm



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.

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WORLDWIDE SYMBOL
FOR QUALITY SWITCHGEAR

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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

- ergonomic 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.

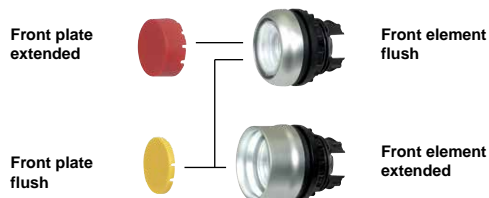
Description

Push Buttons and Pilot Lights, 22,5 mm Ø

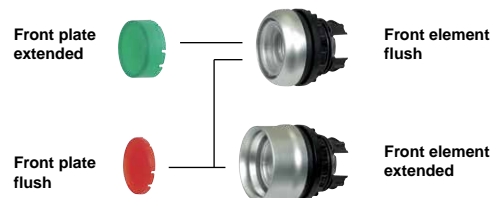
The modular design of the series push buttons and pilot lights meets your personal requirements in every respect.

Front Elements

Push buttons non-illuminated



Push buttons illuminated



Mushroom push buttons



Rotary switches



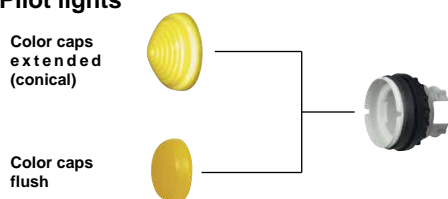
Double-push buttons



Emergency stop push buttons



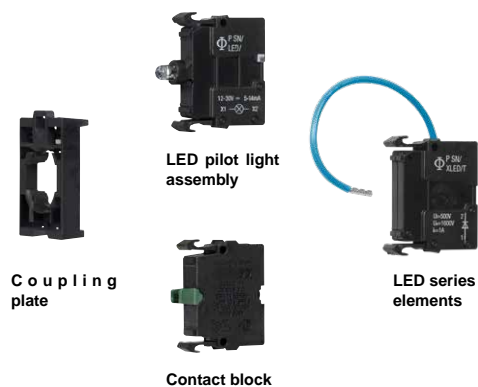
Pilot lights



Solid pilot lights



Contact Blocks and LED Pilot Light Assemblies









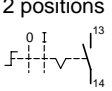
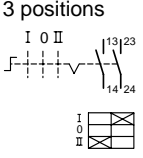







Potentiometer



Cam switches


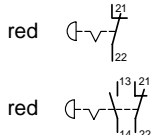
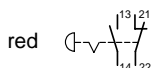




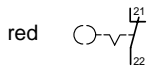



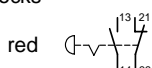
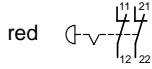



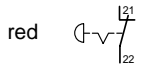




Complete Standard Units








Push Buttons Pilot Lights	Code	Rotary Switches Double-Push Buttons, Potentiometer	Code
Push buttons flush, IP 67/IP 69K non-illuminated  <div> green  red  green I  red O  </div>	P SN-WD0001 P SN-WD0002 P SN/D/G/X1-K10 P SN/D/R/X0-K01	Rotary switches, IP 66 non-illuminated, latched (changeable by coding pieces to spring return function)  <div> 2 positions  3 positions  </div>	P SN/WRK-K10 P SN/WRK3-K20
Pilot lights flush, IP 67/IP 69K with LED element  <div> green 12 V-30 V AC/DC red 12 V-30 V AC/DC green 85 V-264 V AC red 85 V-264 V AC </div>	P SN-WD0003 P SN-WD0004 P SN-WD0005 P SN-WD0006	Double-push buttons, IP 67/IP 69K with LED element, color cap opaque  <div> 85 V-264 V AC green I  red O  </div>	P SN/DDI/GR/ X1-X0-K11
Solid pilot lights, IP 67/IP 69K for direct wire (without bulb), bulb holder BA 9s flush  <div> green red yellow blue opaque </div>	P SN/LC/G P SN/LC/R P SN/LC/Y P SN/LC/B P SN/LC/W	Potentiometer, IP 66 3 separate screw terminals, $P_{max.} = 0,5 \text{ W}$  <div> 1 kΩ 4,7 kΩ 10 kΩ </div>	P SN/R1K P SN/R4K7 P SN/R10K
extended (conical)  <div> green red yellow blue opaque </div>	P SN/LCH/G P SN/LCH/R P SN/LCH/Y P SN/LCH/B P SN/LCH/W	Other resistance values on request.	

