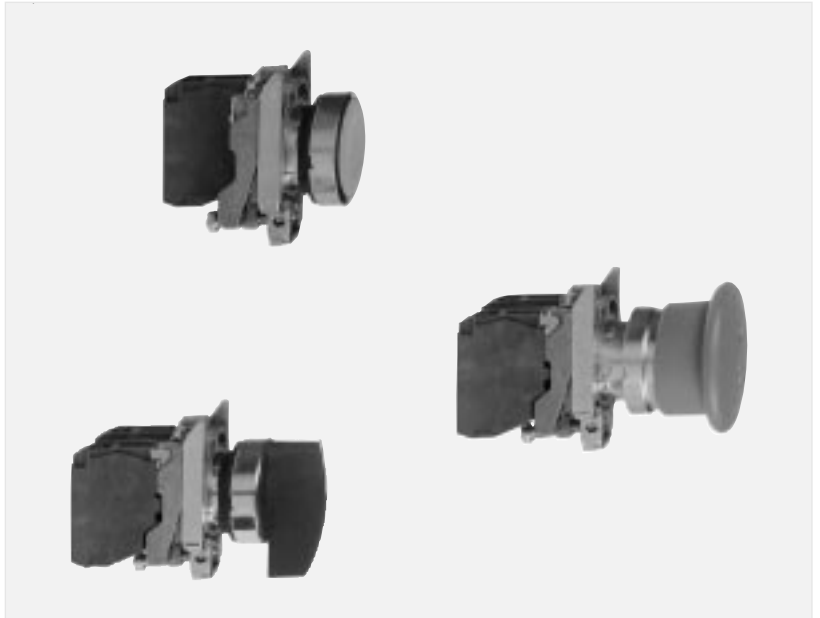


Push Buttons and Operator Interface

New Product Catalog

XB4 22 mm Die Cast Chrome Plated



CONTENTS

Description	Page
General Characteristics	32
Complete Devices	36
Non-Illuminated Operators	40
Two Button Operators	42
Emergency Stop Operators and Yellow Contrast Plates	43
Selector Switches	44
Contact Blocks	45
Specialty Operators	46
Pilot Lights and Light Modules	47
Illuminated Operators	48
Illuminated Selector Switches	50
Light Module Assemblies	51
Light Module Assemblies, Contact Blocks, Plug-In Connector Type	53
Printed Circuit Board (PCB) Components	54
Legend Plates	56
Push Button Caps	59
Accessories and Replacement Parts	60
Dimensions	62
Declaration of Conformity	129

-  **Merlin Gerin**
-  **Modicon**
-  **Square D**
-  **Telemecanique**

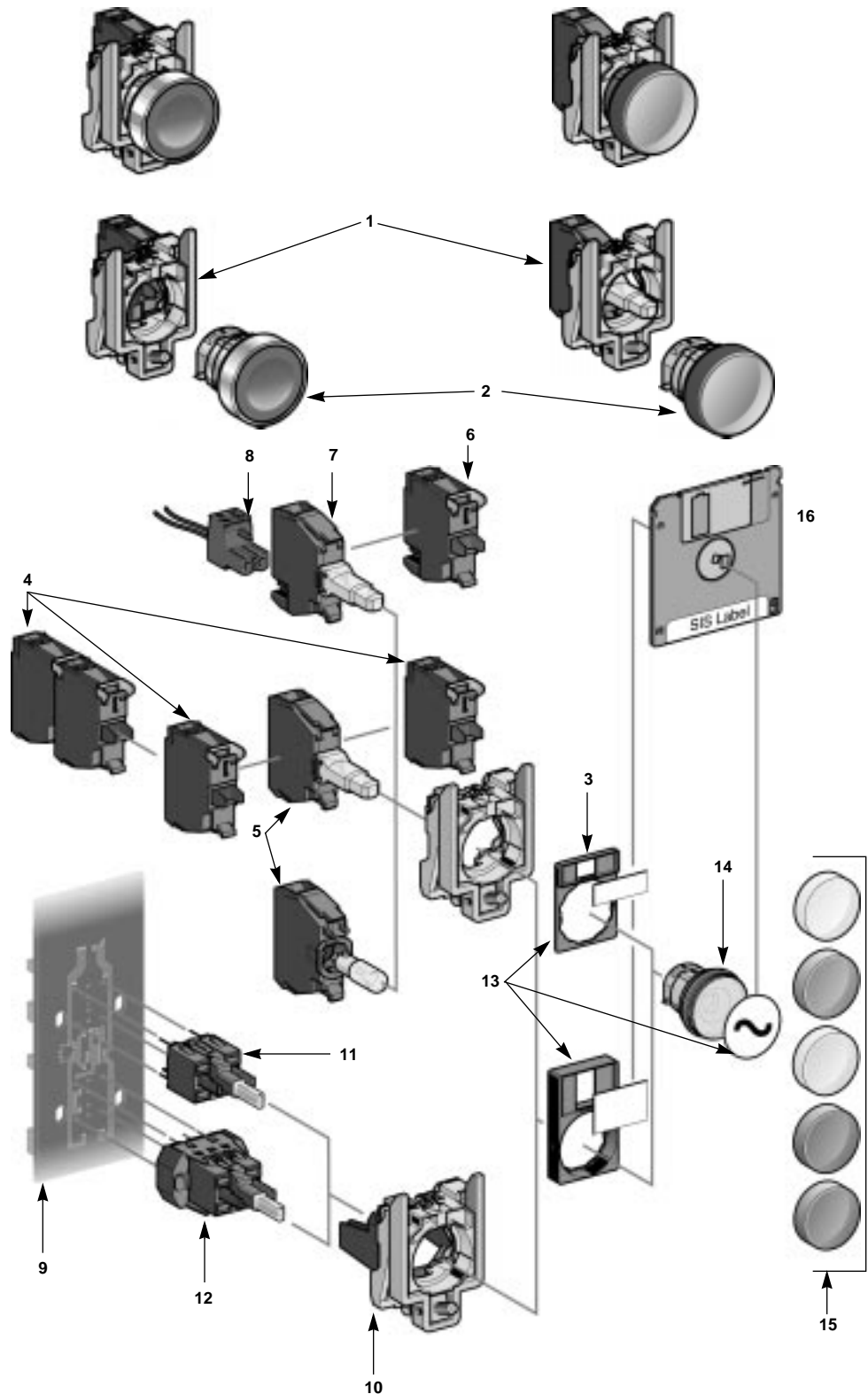
Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated General Characteristics

Components for User Assembly ZB4B:

- 1 - Electrical Bodies (pre-assembled)
- 2 - Operator Heads (pre-assembled)





Component Parts and Accessories ZB:

- 3 - Mounting Collar – Standard (ZB4BZ009)
- 4 - Contact Blocks – Screw Clamp Terminal (ZBE10•, ZBE20•)
- 5 - Light Modules – Screw Clamp Terminal (ZBV•) for Protected LED and Ba9 Base Lamps
- 6 - Contact Blocks – Plug-in Connector (ZBE10•)
- 7 - Light Modules – Plug-in Connector (ZBV•) for Protected LED only
- 8 - 2 Pin Connector and Cables for Plug-in Connection Electrical Components (APE1•)
- 9 - Printed Circuit Board (PCB) Application (Typical)
- 10 - Mounting Collar – PCB Application (ZB4BZ009 + ZB4BZ079)
- 11 - Contact Blocks – PCB Application (ZBE70•, ZBE70•6)
- 12 - Light Modules – PCB Application (ZBV•7) for Protected LED only
- 13 - Legend Plates and Holders (ZBY•, ZBZ•)
- 14 - Operator Head (Illuminated or Non-Illuminated)
- 15 - Lenses for Pilot Lights (ZBV•) or Lenses for Illuminated Push Buttons (ZBW•)
- 16 - Labeling Software



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated General Characteristics

Environment

Protective treatment standard version		"TH"
Ambient air temperature around the device	Storage	-40 to +158 °F (- 40 to +70 °C)
	Operation	-13 to +158 °F (- 25 to +70 °C) unless otherwise stated
Electric shock protection	Conforming to IEC 536	Class I
Degree of protection	Conforming to IEC 529	IP 65, unless otherwise stated IP 66, for booted push button heads
	Conforming to UL 50 and CSA C22.2 No. 94	Type 1, 2, 3, 4, 4X, 12, and 13, unless otherwise stated
Resistance to high pressure cleaner		1,015 psi (70 x 105 Pa-70 bars); distance: 3.94 in (0.1 m) Temperature: 131 °F (55 °C)
Mechanical shock protection	Conforming to EN 50102	Non illuminated heads: IK 03
		Illuminated heads: IK 05
Conforming to standards		IEC 947-1, IEC/EN 60947-5-1, IEC 947-5-4, EN 60947-1, JIS C 4520, UL 508, CSA C22.2 No. 14
Product certifications	UL Listed, CSA	Standard single contacts with screw clamp terminals: A600; Q600 Double contacts with screw clamp terminals: A600; Q600
	 File E164353 CCN NKCR  File LR 44087 Class 3211 03  File E164353 CCN NKCR 2	Light modules with screw clamp terminals JOYSTICK XD4-PA: A600; R300
	UL Recognized, CSA	Standard single contacts for plug-in connector: A300; R300 Standard single contact for printed circuit board: B300; R300
Terminal identification	BV, RINA, LROS, DNV, GL (pending)	Standard single contacts and double contacts with screw clamp terminals
Terminal identification	Conforming to EN 50005 and EN 50013	

Characteristics of Operators and Contact Blocks

Mechanical Characteristics		
Contact operation	N/C or N/O or N/O	
Positive operation	Conforming to IEC/EN 60947-5-1 Appendix K	
Operating travel (to change electrical state)	Push button	
Operating force	Push button	
	Additional contact (extra to change state)	
	Emergency stop with N/C + N/O Maintained mushroom head operators Momentary mushroom head operators	
Operating torque (to change electrical state)	Selector switches	
	Additional contact (extra)	
Mechanical durability (operating cycles)	Push button	Momentary
		Double-headed
		Push-push to release
	Selector switches	Non-illuminated
		Illuminated
	Toggle switches	
	Emergency stop push button	
	Joystick	
	Standard blocks	
Low power switching power blocks		
Vibration resistance	Conforming to IEC 68-2-6	
Shock resistance	Conforming to IEC 68-2-27	
	All functions except mushroom head push buttons– Half sine wave acceleration 11 ms: 50 gn Half sine wave acceleration 18 ms: 30 gn Mushroom head push buttons– Half sine wave acceleration 11 ms: 10 gn	



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated

General Characteristics

Electrical Characteristics				
Cabling capacity	Conforming to IEC 947-1	Screw and captive clamp terminals Min: 1 x 24 AWG (0.22 mm ²) without cable end 1 x 22 AWG (0.34 mm ²) for linking Max: 2 x 16 AWG (1.5 mm ²) with cable end Cross headed screw (Pozidrive type 1) slotted for flat 4 and 5.5 mm screwdriver		
Contact material	Silver alloy (Ag/Ni)	Standard single and double blocks with screw clamp terminals Blocks for plug-in connector Standard blocks for printed circuit board connection		
	Gold flashed (Ag/Ni/Au)	Low power switching contact blocks with screw clamp terminals Low power switching contact blocks for printed circuit board connection		
Short-circuit protection	Conforming to IEC/EN 60947-5-1	Standard blocks with screw clamp terminals: 10 A (gG cartridge fuse conforming to IEC 269-1) Blocks for plug-in connector: 4 A (gG fuse cartridge conforming to IEC 269-1) Standard blocks for printed circuit board connection: 4 A (gG cartridge fuse conforming to IEC 269-1)		
Rated insulation voltage	Conforming to IEC 947-1	Standard blocks (single or double) with screw clamp terminals: Ui = 600 V, degree of pollution 3 Blocks for plug-in connector: Ui = 250 V, degree of pollution 3 Standard blocks for printed circuit board connection: Ui = 250 V, degree of pollution 3		
Rated impulse withstand voltage	Conforming to IEC 947-1	Standard block (single or double) with screw clamp terminals: Uimp = 6 kV Blocks for plug-in connector: Uimp = 4 kV Standard blocks for printed circuit board connection: Uimp = 4 kV		
Rated operational characteristics Conforming to IEC/EN 60947-5-1	AC supply: Utilization category AC-15	Standard blocks (single or double) with screw clamp terminals: A600: Ue = 600 Vac and Ie = 1.2 A or Ue = 240 Vac and Ie = 3 A or Ue = 120 Vac and Ie = 6 A Blocks for plug-in connector: A300: Ue = 120 Vac and Ie = 6 A or Ue = 240 Vac and Ie = 3 A Standard blocks for printed circuit board connection: B300: Ue = 120 Vac and Ie = 3 A or Ue = 240 Vac and Ie = 1.5 A		
	DC supply: Utilization category DC-13	Standard single or double blocks with screw clamp terminals: Q600: Ue = 600 Vdc and Ie = 0.1 A or Ue = 250 Vdc and Ie = 0.27 A or Ue = 125 Vdc and Ie = 0.55 A Joystick XD4-PA: R300: Ue = 125 Vdc and Ie = 0.22 A or Ue = 250 Vdc and Ie = 0.1 A Blocks for plug-in connector: R300: Ue = 125 Vdc and Ie = 0.22 A or Ue = 250 Vdc and Ie = 0.1 A Standard blocks for printed circuit board connection: R300: Ue = 125 Vdc and Ie = 0.22 A or Ue = 250 Vdc and Ie = 0.1 A		
Rated operational characteristics	AC supply: Resistive load	Low power switching contact blocks with screw clamp terminals or for printed circuit board connection: Max: 24 V Max: 0.1 A		
Electrical durability Conforming to IEC/EN 60947-5-1 Appendix C Operating rate 3600 operating cycles/hour. Load factor: 0.5	AC supply for 1 million operating cycles, utilization category AC-15	Standard blocks for screw clamp terminals:		
		24 Vac	120 Vac	230 Vac
		4 A	3 A	2 A
		Standard double blocks with screw clamp terminal or plug-in connector:		
		24 Vac	120 Vac	230 Vac
		3 A	1.5 A	1 A
DC supply for 1 million operating cycles, utilization category DC-13	Standard single blocks for screw clamp terminals:	24 Vdc	110 Vdc	
		0.5 A	0.2 A	
		Standard double blocks with screw clamp terminal or plug-in connector:		
		24 Vdc	110 Vdc	
		0.4 A	0.15 A	
Electrical reliability	Failure rate Conforming to IEC 947-5-4			
	- In clean environment	Standard blocks: - at 17 V and 5 mA, $\lambda < 10^{-8}$ - at 5 V and 1 mA, $\lambda < 10^{-6}$ Low power switching contact blocks: - at 5 V and 1 mA, $\lambda < 10^{-8}$		
	- In dusty environment	Low power switching contact blocks only: at 5 V and 1 mA, $\lambda < 10^{-6}$		



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated General Characteristics

Characteristics of Light Modules

Mechanical Characteristics		
Vibration resistance	Conforming to IEC 68-2-6	Frequency (12 to 500 Hz): 5 gn
Shock resistance	Conforming to IEC 68-2-27	Half sine wave acceleration 11 ms: 50 gn Half sine wave acceleration 18 ms: 30 gn
Electrical Characteristics		
Cabling capacity	Conforming to IEC 947-1	Screw and captive clamp terminals Min: 1 x 24 AWG (0.22 mm ²) without cable end 1 x 22 AWG (0.34 mm ²) for linking Max: 2 x 16 AWG (1.5 mm ²) with cable end
Rated insulation voltage	Conforming to IEC 947-1	Direct supply pilot light modules (BA 9s bulbs): Ui = 250 V, degree of pollution 3 Pilot light modules with protected LED: Ui = 250 V, degree of pollution 3 Pilot light modules with transformer: Ui = 600 V, degree of pollution 3
Rated impulse withstand voltage	Conforming to IEC 947-1	Direct supply pilot light modules (BA 9s bulbs): Uimp = 4 kV Pilot light modules with protected LED: Uimp = 4 kV Pilot light modules with transformer: Uimp = 6 kV

Specific Characteristics of Protected LED Light Modules Only

Voltage limits	Nominal voltage	24 V: 19.2 to 30 Vdc; 21.6 to 24.6 Vac
Current consumption	Applicable to all colors	24 Vac/Vdc supply blocks: 18 mA 120 Vac supply blocks: 14 mA 240 Vac supply blocks: 14 mA
Service life	At nominal voltage and at an ambient temperature of 77 °F (25 °C)	100,000 hours
Surge withstand	Conforming to IEC 1000-4-5	2/1 kV
Resistance to fast transients	Conforming to IEC 1000-4-4	2 kV
Resistance to electromagnetic fields	Conforming to IEC 1000-4-3	10 V/m
Resistance to electrostatic discharges	Conforming to IEC 1000-4-2	8/6 kV
Electromagnetic emission	Conforming to EN 55011	Class B



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Complete Devices



XB4BA31



XB4BA4322



XB4BP51



XB4BL42



XB4BC21



XB4BL845

Non-Illuminated Push Buttons, Momentary (screw clamp terminal connections)

Shape of Head	Type of Push	Type of Contact		Marking	Color of Cap	Catalog Number
		N/O	N/C			
	Flush	1	-	-	Black	XB4BA21 (ZB4BZ101 + ZB4BA2)
					Green	XB4BA31 (ZB4BZ101 + ZB4BA3)
					Yellow	XB4BA51 (ZB4BZ101 + ZB4BA5)
					Blue	XB4BA61 (ZB4BZ101 + ZB4BA6)
					Red	XB4BA42 (ZB4BZ102 + ZB4BA4)
	Flush	1	-	"I" (white)	Green	XB4BA3311 (ZB4BZ101 + ZB4BA331)
	Flush	-	1	"O" (white)	Red	XB4BA4322 (ZB4BZ102 + ZB4BA432)
	Flush with clear silicone boot (color of pusher unobscured)	1	-	-	Black	XB4BP21 (ZB4BZ101 + ZB4BP2)
					Green	XB4BP31 (ZB4BZ101 + ZB4BP3)
					Yellow	XB4BP51 (ZB4BZ101 + ZB4BP5)
					Blue	XB4BP61 (ZB4BZ101 + ZB4BP6)
					Red	XB4BP42 (ZB4BZ102 + ZB4BP4)
	Extended	-	1	-	Red	XB4BL42 (ZB4BZ102 + ZB4BL4)
	Mushroom head Ø 40 mm	1	-	-	Black	XB4BC21 (ZB4BZ101 + ZB4BC2)

Two Button Push Buttons, Momentary (screw clamp terminal connections)

Shape of Head	Type of Push	Type of Contact		Degree of Protection	Catalog Number
		N/O	N/C		
	One flush green push (marked "I") One extended red push (marked "O")	1	1	IP 40	XB4BL845 (ZB4BZ105 + ZB4BL8434)



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Complete Devices



XB4BT845

Non-Illuminated Emergency Stop Mushroom Head Push Buttons, Ø 40 mm (Red) (screw clamp terminal connections)

Shape of Head	Type of Push	Type of Contact		Catalog Number
		N/O	N/C	
	Trigger action push-pull	1	1	XB4BT845 (ZB4BZ105 + ZB4BT84)
	Trigger action turn to release	1	1	XB4BS8445 (ZB4BZ105 + ZB4BS844)
	Trigger action Key release (No. 455)	1	1	XB4BS9445 (ZB4BZ105 + ZB4BS944)
	Push-pull	-	1	XB4BT42 (ZB4BZ102 + ZB4BT4)
	Turn to release	-	1	XB4BS542 (ZB4BZ102 + ZB4BS54)
	Key release (No. 455)	-	1	XB4BS142 (ZB4BZ102 + ZB4BS14)



XB4BD33

Non-Illuminated Selector Switches and Key Switches (screw clamp terminal connections)

Shape of Head	Type of Operator	Type of Contact		Number and Type of Positions	Catalog Number
		N/O	N/C		
	Standard lever, black	1	-	2 - maintained	XB4BD21 (ZB4BZ101 + ZB4BD2)
		1	1	2 - maintained	XB4BD25 (ZB4BZ105 + ZB4BD2)
		2	-	3 - maintained	XB4BD33 (ZB4BZ103 + ZB4BD3)
				3 - momentary to center	XB4BD53 (ZB4BZ103 + ZB4BD5)
	Extended lever, black	1	-	2 - maintained	XB4BJ21 (ZB4BZ101 + ZB4BJ2)
		2	-	3 - maintained	XB4BJ33 (ZB4BZ103 + ZB4BJ3)
				3 - momentary to center	XB4BJ53 (ZB4BZ103 + ZB4BJ5)
	Key (No. 455)	1	-	2 - maintained	XB4BG21 (ZB4BZ101 + ZB4BG2)
				XB4BG41 (ZB4BZ101 + ZB4BG4)	
				2 - momentary to left	XB4BG61 (ZB4BZ101 + ZB4BG6)
		2	-	3 - maintained	XB4BG03 (ZB4BZ103 + ZB4BG0)
				XB4BG33 (ZB4BZ103 + ZB4BG3)	

The symbol indicates key withdrawal position(s).




Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Complete Devices

Pilot Lights with Protected LED (screw clamp terminal connections)





XB4BV85

Shape of Head	Supply Voltage	Color	Catalog Number
	24 Vac/Vdc	White	XB4BVB1 (ZB4BVB1 + ZB4BV013)
		Green	XB4BVB3 (ZB4BVB3 + ZB4BV033)
		Red	XB4BVB4 (ZB4BVB4 + ZB4BV043)
		Yellow	XB4BVB5 (ZB4BVB5 + ZB4BV053)
		Blue	XB4BVB6 (ZB4BVB6 + ZB4BV063)
	110-120 Vac	White	XB4BVG1 (ZB4BVG1 + ZB4BV013)
		Green	XB4BVG3 (ZB4BVG3 + ZB4BV033)
		Red	XB4BVG4 (ZB4BVG4 + ZB4BV043)
		Yellow	XB4BVG5 (ZB4BVG5 + ZB4BV053)
		Blue	XB4BVG6 (ZB4BVG6 + ZB4BV063)

Pilot lights for BA 9s Bulb (screw clamp terminal connections)



XB4BV64






Shape of Head	Supply Voltage	Color	Catalog Number
Direct supply, for BA 9s (incandescent, LED, neon) V ≤ 250 V, 2.4 W bulb (bulb not included)			
	≤ 250 Vac/Vdc	White	XB4BV61 (ZB4BV6 + ZB4BV01)
		Green	XB4BV63 (ZB4BV6 + ZB4BV03)
		Red	XB4BV64 (ZB4BV6 + ZB4BV04)
		Yellow	XB4BV65 (ZB4BV6 + ZB4BV05)
Transformer type with 1.2 VA, 6 V secondary. BA 9s incandescent bulb included			
	110-120 Vac 50/60 Hz	White	XB4BV31 (ZB4BV3 + ZB4BV01)
		Green	XB4BV33 (ZB4BV3 + ZB4BV03)
		Red	XB4BV34 (ZB4BV3 + ZB4BV04)
		Yellow	XB4BV35 (ZB4BV3 + ZB4BV05)



XB4BV33

Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Complete Devices















Illuminated Push Buttons, Momentary, Flush

Shape of Head	Description	Type of Contact		Supply Voltage	Color of Push	Catalog Number
		N/O	N/C			
Screw clamp terminal connections						
 XB4BW33B5	 Protected LED	1	1	24 Vac/Vdc	White	XB4BW31B5 (ZB4BW0B15 + ZB4BW313)
					Green	XB4BW33B5 (ZB4BW0B35 + ZB4BW333)
					Red	XB4BW34B5 (ZB4BW0B45 + ZB4BW343)
					Yellow	XB4BW35B5 (ZB4BW0B55 + ZB4BW353)
					Blue	XB4BW36B5 (ZB4BW0B65 + ZB4BW363)
				110-120 Vac	White	XB4BW31G5 (ZB4BW0G15 + ZB4BW313)
					Green	XB4BW33G5 (ZB4BW0G35 + ZB4BW333)
					Red	XB4BW34G5 (ZB4BW0G45 + ZB4BW343)
					Yellow	XB4BW35G5 (ZB4BW0G55 + ZB4BW353)
					Blue	XB4BW36G5 (ZB4BW0G65 + ZB4BW363)
 XB4BW34G5	Direct supply for BA 9s 2.4 W max. bulb Not included	1	1	≤ 250 Vac/Vdc	White	XB4BW3165 (ZB4BW065 + ZB4BW31)
					Green	XB4BW3365 (ZB4BW065 + ZB4BW33)
					Red	XB4BW3465 (ZB4BW065 + ZB4BW34)
					Yellow	XB4BW3565 (ZB4BW065 + ZB4BW35)
					White	XB4BW3135 (ZB4BW035 + ZB4BW31)
 XB4BW3545	 Transformer type 1.2 VA, 6 V secondary. BA 9s incandescent bulb included	1	1	110-120 Vac 50/60 Hz	Green	XB4BW3335 (ZB4BW035 + ZB4BW33)
					Red	XB4BW3435 (ZB4BW035 + ZB4BW34)
					Yellow	XB4BW3535 (ZB4BW035 + ZB4BW35)
					White	XB4BW3145 (ZB4BW045 + ZB4BW31)
					Green	XB4BW3345 (ZB4BW045 + ZB4BW33)
				230-240 Vac 50/60 Hz	Red	XB4BW3445 (ZB4BW045 + ZB4BW34)
					Yellow	XB4BW3545 (ZB4BW045 + ZB4BW35)



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Non-Illuminated Operators

Non-Illuminated Operators, Momentary - Unmarked

	Shape of Head	Type of Push	Color of Cap	Catalog Number
 ZB4BA0		Flush, without color cap ■	–	ZB4BA0
		Flush, with set of 6 color caps	White Black Green Red Yellow Blue	ZB4BA9
 ZB4BA4		Flush	White Black Green Red Yellow Blue Grey	ZB4BA1 ZB4BA2 ZB4BA3 ZB4BA4 ZB4BA5 ZB4BA6 ZB4BA8
 ZB4BA38		Flush with transparent cap, for insertion of legend ▲	White Green Red Yellow Blue	ZB4BA18 ZB4BA38 ZB4BA48 ZB4BA58 ZB4BA68
		Booted (clear) Color of cap unobscured	White Black Green Red Yellow Blue	ZB4BP1 ZB4BP2 ZB4BP3 ZB4BP4 ZB4BP5 ZB4BP6
 ZB4BP18		Booted (clear) for insertion of legend ▲ Color of cap unobscured	White Green Red Yellow Blue	ZB4BP18 ZB4BP38 ZB4BP48 ZB4BP58 ZB4BP68
 ZB4BL1		Extended	White Black Green Red Yellow Blue	ZB4BL1 ZB4BL2 ZB4BL3 ZB4BL4 ZB4BL5 ZB4BL6
 ZB4BA36		Guarded Head	White Black Green Red Yellow Blue	ZB4BA16 ZB4BA26 ZB4BA36 ZB4BA46 ZB4BA56 ZB4BA66

■ Color cap to be ordered separately, see page 59.

▲ For legend ordering information see page 58.



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Non-Illuminated Operators

Non-Illuminated Operators, Momentary - Premarked



Shape of Head	Type of Push	Marking Text	Color	Color of Cap	Catalog Number
	Flush	I	White	Green	ZB4BA331
			Black	White	ZB4BA131
		START	White	Green	ZB4BA333
			Black	White	ZB4BA133
		ON	White	Green	ZB4BA341
			Black	White	ZB4BA141
		O	White	Red	ZB4BA432
			Black	Black	ZB4BA232
		STOP	White	Red	ZB4BA434
			Black	Black	ZB4BA234
		OFF	White	Red	ZB4BA435
			Black	Black	ZB4BA235
↑ ■	Black	White	ZB4BA334		
	White	Black	ZB4BA335		
	Extended	O	White	Red	ZB4BL432
			Black	Black	ZB4BL232
		STOP	White	Red	ZB4BL434
			Black	Black	ZB4BL234
		OFF	White	Red	ZB4BL435
			Black	Black	ZB4BL235

■ Cap supplied not clipped-in, allowing orientation of arrow in 4 directions: ↑, ↓, ← or →.

Mushroom Heads, Momentary

Shape of Head	Diameter of Head	Color of Head	Catalog Number	
	30 mm	Black	ZB4BC24	
		Green	ZB4BC34	
		Red	ZB4BC44	
		Yellow	ZB4BC54	
		Blue	ZB4BC64	
		Black	ZB4BC2	
	40 mm	Green	ZB4BC3	
		Red	ZB4BC4	
		Yellow	ZB4BC5	
		Blue	ZB4BC6	
		60 mm	Black	ZB4BR2
			Green	ZB4BR3
Red	ZB4BR4			
Yellow	ZB4BR5			
Blue	ZB4BR6			
Black	ZB4BR2			





Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Non-Illuminated and Two Button Operators

Non-Illuminated Push-On/Push-Off Operators ■



ZB4BH02

Shape of Head	Type of Push	Color of Push	Catalog Number
	Flush	White	ZB4BH01
		Black	ZB4BH02
		Green	ZB4BH03
		Red	ZB4BH04
		Yellow	ZB4BH05
		Blue	ZB4BH06
	Extended	White	ZB4BH1
		Black	ZB4BH2
		Green	ZB4BH3
		Red	ZB4BH4
		Yellow	ZB4BH5
		Blue	ZB4BH6

■ Maximum of 1 row of 3 contact blocks on associated body/mounting collar sub-assembly.