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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>CG4 A710-600 FS1</p>	
		For further cam switches, refer to Catalog 120.	

Pre-assembled Front Elements









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

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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>illuminated</p> <p>reset by pulling red</p> <p>reset by turning red</p>  <p>reset by key operation 1 key, locking MS1</p> <p>red</p>  <p>Reset units, IP 67/IP 69K non-illuminated</p> <p>blue RESET</p> <p>blue R</p> 	<p>P SN/PV</p> <p>P SN/PVT</p> <p>P SN/PVL</p> <p>P SN/PVLT</p> <p>P SN/PVS</p> <p>P SN/DZ/B/GB14</p> <p>P SN/DZ/B/X6</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>Push buttons, IP 67/IP 69K without front plate with extended front ring, non-illuminated</p>  <p>momentary</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>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/D/X</p> <p>P SN/DR/X</p> <p>P SN/DG/X</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>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		
Mushroom push buttons, IP 67/IP 69K without front plate		P SN/DP/G/X P SN/DP/R/X P SN/DP/Y/X P SN/DP/S/X	Front plates, flush		P SN/XDL/G P SN/XDL/R P SN/XDL/Y P SN/XDL/B P SN/XDL/W		
	momentary			green			
	green			red			
	red			yellow			
	yellow			blue			
	black			opaque			
	latched		legends see page 14				
Front plates			P SN/DRP/G/X P SN/DRP/R/X P SN/DRP/Y/X P SN/DRP/S/X	Front plates, extended		P SN/XDLH/G P SN/XDLH/R P SN/XDLH/Y P SN/XDLH/B P SN/XDLH/W	
	green						green
	red						red
	yellow	yellow					
	white	blue					
	black	opaque					
	legends see page 15	legends see page 14					
Push buttons, IP 67/IP 69K without front plate with flush front ring, illuminated		P SN/XDP/G P SN/XDP/R P SN/XDP/Y P SN/XDP/W P SN/XDP/S	Pilot light, IP 67, IP 69K flush, without color cap		P SN/L/X		
	momentary						
	latched						
Push buttons, IP 67/IP 69K without front plate with extended front ring, illuminated		P SN/DL/X P SN/DRL/X	Color caps		P SN/XL/G P SN/XL/R P SN/XL/Y P SN/XL/B P SN/XL/W		
	momentary			green			
	latched			red			
			yellow				
			blue				
			opaque				
			legends see page 16				
			Emergency stop plates, IP 66 rectangular		P SN/XZK/D99 P SN/XZK/GB99		
			33 mm x 50 mm				
			German				
			English				









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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	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
Legend carrier, IP 66 without plate  for push buttons	P SB/ST/X	Coupling plate 	P SN/A
 for double-push buttons	P SB/STDD/X	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	P SN/LED/G P SN/LED/R P SN/LED/W P SN/LED230/G P SN/LED230/R P SN/LED230/W
Legend insert 	P SN/XST	base mounting  12 V-30 V AC/DC green red white ¹ 85 V-264 V AC green red white ¹	P SN/LEDC/G P SN/LEDC/R P SN/LEDC/W P SN/LEDC230/G P SN/LEDC230/R P SN/LEDC230/W