ZB4BA8134

Two Head Operators, Momentary



ZB4BL8312

Shape of Head	Description	Color of Pushes	Degree of Protection	Catalog Number
No Marking				
	Two flush	Green	IP 40	ZB4BA8134
		Red	IP 66	ZB4BA9134
		White	IP 40	ZB4BA8112
		Black	IP 66	ZB4BA9112
	One flush One extended	Green	IP 40	ZB4BL8334
		Red	IP 66	ZB4BL9334
		White	IP 40	ZB4BL8312
		Black	IP 66	ZB4BL9312
Premarked				
	Two flush (marked "I") (marked "O")	Green	IP 40	ZB4BA8234
		Red	IP 66	ZB4BA9234
		White	IP 40	ZB4BA8212
		Black	IP 66	ZB4BA9212
	One flush (marked "I") One extended (marked "O")	Green	IP 40	ZB4BL8434
		Red	IP 66	ZB4BL9434
		White	IP 40	ZB4BL8412
		Black	IP 66	ZB4BL9412



ZB4BL9312



ZB4BL8412



ZB4BL8434



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Emergency Stop Operators and Yellow Contrast Plates



ZB4BS834



ZB4BT4



ZB4BS64



ZB4BS74



ZBY9330

Mushroom Heads for Maintained Push Buttons

Shape of Head	Type of Push	Diameter of Head	Color	Catalog Number
	Trigger action Push-pull ▲	40 mm	Red	ZB4BT84
	Trigger action Turn to release ▲	30 mm	Red	ZB4BS834
		40 mm	Red	ZB4BS844
	Trigger action Key release (No. 455) ▲	30 mm	Red	ZB4BS934
		40 mm	Red	ZB4BS944 ■
		60 mm	Red	ZB4BS964
	Push-pull	40 mm	Black	ZB4BT2
			Red	ZB4BT4
		60 mm	Black	ZB4BX2
	Turn to release	30 mm	Black	ZB4BS42
			Red	ZB4BS44
		40 mm	Black	ZB4BS52
			Red	ZB4BS54
		60 mm	Yellow	ZB4BS55
			Black	ZB4BS62
	Key release (No. 455)	30 mm	Black	ZB4BS72
			Red	ZB4BS74
		40 mm	Black	ZB4BS12
			Red	ZB4BS14 ■
		60 mm	Black	ZB4BS22
			Red	ZB4BS24

■ Other key numbers:

- key No. 421E: add the suffix 12 to the reference.
- key No. 458A: add the suffix 10 to the reference.
- key No. 520E: add the suffix 14 to the reference.
- key No. 3131A: add the suffix 20 to the reference.

Example:

The reference for a Ø 40 mm red mushroom head for a trigger action, maintained push button, with release by key No. 421E becomes: ZB4BS94412.

- ▲ Maximum number of contact blocks fitted to associated body: 4.

Circular Legends for Emergency Stop Mushroom Heads (yellow background)

Diameter	Text	Catalog Number
60 mm	Blank	ZBY9101
	EMERGENCY STOP	ZBY9330
90 mm	Blank	ZBY8101
	EMERGENCY STOP	ZBY8330



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Selector Switches

Non-Illuminated Selector Switches ■▲



ZB4BD4



ZB4BJ3

Shape of Head	Type of Operator	Number and Type of Positions	Catalog Number		
	Standard lever, black	2 - maintained	ZB4BD2		
		2 - momentary from right to left	ZB4BD4		
		3 - maintained	ZB4BD3		
		3 - momentary to center	ZB4BD5		
		3 - momentary from left to center	ZB4BD7		
		3 - momentary from right to center	ZB4BD8		
			Extended lever, black	2 - maintained	ZB4BJ2
				2 - momentary from right to left	ZB4BJ4
3 - maintained	ZB4BJ3				
3 - momentary to center	ZB4BJ5				
3 - momentary from left to center	ZB4BJ7				
3 - momentary from right to center	ZB4BJ8				

Non-Illuminated Key Switches



ZB4BG8

Shape of Head	Type of Operator	Number and Type of Positions	Catalog Number ●
	Key (No. 455)	2 - maintained	ZB4BG2
			ZB4BG4
		2 - momentary from right to left	ZB4BG6
			ZB4BG0
			ZB4BG3
		3 - maintained	ZB4BG5
			ZB4BG9
			ZB4BG09
		3 - momentary from left to center	ZB4BG1
		3 - momentary to center	ZB4BG7
		3 - momentary from right to center	ZB4BG8
			ZB4BG08

The symbol indicates key withdrawal position(s).

- For actuation of outside contacts only.
- ▲ See selector switch sequence charts on page 50.
- Other key numbers:
 - key No. 421E: add the suffix 12 to the reference.
 - key No. 458A: add the suffix 10 to the reference.
 - key No. 520E: add the suffix 14 to the reference.
 - key No. 3131A: add the suffix 20 to the reference.

Example:

The catalog number for a head with key No. 421E for a 2 position maintained, lockable selector switch, with key withdrawal from the left-hand position, becomes: ZB4BG212.



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Contact Blocks



ZB4BZ101

Contact Blocks (Mounting Base with Contact Blocks)

Description	Type of Contact		Catalog Number
	N/O	N/C	
Screw clamp terminal connections	1	–	ZB4BZ101
	–	1	ZB4BZ102
	2	–	ZB4BZ103
	–	2	ZB4BZ104
	1	1	ZB4BZ105
	1	2	ZB4BZ141



ZB4BZ102

Add-On Contact Block (with screw clamp terminal connections) ■

Description	Type of Contact		Catalog Number
	N/O	N/C	
Standard single contact blocks	1	–	ZBE101
	–	1	ZBE102
Standard double contact blocks	2	–	ZBE203
	–	2	ZBE204
	1	1	ZBE205
Special contact blocks (for low power switching and dust protected) ▲	1	–	ZBE1016
	–	1	ZBE1026



ZBE101



ZBE102

Body/Mounting Collar

For use with	Catalog Number
Electrical block (contact or light module)	ZB4BZ009



ZBE203

Clip-on Legend Holders for Electrical Blocks (Contact Blocks and Light Modules) (with screw clamp terminal connections)

Identification of an XB4B control or signalling unit	ZBZ001
--	--------



ZBE204

- The contact blocks enable variable composition of body sub-assemblies and can be stacked to 3 rows, either: 3 rows of 3 single contacts or 1 row of 3 double contacts + 1 row of 3 single contacts (double contact blocks occupy 2 rows).
- ▲ Cannot stack additional contact blocks onto these blocks.



ZB4BZ009



ZBZ001



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Specialty Operators



ZB4BD912

Potentiometer Operator (with Mounting Collar)

Shape of Head	Description	Application	Catalog Number
	For potentiometer with shaft length 1.73 to 1.97 in (44 to 50 mm) (potentiometer not included)	For shaft Ø 0.25 in (6.35 mm)	ZB4BD922

Joystick Controllers (54 mm, Extended Operating Shaft) ■

Description	Contact Operation	Action	Catalog Number
2 direction 	1 step 1 N/O contact per direction	Maintained	XD4PA12
		Spring Return	XD4PA22
4 direction 	1 step 1 N/O contact per direction	Maintained	XD4PA14
		Spring Return	XD4PA24

■ It is not permissible to use standard contact blocks ZBE10* (single) or ZBE20* (double).

Two Position Toggle Switch

Shape of Head	Color	Type of Positions	Catalog Number
	Black	Maintained	ZB4BD28
	Black	Momentary	ZB4BD48



XD4PA12

Reset Operators, Flush, Adjustable Shaft

Shape of Head	Travel	Actuation Distance	Color	Catalog Number
	0.39 in (10 mm)	0.24-0.63 in (6-16 mm)	Black	XB4BA821
			Red	XB4BA841
			Blue	XB4BA861
		0.63-1.02 in (16-26 mm)	Black	XB4BA822
			Red	XB4BA842
			Blue	XB4BA862
	0.55 in (14 mm)	1.18-5.12 in (30-130 mm)	Black	XB4BA921
			Red	XB4BA941
			Blue	XB4BA961
		5.12-10.12 in (130-257 mm)	Black	XB4BA922
			Red	XB4BA942
			Blue	XB4BA962



ZB4BD28



XB4BA8*1



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Pilot Lights and Light Modules

Pilot Light Heads



Shape of Head	For Use with Body Comprising Light Module Type	Color of Lens	Catalog Number
	Protected LED only	White	ZB4BV013
		Green	ZB4BV033
		Red	ZB4BV043
		Yellow	ZB4BV053
		Blue	ZB4BV063
	For BA 9s incandescent bulb, neon or LED only	White	ZB4BV01
		Green	ZB4BV03
		Red	ZB4BV04
		Yellow	ZB4BV05
		Blue	ZB4BV06
		Clear	ZB4BV07

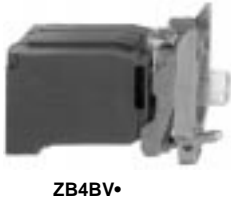
Complete Bodies (Mounting Collar + Light Module for BA 9s Incandescent Bulb, Neon or LED)



Description	Light Source	Supply Voltage (V)	Catalog Number
Screw clamp terminal connections			
Direct supply	BA 9s bulb 2.4 W max. Not included ●	≤ 250	ZB4BV6
Transformer type 1.2 VA, 6 V secondary	BA 9s incandescent bulb included	110-120 Vac 50/60 Hz	ZB4BV3
		230-240 Vac 50/60 Hz	ZB4BV4
		400-50 Hz	ZB4BV5
		440-480 Vac 60 Hz	ZB4BV8
		550-600 Vac 60 Hz	ZB4BV9

● Bulb to be ordered separately, see page 60.