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
<div><div><div>LED series elements for front mounting and base mounting</div><div><div>resistor element for 42 V-60 V AC/DC for pilot light assemblies 12 V-30 V AC/DC</div><div>LED test elements for decoupled operational test for connecting to: 12 V-30 V AC/DC</div><div>85 V-264 V AC</div></div></div><div><div><div>Contact blocks front mounting</div><div><div><div><div>3</div><div>4</div></div><div><div>1</div><div>2</div></div></div></div><div><div>for plastic enclosures</div><div><div><div><div>3</div><div>4</div></div><div><div>1</div><div>2</div></div></div></div></div><div><div><div>Plastic enclosure, IP 67/IP 69K totally insulated, lid screws made of stainless steel</div><div>top yellow, bottom black</div><div><div>control positions Ø 22,5 mm</div><div>1</div></div></div></div></div></div></div>	<div><div>P SN/XLED60</div><div>P SN/XLED/T</div><div>P SN/XLED230/T</div><div>P SN/K10</div><div>P SN/K01</div><div>P SN/KC10</div><div>P SN/KC01</div><div>P SN/IY1</div></div>	<div><div><div>Plastic enclosure, IP 67/IP 69K totally insulated, lid screws made of stainless steel</div><div>top gray, bottom black</div><div><div>control positions Ø 22,5 mm</div><div>1</div></div></div><div><div><div>top gray, bottom black</div><div><div>control positions Ø 22,5 mm</div><div>2</div><div>3</div><div>4</div><div>6</div></div></div><div><div><div>Blanking plug, IP 67/IP 69K gray, for surplus control positions</div><div></div></div><div><div><div>LED-lamps with 4 chips, BA 9s with integrated bridge rectifier</div><div><div><div>24 V-28 V AC/DC white</div><div>24 V-28 V AC/DC red</div><div>24 V-28 V AC/DC green</div><div>220 V AC/DC white</div><div>220 V AC/DC red</div><div>220 V AC/DC green</div><div>110 V-120 V AC/DC white</div><div>110 V-120 V AC/DC red</div><div>110 V-120 V AC/DC green</div></div></div></div></div></div></div></div>	<div><div>P SN/I1</div><div>P SN/I2</div><div>P SN/I3</div><div>P SN/I4</div><div>P SN/I6</div><div>P SN/B</div><div>P SN/LW024</div><div>P SN/LR024</div><div>P SN/LG024</div><div>P SN/LW220</div><div>P SN/LR220</div><div>P SN/LG220</div><div>P SN/LW110</div><div>P SN/LR110</div><div>P SN/LG110</div></div>

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Accessories

Bulb Extractor Protection Caps	Code	Protective Shrouds Rod Link, Coding Pieces	Code
<p>Bulb extractor</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>double-push buttons</p> <p>Protection cap prevents dirt and dust from getting into the key-hole (not food resistant)</p>  <p>rotary switches, key operated</p>	<p>P SN/LGL</p> <p>P SN/T/D</p> <p>P SN/T/DD</p> <p>P SN/XWS</p>	<p>Protective shroud, IP 66 protection against accidental operation for push buttons and rotary switches (cannot be combined with legend plates)</p>  <p>Protective shroud, IP 65 yellow, for emergency stop buttons (cannot be combined with legend plates)</p>  <p>Rod link for operating the middle contact block of non-illuminated rotary switches with 3 positions</p>  <p>Coding pieces for rotary switches to convert the latched function into spring return function (1 kit = 2 pieces)</p> 	<p>P SN/XGWK</p> <p>P SN/XGPV</p> <p>P SN/XW</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 60715 for front mounted units</p> 	P SN/IVS	<p>Fixation nut for push buttons, pilot lights and rotary switches</p> 	P SN/GR
<p>Nut key for push buttons, pilot lights and rotary switches</p> 	P SN/MS	<p>for cam switches</p> 	S00 T170 10
<p>for cam switches</p> 	S00 T170 09	<p>Spare key locking MS1</p> 	P SN/ES/MS1

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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		

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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	

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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

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Color Caps for Pilot Lights

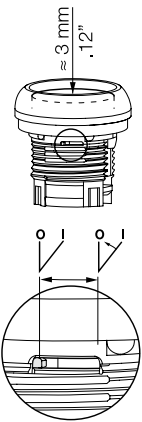
Color Caps for Pilot Lights flush				Code
Color	Legend	Symbol	Meaning	Front Plates flush
opaque	Zu			P SN/XL/W/D2
	Auf			P SN/XL/W/D3
	Ab			P SN/XL/W/D4
red	Aus			P SN/XL/R/D5
opaque	Ein			P SN/XL/W/D6
	Vorwärts			P SN/XL/W/D15
	Rückwärts			P SN/XL/W/D16
	Heben			P SN/XL/W/D17
	Senken			P SN/XL/W/D18
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
		ℓ	liquid	P SN/XL/W/X16
🔊		horn	P SN/XL/W/X17	