Complete Bodies (Mounting Collar + Light Module with Protected LED)















Light Source	Supply Voltage	Color of Light Source	Catalog Number
Screw clamp terminal connections			
	24 Vac or Vdc	White	ZB4BVB1
		Green	ZB4BVB3
		Red	ZB4BVB4
		Yellow	ZB4BVB5
		Blue	ZB4BVB6
	110-120 Vac	White	ZB4BVG1
		Green	ZB4BVG3
		Red	ZB4BVG4
		Yellow	ZB4BVG5
		Blue	ZB4BVG6



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Illuminated Operators

Heads for Momentary Illuminated Push Buttons

	Shape of Head	Type of Push	Color	Catalog Number
 ZB4BW333		Flush	White	ZB4BW313
			Green	ZB4BW333
			Red	ZB4BW343
			Yellow	ZB4BW353
			Blue	ZB4BW363
 ZB4BW563		Flush with clear boot	White	ZB4BW513
			Green	ZB4BW533
			Red	ZB4BW543
			Yellow	ZB4BW553
			Blue	ZB4BW563
 ZB4BA18		Flush for insertion of legend	White	ZB4BA18
			Green	ZB4BA38
			Red	ZB4BA48
			Yellow	ZB4BA58
			Blue	ZB4BA68
 ZB4BW113		Extended	White	ZB4BW113
			Green	ZB4BW133
			Red	ZB4BW143
			Yellow	ZB4BW153
			Blue	ZB4BW163
 ZB4BW33		Flush	White	ZB4BW31
			Green	ZB4BW33
			Red	ZB4BW34
			Yellow	ZB4BW35
			Blue	ZB4BW36
			Clear	ZB4BW37
			 ZB4BW14	
Green	ZB4BW13			
Red	ZB4BW14			
Yellow	ZB4BW15			
Blue	ZB4BW16			
Clear	ZB4BW17			



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Illuminated Operators

Two Button with Pilot Light, Momentary (IP 40) ■ ▲



ZB4BW812743



ZB4BW823743



ZB4BW841723

Shape of Head	Description	Color of Pushes	Color of Pilot Light	Catalog Number
Only use with protected LED light modules (protected LED determines pilot light color)				
	1 flush 1 central pilot light 1 flush	Black	Clear	ZB4BW812743
		Red	Clear	ZB4BW813743
		Green	Clear	ZB4BW811723
		Red	Clear	ZB4BW811723
		White	Clear	ZB4BW811723
	1 flush 1 central pilot light 1 extended	Black	Clear	ZB4BW832743
		Red	Clear	ZB4BW833743
		Green	Clear	ZB4BW831723
		Red	Clear	ZB4BW831723
		White	Clear	ZB4BW831723
Only use with protected LED light modules (protected LED determines pilot light color) - premarked				
	1 flush (marked "I") 1 central pilot light 1 flush (marked "O")	Black	Clear	ZB4BW822743
		Red	Clear	ZB4BW823743
		Green	Clear	ZB4BW823743
		Red	Clear	ZB4BW821723
		White	Clear	ZB4BW821723
	1 flush (marked "I") 1 central pilot light 1 extended (marked "O")	Black	Clear	ZB4BW842743
		Red	Clear	ZB4BW843743
		Green	Clear	ZB4BW843743
		Red	Clear	ZB4BW841723
		White	Clear	ZB4BW841723
	1 flush (marked "I") 1 central pilot light 1 extended (marked "O")	Black	Clear	ZB4BW841723
		Red	Clear	ZB4BW841723
		Green	Clear	ZB4BW841723
		Red	Clear	ZB4BW841723
		White	Clear	ZB4BW841723

Illuminated "Push-on/Push-off" Operators ●



ZB4BH033



ZB4BH63

Shape of Head	Type of Push	Color of Lens	Catalog Number
Only use with protected LED light modules			
	Flush	White	ZB4BH013
		Green	ZB4BH033
		Red	ZB4BH043
		Yellow	ZB4BH053
		Blue	ZB4BH063
	Extended	White	ZB4BH13
		Green	ZB4BH33
		Red	ZB4BH43
		Yellow	ZB4BH53
		Blue	ZB4BH63

- For IP 66 degree of protection, install clear sealing boot ZBW008, see page 61.
- ▲ Color of centrally positioned pilot light determined by the color of the LED incorporated in the body sub-assembly.
- Maximum of 1 row of 2 contact blocks on associated body/mounting collar sub-assembly.















Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Illuminated Selector Switches



Illuminated Selector Switches, Standard Lever






ZB4BK1343

Shape of Head	Number and Type of Positions	Color of Lever	Catalog Number
Only use with protected LED light modules			
	2 - maintained 	White	ZB4BK1213
		Green	ZB4BK1233
		Red	ZB4BK1243
		Yellow	ZB4BK1253
		Blue	ZB4BK1263
	2 - momentary from right to left 	White	ZB4BK1413
		Green	ZB4BK1433
		Red	ZB4BK1443
		Yellow	ZB4BK1453
		Blue	ZB4BK1463
	3 - maintained 	White	ZB4BK1313
		Green	ZB4BK1333
		Red	ZB4BK1343
		Yellow	ZB4BK1353
		Blue	ZB4BK1363
	3 - momentary to center 	White	ZB4BK1513
		Green	ZB4BK1533
		Red	ZB4BK1543
		Yellow	ZB4BK1553
		Blue	ZB4BK1563
	3 - momentary from right to center 	White	ZB4BK1813
		Green	ZB4BK1833
		Red	ZB4BK1843
		Yellow	ZB4BK1853
		Blue	ZB4BK1863
	3 - momentary from left to center 	White	ZB4BK1713
		Green	ZB4BK1733
		Red	ZB4BK1743
		Yellow	ZB4BK1753
		Blue	ZB4BK1763

Selector Switch Sequence (using contact block assemblies, page 45; or complete bodies, page 51)

2 Position Selector Switch		
		Contact block guide
O	X	1 N.O. (left or right)
X	O	1 N.C. (left or right)
O	X	1 N.O. and
X	O	1 N.C.

3 Position Selector Switch			
			Contact block guide
X	O	O	1 N.O. (left)
O	X	O	2 N.C. wired in SERIES, (side by side)
O	O	X	1 N.O. (right)
X	X	O	1 N.C. (right)
O	X	X	1 N.C. (left)
X	O	X	2 N.O. wired in PARALLEL, (side by side)





Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Light Module Assemblies

Complete Bodies (Mounting Collar + Single Contact Block + Light Module with Protected LED)



ZB4BW03**

Light Source	Supply Voltage	Type of Contact		Color	Catalog Number
		N/O	N/C		
Screw clamp terminal connections					
Protected LED 	24 Vac or Vdc	1	-	White	ZB4BW0B11
				Green	ZB4BW0B31
				Red	ZB4BW0B41
				Yellow	ZB4BW0B51
				Blue	ZB4BW0B61
		-	1	White	ZB4BW0B12
				Green	ZB4BW0B32
				Red	ZB4BW0B42
				Yellow	ZB4BW0B52
				Blue	ZB4BW0B62
		2	-	White	ZB4BW0B13
				Green	ZB4BW0B33
				Red	ZB4BW0B43
				Yellow	ZB4BW0B53
				Blue	ZB4BW0B63
1	1	White	ZB4BW0B15		
		Green	ZB4BW0B35		
		Red	ZB4BW0B45		
		Yellow	ZB4BW0B55		
		Blue	ZB4BW0B65		
Protected LED 	110-120 Vac	1	-	White	ZB4BW0G11
				Green	ZB4BW0G31
				Red	ZB4BW0G41
				Yellow	ZB4BW0G51
				Blue	ZB4BW0G61
		-	1	White	ZB4BW0G12
				Green	ZB4BW0G32
				Red	ZB4BW0G42
				Yellow	ZB4BW0G52
				Blue	ZB4BW0G62
		2	-	White	ZB4BW0G13
				Green	ZB4BW0G33
				Red	ZB4BW0G43
				Yellow	ZB4BW0G53
				Blue	ZB4BW0G63
1	1	White	ZB4BW0G15		
		Green	ZB4BW0G35		
		Red	ZB4BW0G45		
		Yellow	ZB4BW0G55		
		Blue	ZB4BW0G65		

■ Can be fitted with additional contact blocks, see page 52.



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Light Module Assemblies



ZB4BW06



ZB4BW05



ZBVB



ZBE101



ZBE102



ZBE203



ZBE204



ZB4BZ009



ZBZ001


Contact Block and Light Module (with screw clamp terminal connections) ■

Supply	Light Source	Supply Voltage	Type of Contact ■		Color of Light Source	Catalog Number
			N/O	N/C		
Screw clamp terminal connections						
Direct supply	BA 9s 2.4 W max. bulb Not included ▲	≤ 250 Vac or Vdc	1	–	–	ZB4BW061
			–	1	–	ZB4BW062
			2	–	–	ZB4BW063
			1	1	–	ZB4BW065
Transformer type 1.2 VA, 6 V secondary	BA 9s incandescent bulb included	110-120 Vac 50/60 Hz 230-240 Vac 50/60 Hz 400 Vac 50 Hz	1	–	–	ZB4BW031
			1	1	–	ZB4BW035
			1	–	–	ZB4BW041
			1	1	–	ZB4BW045
			1	–	–	ZB4BW051
			1	1	–	ZB4BW055

■ Can be fitted with additional contact blocks, see page 52.

▲ Bulb to be ordered separately, see page 60.

Light Modules (with screw clamp terminal connections)

Description	Supply Voltage	Color of Light Source	Catalog Number
Protected LED 	24 Vac or Vdc	White	ZBVB1
		Green	ZBVB3
		Red	ZBVB4
		Yellow	ZBVB5
		Blue	ZBVB6
		110-120 Vac	White
Green	ZBVG3		
Red	ZBVG4		
Yellow	ZBVG5		
Blue	ZBVG6		
230-240 Vac	White		ZBVM1
	Green	ZBVM3	
	Red	ZBVM4	
	Yellow	ZBVM5	
	Blue	ZBVM6	
	Direct supply for BA 9s 2.4 W max. bulb Not included n	≤ 250 Vac or Vdc	–

Add-On Contact Block (with screw clamp terminal connections) ●

Description	Type of Contact		Catalog Number
	N/O	N/C	
Standard single contact blocks	1	–	ZBE101
	–	1	ZBE102
Standard double contact blocks	2	–	ZBE203
	–	2	ZBE204
	1	1	ZBE205
Special contact blocks (for low power switching and dust protected) ◆	1	–	ZBE1016
	–	1	ZBE1026

Body/Mounting Collar

For use with	Catalog Number
Electrical block (contact or light module)	ZB4BZ009

Clip-on Legend Holders for Electrical Blocks (Contact Blocks and Light Modules)

(with screw clamp terminal connections)

Identification of an XB4-B control or signalling unit	ZBZ001
---	--------

Sheet of 50 Blank Legends

Legend holder ZBZ001	ZBY001
----------------------	--------

- The contact blocks enable variable composition of body sub-assemblies and can be stacked to 3 rows, either: 3 rows of 3 single contacts or 1 row of 3 double contacts + 1 row of 3 single contacts (double contact blocks occupy 2 rows).
- ◆ Cannot stack additional contact blocks onto these blocks.



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Light Module Assemblies, Contact Blocks, Plug-In Connector Type

Contact Blocks (Mounting Base with Contact Blocks)



ZB4BZ1014

Description	Type of Contact		Catalog Number
	N/O	N/C	
Plug-in connector	–	–	ZB4BZ1014
	–	1	ZB4BZ1024
	2	–	ZB4BZ1034
	–	2	ZB4BZ1044
	1	1	ZB4BZ1054
	1	2	ZB4BZ1414



ZB4BZ1024

Contact Blocks for Plug-in Connector

Description	Type of Contacts		Catalog Number
	N/O	N/C	
Standard contact blocks	1	–	ZBE1014
	–	1	ZBE1024



ZBE1014

Light Modules for Plug-in Connector

Description	Supply Voltage	Color of Light Source	Catalog Number
Protected LED	24 Vac or Vdc	White	ZBVB14
		Green	ZBVB34
		Red	ZBVB44
		Yellow	ZBVB54
		Blue	ZBVB64
		110-120 Vac	White
Green	ZBVG34		
Red	ZBVG44		
Yellow	ZBVG54		
Blue	ZBVG64		
230-240 Vac	White		ZBVM14
	Green	ZBVM34	
	Red	ZBVM44	
	Yellow	ZBVM54	
	Blue	ZBVM64	



ZBE1024



ZBVB*4

Connecting Cables and Connector



APE1C2250

Description	Number of Connector	Wire c.s.a	Length	Catalog Number
Connecting cable with 2-pin connector 0.20 in (5.08 mm)	1	#18 AWG (0.75 mm ²)	19.69 in (500 mm)	APE1C2150
	2	#18 AWG (0.75 mm ²)	19.69 in (500 mm)	APE1C2250
Self-stripping ■ connector	–	#18 AWG (0.75 mm ²)	–	APE1PAD21

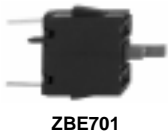
■ UR Pending



APE1PAD21

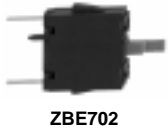


Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Printed Circuit Board (PCB) Components




Contact Blocks for Printed Circuit Board (PCB) Connection ■

Description	Type of Contacts		Catalog Number
	N/O	N/C	
Standard contact blocks	1	–	ZBE701
	–	1	ZBE702
Special contact blocks (for low power switching and dust protected)	1	–	ZBE7016
	–	1	ZBE7026



Protected LED Light Modules for Printed Circuit Board (PCB) Connection ■

Description	Supply Voltage	Color of Light Source	Catalog Number
Protected LED 	24 Vac or Vdc	White	ZBVB17
		Green	ZBVB37
		Red	ZBVB47
		Yellow	ZBVB57
		Blue	ZBVB67

(For heads with protected LED, see page 47.)



Adaptor (socket) for Printed Circuit Board (PCB)

For use with	Catalog Number
Electrical block (contact or light module)	ZBZ010



Body/Mounting Collar

For use with	Catalog Number
Electrical block (contact or light module)	ZB4BZ009



Accessories Specifically for Printed Circuit Boards (PCB) Connection ■

Description	Application	Catalog Number
Pillar	Printed circuit board support	ZB4BZ079
Mounting screw for printed circuit board	Pillar (ZB4BZ079)	ZBZ006

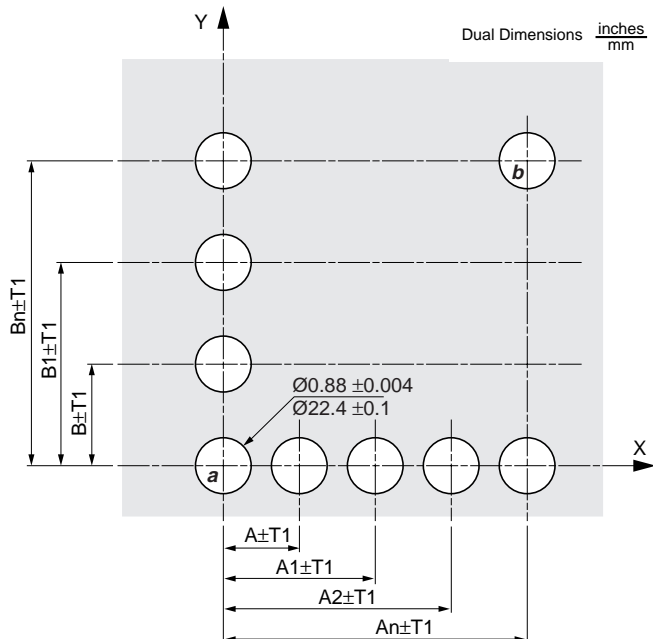
■ For details of support drilling and printed circuit board, see page 55. Must be used in conjunction with ZBZ010 adaptor (socket).



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated PCB Layout and Design

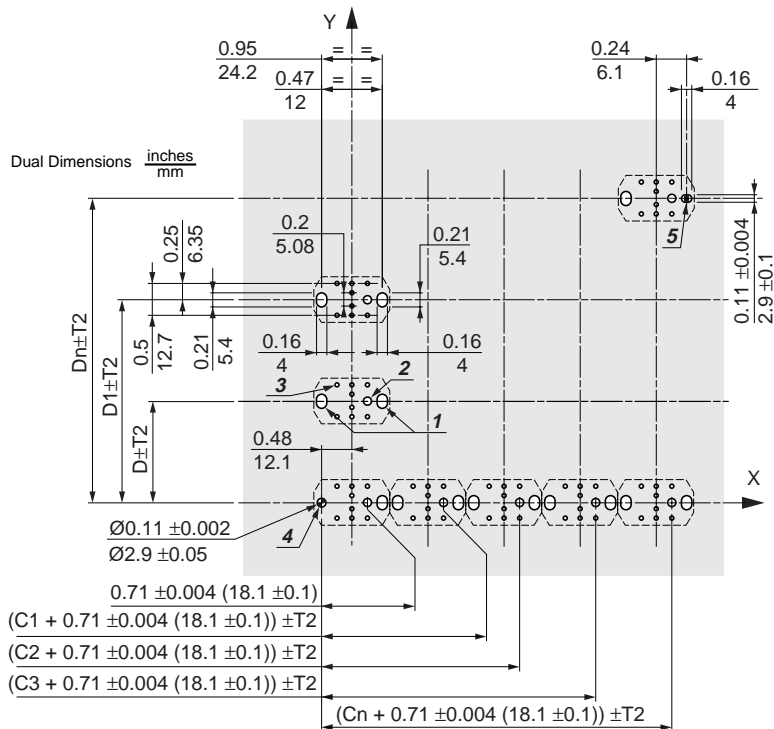
Connecting Control Units to Printed Circuit Boards (PCB)

Panel cut-out (viewed from installers side)



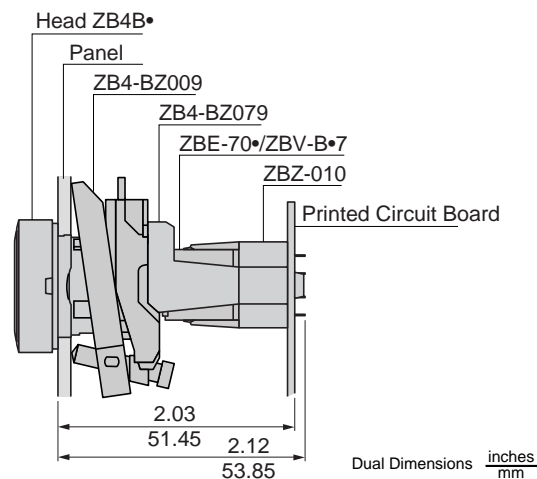
Printed Circuit Board Drilling

(viewed from electrical block side)



Installation Precautions:

1. Minimum circuit board thickness:
0.063 in (1.6 mm)
2. Cut-out diameter:
0.88 in \pm 0.004 (22.4 mm \pm 0.1)
3. Orientation of body/mounting collar ZB4BZ009:
 \pm 2° 30' (excluding **a** and **b**)
4. Mounting screw ZBZ006 tightening torque:
(0.6 N•m)
5. Allow for pillar ZB4BZ079 and mounting screws every 3.54 inches (90 mm) horizontally (X), and 4.72 inches (120 mm) vertically (Y). (for cut-out with 1.18 x 1.52 inch (30 x 40 mm) centers)
6. The mounting centers marked **a** and **b** are diagonally opposed, in alignment with those on the printed circuit board marked **4** and **5**.



Mounting with adaptor (socket) ZBZ010:

- 1 Two elongated holes for ZBZ006 screw access.
- 2 One - 0.09 inch \pm 0.002 (2.4 mm \pm 0.05) \varnothing hole to center ZBZ010 adaptor.
- 3 Eight - 0.05 inch (1.2 mm) \varnothing holes.
- 4 One - 0.11 inch \pm 0.002 (2.9 mm \pm 0.05) \varnothing hole, to center printed circuit board (drilling marked **a**).
- 5 One elongated hole for orientation of printed circuit board (drilling marked **b**).

General Tolerances of the Panel and Printed Circuit Board

The cumulative tolerance must not exceed 0.012 inch (0.3 mm): T1 + T2 = 0.012 inch (0.3 mm) maximum.