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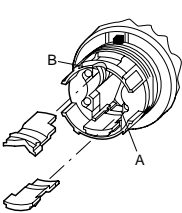
Programming and Circuit Design

Programming for converting the latched function into spring return function

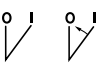
Push buttons



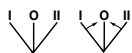
Rotary switches



P SN/XC/Y



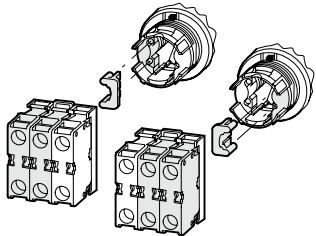
P SN/XC/Y in B



P SN/XC/Y in A and B

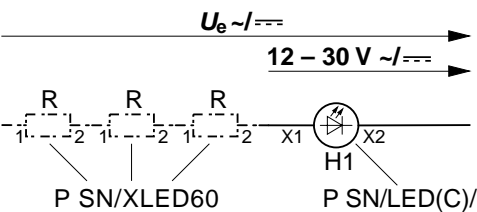
Key cannot be removed in spring return position

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



LED resistor element

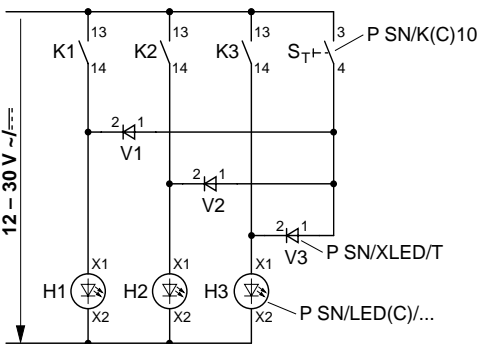
P SN/XLED60



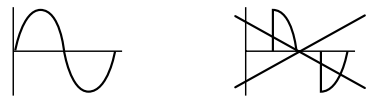
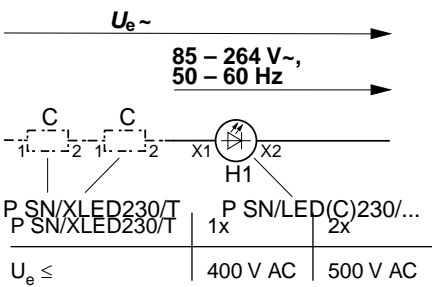
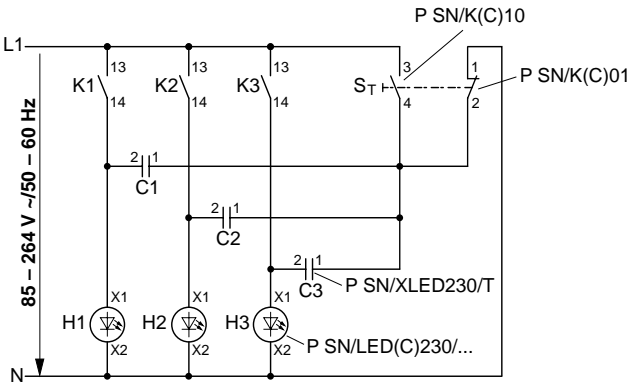
P SN/XLED60	1x	2x	3x	4x	5x	6x	7x
$U_e \leq$	60 V	90 V	120 V	150 V	180 V	210 V	240 V

LED test element

P SN/XLED/T

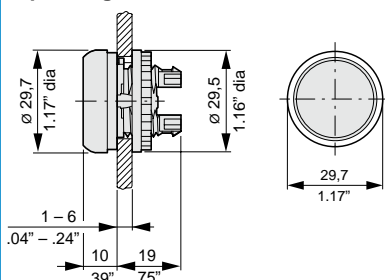


P SN/XLED230/T



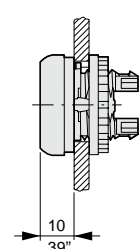
Operating and Indicator Devices, Push Buttons, Rotary Switches, Rotary Switches key operated, Pilot Lights, Push Buttons illuminated, Mushroom Push Buttons, Solid Pilot Lights, Emergency Stop Push Button, Potentiometer

Operating and indicator devices

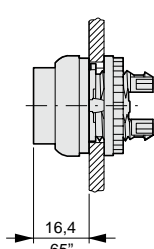


Push buttons

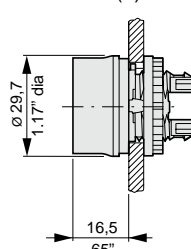
P SN/D



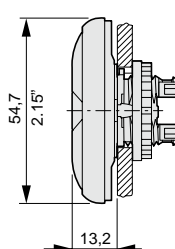
P SN/DH



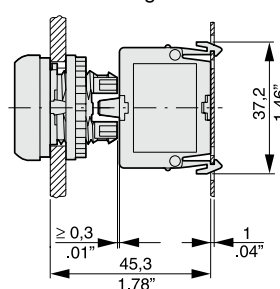
P SN/DG(L)



P SN/DD

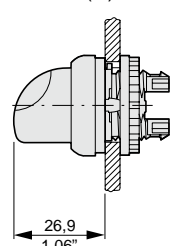


Push buttons P SN/D
base mounting



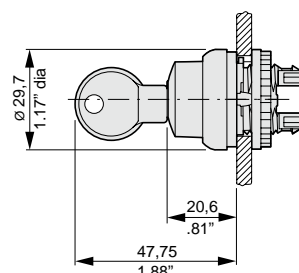
Rotary switches

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



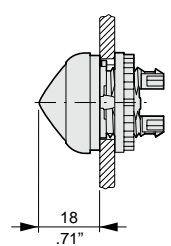
Rotary switches key operated

P SN/WRS

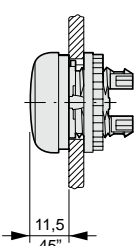


Pilot lights

P SN/LH

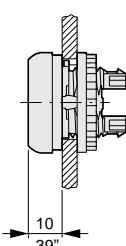


P SN/L

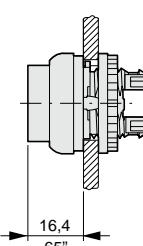


Push buttons illuminated

P SN/DL

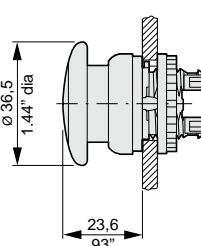


P SN/DLH



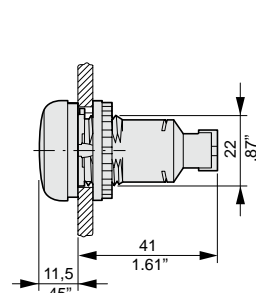
Mushroom push buttons

P SN/DP

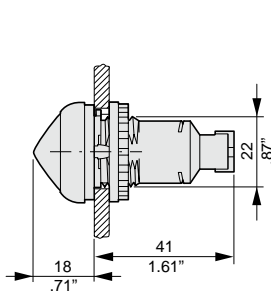


Solid pilot lights

P SN/LC...

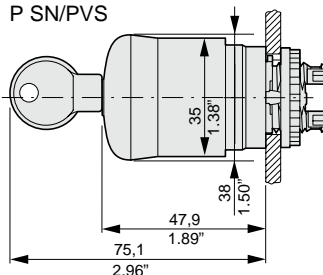


P SN/LCH...