Related to horizontal direction X

Dimensions: A on panel
C + 0.71 inch (18.1 mm) on printed circuit board

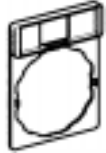
Related to vertical direction Y

Dimensions: B on panel
D on printed circuit board



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Legend Plates

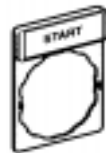
Standard (30 x 40 mm) Legend Plates for 8 x 27 mm Legends ■



ZBZ32



ZBY*101



ZBY2303

Description	Legend		Catalog Number
	Color	Text	
Without legend	–	–	ZBZ32
With blank legend (for engraving)	Black or red background	–	ZBY2101
	White or yellow background	–	ZBY4101
With international language marked legend	Black or red background	O (black background)	ZBY2146
		O (red background)	ZBY2931
		I	ZBY2147
		II	ZBY2148
		O-I	ZBY2178
		I-II	ZBY2179
		I-O-II	ZBY2186
		AUTO	ZBY2115
		STOP	ZBY2304
		AUTO-HAND	ZBY2364
		AUTO-O-HAND	ZBY2385
		CLOSE	ZBY2314
		DOWN	ZBY2308
EMERGENCY STOP	ZBY2330		
FAST	ZBY2328		
FORWARD	ZBY2305		
HAND	ZBY2316		
HAND-OFF-AUTO	ZBY2387		
INCH	ZBY2321		
LEFT	ZBY2310		
OFF	ZBY2312		
OFF-ON	ZBY2367		
ON	ZBY2311		
OPEN	ZBY2313		
POWER ON	ZBY2326		
RESET (red background)	ZBY2323		
RESET (black background)	ZBY2322		
REVERSE	ZBY2306		
RIGHT	ZBY2309		
RUN	ZBY2334		
SLOW	ZBY2327		
START	ZBY2303		
STOP-START	ZBY2366		
UP	ZBY2307		
With English language marked legend	Black or red background ▲		

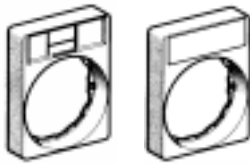
■ For legends, see page 58.

▲ "Start" functions: white letters on black background. "Stop" functions: white letters on red background (unless otherwise specified above).



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Legend Plates

Flush Mounting with Bezel Legend Plates (30 x 40 mm) for 8 x 27 mm Legends

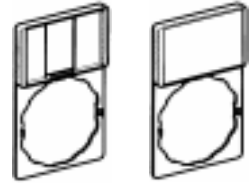


ZBZ34

ZBY•H101

Description	Color	Catalog Number
Without legend	–	ZBZ34
With blank legend	Black or red background	ZBY2H101
	White or yellow background	ZBY4H101

Standard (30 x 50 mm) Legend Plates for 18 x 27 mm Legends



ZBZ33

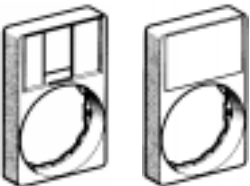
ZBY610•

Description	Color	Catalog Number
Without legend	–	ZBZ33
With blank legend	Black or red background	ZBY6101
	White or yellow background	ZBY6102

Flush Mounting with Legend Plates (30 x 50 mm) for 18 x 27 mm Legends

Description	Color	Catalog Number
Without legend	–	ZBZ35
With blank legend	Black or red background	ZBY6H101
	White or yellow background	ZBY6H102

Legends for Engraving



ZBZ35

ZBY6H10•

Description	For use with	Color	Catalog Number
8 x 27 mm	30 x 40 mm legend holders	Black or red background	ZBY0101
		White or yellow background	ZBY0102
18 x 27 mm	30 x 50 mm legend holders	Black or red background	ZBY5101
		White or yellow background	ZBY5102

Sheets of Peel-Off Legends (with backing board and protective transparent cover)

Description	For use with	Catalog Number
Sheet of 76 8 x 27 mm legends	30 x 40 mm legend holders ZBZ32 and ZBZ34	ZBY4100
Sheet of 40 18 x 27 mm legends	30 x 50 mm legend holders ZBZ33 and ZBZ35	ZBY5100

Circular Legends for Emergency Stop Mushroom Heads (yellow background)



ZBY9330

Diameter	Text	Catalog Number
60 mm	Blank	ZBY9101
	EMERGENCY STOP	ZBY9330
90 mm	Blank	ZBY8101
	EMERGENCY STOP	ZBY8330

Legends for Joystick Controllers

Description	For use with	Catalog Number	
Legends 30 x 48 mm for engraving	2 direction	Black one side Red reverse	ZBG2201
		White one side Yellow reverse	ZBG2401
Legends 48 x 48 mm for engraving	4 direction	Black one side Red reverse	ZBG4201
		White one side Yellow reverse	ZBG4401

Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Legend Plates

Marked Legends (8 x 27 mm) (for 30 x 40 mm legend holders ZBZ32 and ZBZ34)



ZBY02178

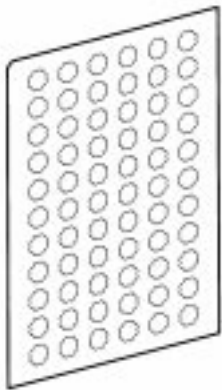


ZBY0203

Color	Text	Catalog Number		
Black or red background ■	International	O (black background)	ZBY02146	
		O (red background)	ZBY02931	
		I	ZBY02147	
		II	ZBY02148	
		O-I	ZBY02178	
		I-II	ZBY02179	
		I-O-II	ZBY02186	
		AUTO	ZBY02115	
		STOP	ZBY02304	
		English	AUTO-HAND	ZBY02364
			AUTO-O-HAND	ZBY02385
			CLOSE	ZBY02314
			DOWN	ZBY02308
			EMERGENCY STOP	ZBY02330
			FAST	ZBY02328
			FORWARD	ZBY02305
			HAND	ZBY02316
HAND-OFF-AUTO	ZBY02387			
INCH	ZBY02321			
LEFT	ZBY02310			
OFF	ZBY02312			
OFF-ON	ZBY02367			
ON	ZBY02311			
OPEN	ZBY02313			
POWER ON	ZBY02326			
RESET (red background)	ZBY02323			
RESET (black background)	ZBY02322			
REVERSE	ZBY02306			
RIGHT	ZBY02309			
RUN	ZBY02334			
SLOW	ZBY02327			
START	ZBY02303			
STOP-START	ZBY02366			
UP	ZBY02307			

■ "Start" functions: white letters on black background. "Stop" functions: white letters on red background (unless otherwise specified above).

Sheets of Legends for Push Buttons, Switches, and Pilot Lights



ZBY1101

Description	Text	Catalog Number	
Sheets of 66 circular peel-off transparent self-adhesive legends	Blank	ZBY1101	
	International	O	ZBY1146
		III	ZBY1149
		STOP	ZBY1304
		↑	ZBY1912
	English	HAND	ZBY1316
		OFF	ZBY1312
		ON	ZBY1311
		START	ZBY1303



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Push Button Caps

Push Button Caps - Unmarked



For use with	Type of Push	Color	Catalog Number	
ZB4BA0 push button heads supplied with cap	Flush	White	ZBA1	
		Black	ZBA2	
		Green	ZBA3	
		Red	ZBA4	
		Yellow	ZBA5	
		Blue	ZBA6	
	Extended	6 colors ■	ZBA9	
		Extended	White	ZBL1
			Black	ZBL2
			Green	ZBL3
			Red	ZBL4
			Yellow	ZBL5
Blue	ZBL6			
		6 colors ■	ZBL9	

Push Button Caps - Marked



For use with	Type of Push	Marking		Color of Cap	Catalog Number
		Text	Color		
ZB4BA0 push button heads supplied with cap	Flush	I ▲	White	Green	ZBA331
			Black	White	ZBA131
		START ▲	White	Green	ZBA333
			Black	White	ZBA133
		ON	White	Green	ZBA341
			Black	White	ZBA141
		UP ▲	Black	White	ZBA343
		DOWN ▲	White	Black	ZBA344
		⊕	White	Green	ZBA345
			Black	White	ZBA334 ●
		↑	White	Black	ZBA335 ●
			O ▲	White	Red
		Black			ZBA232
		STOP ▲	White	Red	ZBA434
				Black	ZBA234
		OFF	White	Red	ZBA435
				Black	ZBA235
		R ▲	White	Blue	ZBA639

- Set of 6 different colored caps: white, black, green, red, yellow, blue.
- ▲ Double injection molded marking.
- Cap supplied not clipped-in, allowing orientation of arrow in 4 directions: ↑, ↓, ← or →



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Accessories and Replacement Parts



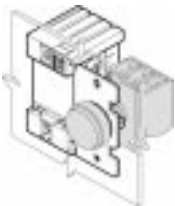
ZBZ160•



ZB4SZ3



ZB5SZ3



XBZS43



DLCE...



DL1CF...



XBFX13



ZBZ8




ZBG455

Accessories

Description	Application	Color	Catalog Number
Metal guards (padlocking possible)	Ø 40 mm Emergency stop and mushroom head push buttons	Black	ZBZ1602
		Red	ZBZ1604
		Yellow	ZBZ1605
		Blue	ZBZ1606
Metal blanking plug, round chromium plated ■	For Ø 22 mm control and signalling units		ZB4SZ3
Plastic blanking plug, round black with mounting nut	For Ø 22 mm control and signalling units		ZB5SZ3

■ Requires a ZB4BZ009 body/mounting collar for mounting, see page 45.