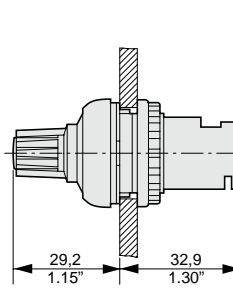
Emergency stop push button

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



Potentiometer

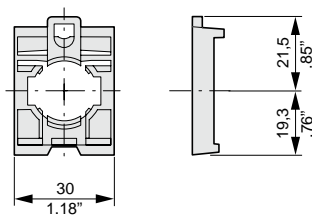
P SN/R...K



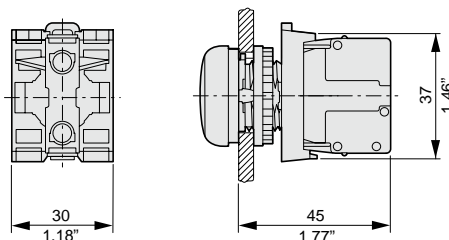
Front Mounting

Fixing adapter

P SN/A

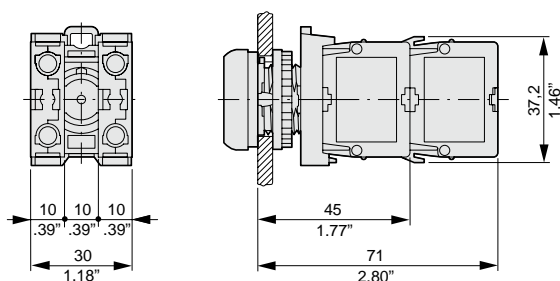


Pilot lights and illuminated push buttons

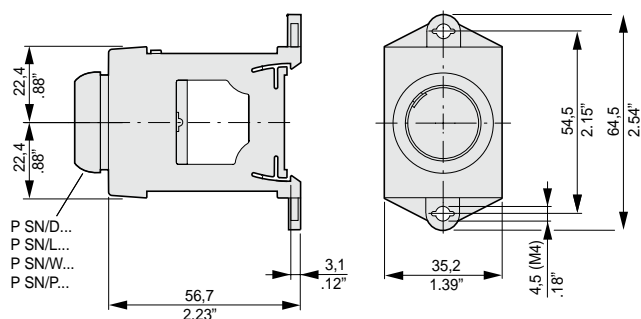


Push buttons with P SN/K...

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

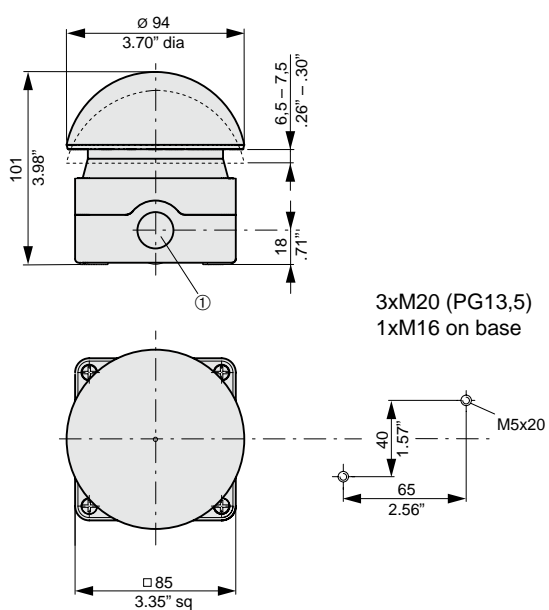


Track adapter



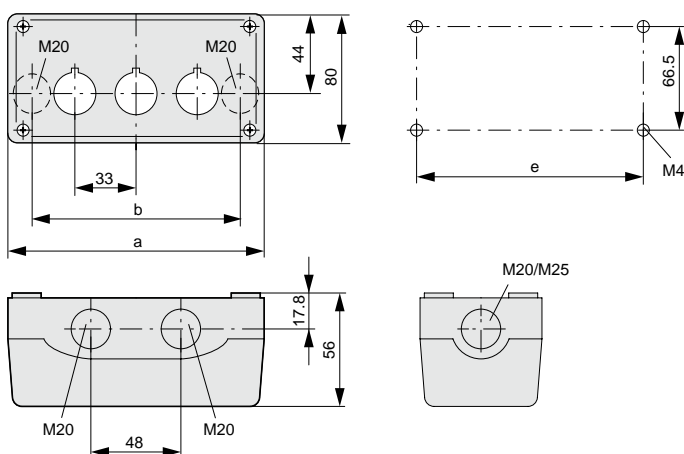
Foot and palm switches

P FT/R-V-KC01-IY



3xM20 (PG13,5)
1xM16 on base

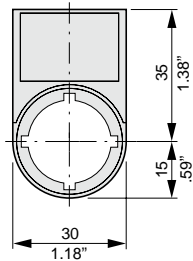
Plastic enclosure



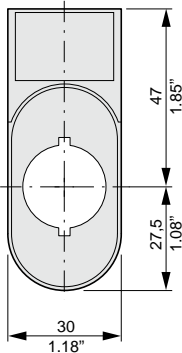
Type	Control positions	a	b	e	Cable entries
P SN/I (Y)1	1	72	42,6	58,5	2xM16 3xM20 2xM25
P SN/I2	2	120	85,6	106,5	2xM20 3xM20 2xM25
P SN/I3	3	153	118,6	139,5	2xM20 2xM25 4xM20
P SN/I4	4	186	151,6	172,5	2xM20 2xM25 4xM20
P SN/I6	6	252	217,6	238,5	2xM20 2xM25 4xM20

Legend Carrier

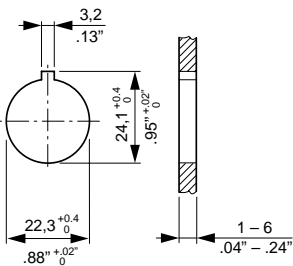
Legend carrier
P SB/ST



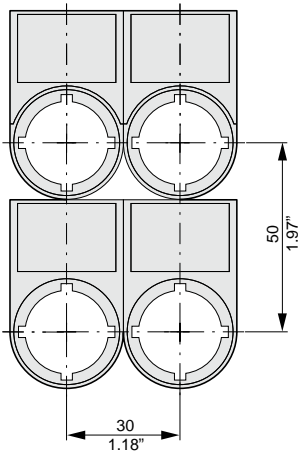
P SB/STDD



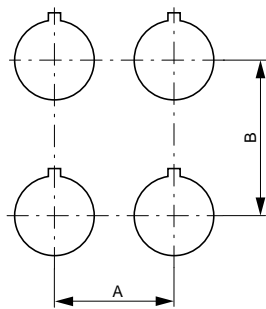
Mounting drilling with slot



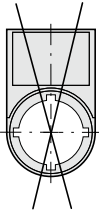
Grid dimension acc. to
IEC/EN 60947



Grid dimension for different combinations

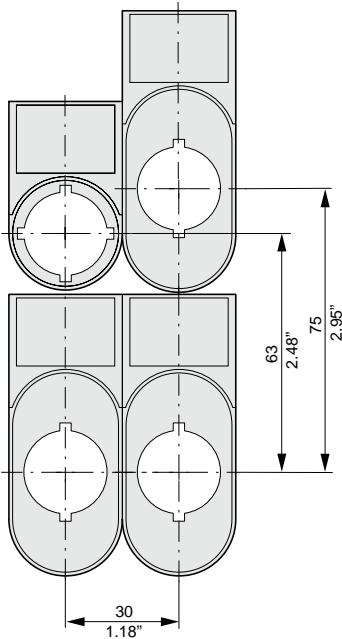


Protection cap with legend carrier
cannot be combined

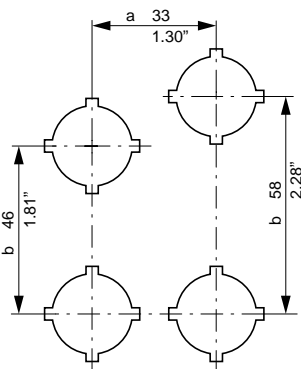


Type	A ≥		B ≥	
	mm	inch	mm	inch
P SN/...(IEC/EN 60947)	30	1.18	50	1.97
P SN/...	30	1.18	40	1.57
P SN/D... + P SN/T/D	33	1.30	40	1.57
P SN/D(R)P...	38	1.50	40	1.57
P SN/PV...	38	1.50	40	1.57
P SN/PV(L...)(S...) + P SN/D...	33	1.30	40	1.57
P SN/DDDL...	30	1.18	55	2.17
P SN/DDDL... + P SN/T/DD	33	1.30	58	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

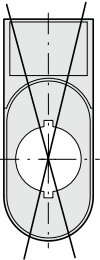
Grid dimension for P SN/DD...



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

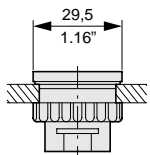


Protection cap and protection shroud
with legend carrier cannot be combined

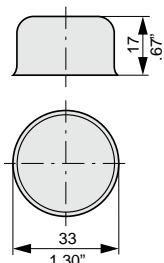


Blanking Plug, Protection Caps, Protective Shroud, Emergency Stop Plates, Cam Switches

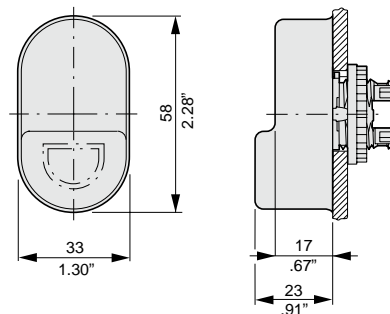
Blanking plug
P SN/B



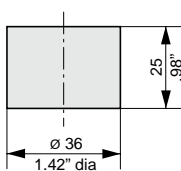
Protection cap
P SN/T/D



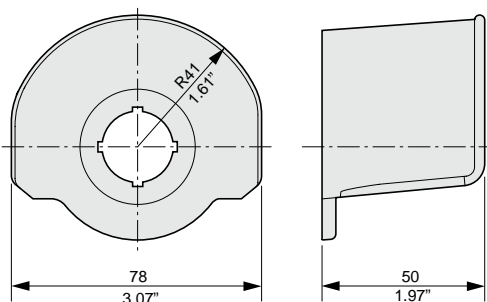
Protection cap
P SN/T/DD



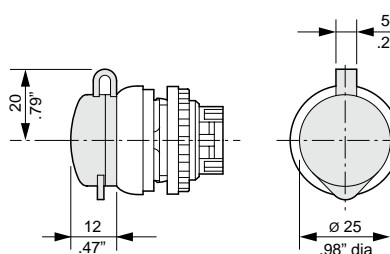
Protective shroud
P SN/XGWK



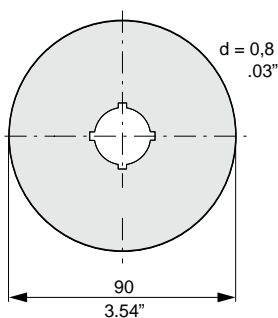
P SN/XGPV



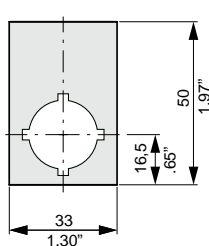
Protection cap
P SN/XWS



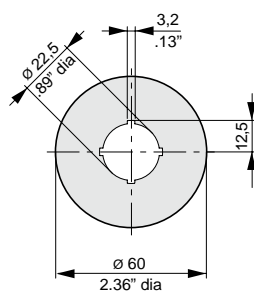
Emergency stop plates
P SN/XAK



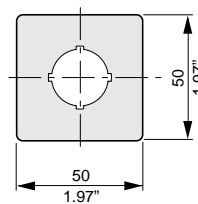
P SN/XZK...



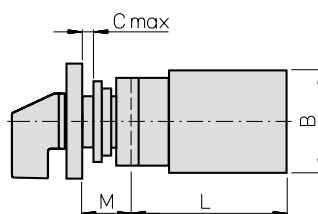
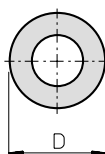
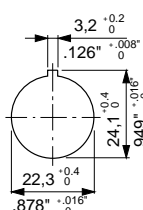
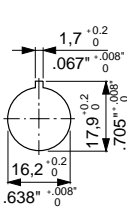
P SN/XBK...



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	$\times 10^6$	5	–	5	0,2	0,1
Max. operating frequency		S/h	3600	–	3600	3600	2000
Operating force		N	≤ 5	–	≤ 5	≤ 5	–
Operating torque		Nm	$\leq 0,8$ (screw terminals)	$\leq 0,8$ (screw terminals)	–	–	$\leq 0,3$
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			humidity, cyclic, acc. to IEC 60068-2-30				
open	min./max.	°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	–	–	–
Overvoltage category/			III/3	III/3	–	–	–
Pollution degree							
Control circuit reliability at							
24 V DC/5 mA	fault frequency H_F		$< 10^{-7}$, < 1 failure per 10^7 operations				
5 V DC/1 mA	fault frequency H_F		$< 5 \times 10^{-6}$, < 1 failure per 5×10^6 operations				
Max. fuse size	characteristic	A gG	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	$\times 10^6$	1,6	–	–	–	–
230 V/1,0 A	operations	$\times 10^6$	1,0	–	–	–	–
230 V/3,0 A	operations	$\times 10^6$	0,7	–	–	–	–
DC-13							
12 V/2,8 A	operations	$\times 10^6$	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	≤ 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	any
Shock withstand acc. to IEC 60068-2-27		g	> 30	> 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			
Overvoltage 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		g	> 15				
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	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 80 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
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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BLUE LINE switchgear



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