Modules for AS-i Interface with Ø 22 mm Control and Signalling Units

Description	Application	Catalog Number
Mounted on panel, with a Harmony style push button		
Profil P 7.0		
	4 I/O direct supply for AS-i bus	XBZS43

BA 9s Bulbs and Associated Accessories

Description	Characteristics	Catalog Number
Incandescent bulbs	6 V, 1.2 W	DL1CB006
	24 V, 2 W	DL1CE024
	120-130 V, 2.4 W	DL1CE130
Neon bulbs	120-130 V	DL1CF110
	230-240 V	DL1CF220
Bulb extractor		XBFX13
Lens cap tightening tool	Illuminated push buttons with flush push	ZBZ8

Replacement Keys for Emergency Stop Push Buttons and Selector Switches

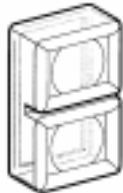
Description	Key Number	Catalog Number
Set of 2 keys	455	ZBG455
	421E	ZBG421E
	458A	ZBG458A
	520E	ZBG520E
	3131A	ZBG3131A



Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Accessories and Replacement Parts



ZBP0



ZBW008



ZBV01•3



ZBV01•

Clear Boots

Description	For use with	Catalog Number
Single boots	Booted push buttons with circular head	ZBP0
	Booted push buttons with circular head used in food industry applications	ZBP0A
Double boots	Double-headed push buttons, with or without pilot light	ZBW008
	Double-headed push buttons used in food industry applications	ZBW008A

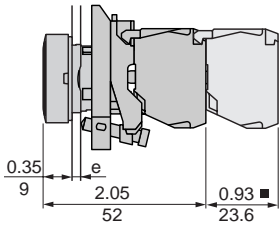
Lens Caps

For use with	Color	Catalog Number
Lens caps for protected LED light modules		
Pilot lights	White	ZBV0113
	Green	ZBV0133
	Red	ZBV0143
	Yellow	ZBV0153
	Blue	ZBV0163
Illuminated push buttons with flush push	White	ZBW9113
	Green	ZBW9133
	Red	ZBW9143
	Yellow	ZBW9153
	Blue	ZBW9163
Illuminated push buttons with extended push	White	ZBW9313
	Green	ZBW9333
	Red	ZBW9343
	Yellow	ZBW9353
	Blue	ZBW9363
Lens caps for Ba9 light modules		
Pilot lights	White	ZBV011
	Green	ZBV013
	Red	ZBV014
	Yellow	ZBV015
	Blue	ZBV016
	Clear	ZBV017
Illuminated push buttons with flush push	White	ZBW911
	Green	ZBW913
	Red	ZBW914
	Yellow	ZBW915
	Blue	ZBW916
	Clear	ZBW917
Illuminated push buttons with extended push	White	ZBW931
	Green	ZBW933
	Red	ZBW934
	Yellow	ZBW935
	Blue	ZBW936
	Clear	ZBW937

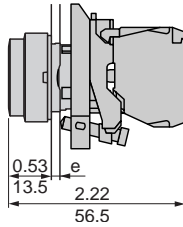


Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Dimensions

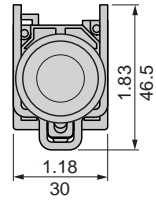
Push Buttons, momentary XB4BA••



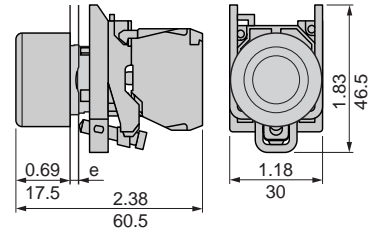
XB4BL••



Common face view

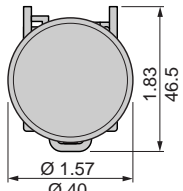
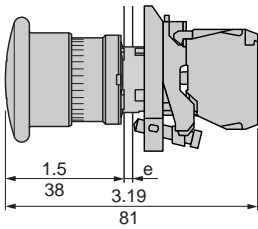


XB4BP••

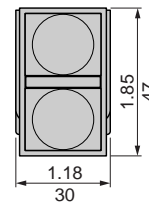
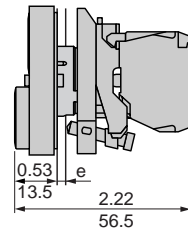


■ Can be fitted with additional contact block.

Mushroom head push buttons, momentary XB4BC21



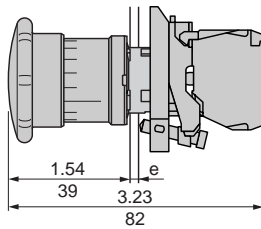
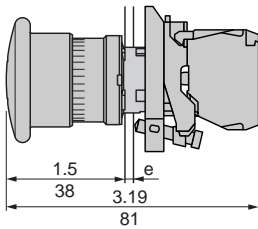
XB4BL•45, BL•4C5



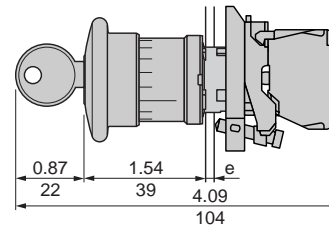
Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

e: Panel thickness, 0.04 to 0.24 in (1 to 6 mm).

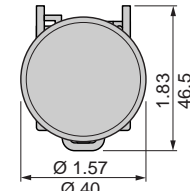
Emergency stop and mushroom head push buttons XB4BT42, BT845



XB4BS142, BS9445

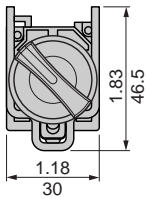
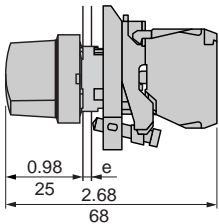


Common face view

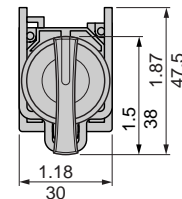
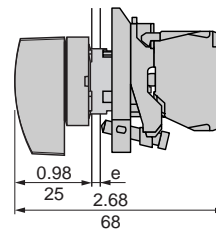


e: Panel thickness, 0.04 to 0.24 in (1 to 6 mm).

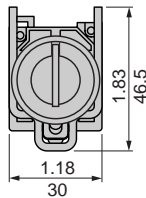
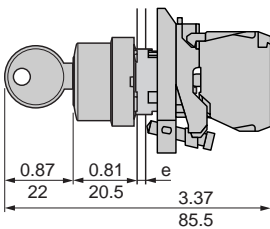
Selector switches Standard lever operator XB4BD



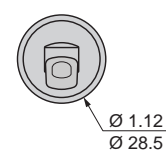
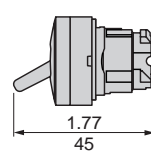
Rectangular Head XB4BJ



Key switches XB4BG



Heads for toggle switches ZB4BD•8



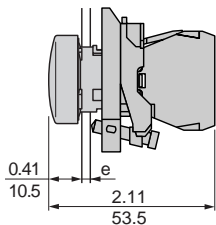
Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

e: Panel thickness, 0.04 to 0.24 in (1 to 6 mm).

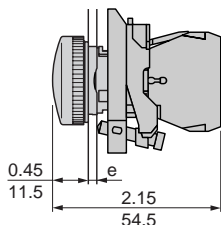


Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Dimensions

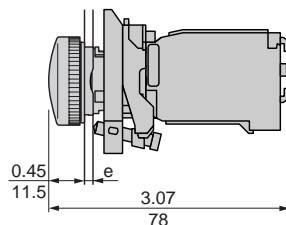
Pilot lights
Protected LED
XB4BVB•, BVG•, BVM•



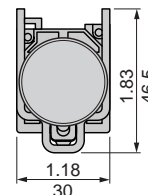
Direct supply
XB4BV6



Transformer type
XB4BV3•, BV4•

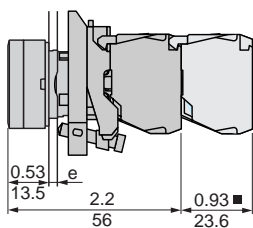


Common face view

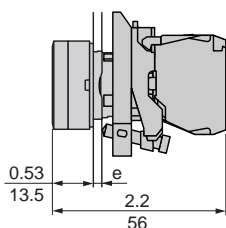


e: Panel thickness, 0.04 to 0.24 in (1 to 6 mm).

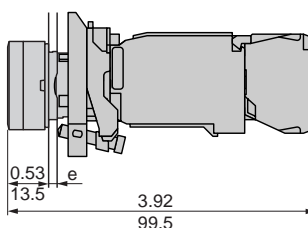
Illuminated push buttons
Protected LED
XB4BW3••5



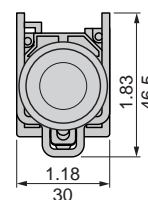
Direct supply
XB4BW3•65



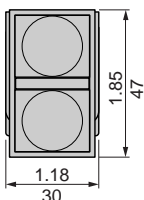
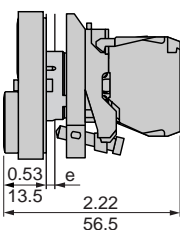
Transformer type
XB4BW3••5



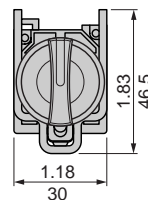
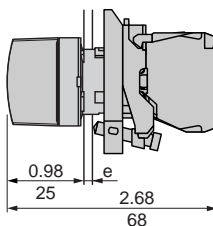
Common face view



Double headed push buttons with pilot light
Protected LED
XB4BW84•5



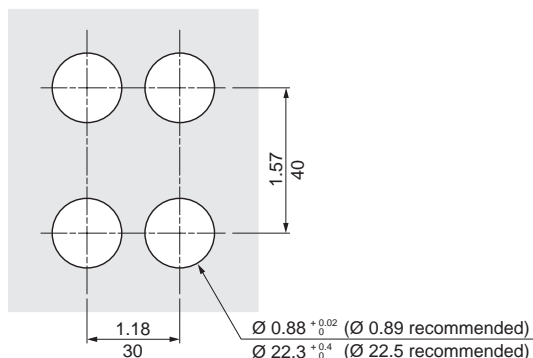
Illuminated selector switches
Protected LED
XB4BK12••5



e: Panel thickness, 0.04 to 0.24 in (1 to 6 mm).

■ Can be fitted with additional contact block.

Support panel cut-out (suitable for mounting all types of push buttons and pilot lights)

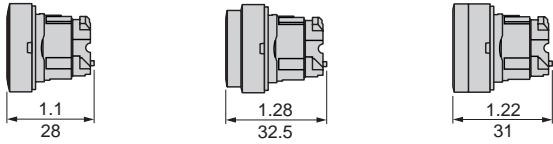


Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

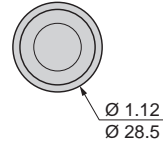


Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Dimensions

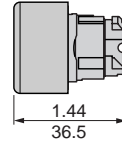
Heads for push buttons, momentary
ZB4BA•, BA***
ZB4BL•, BL***
ZB4BA•8



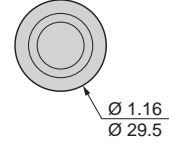
Common face view



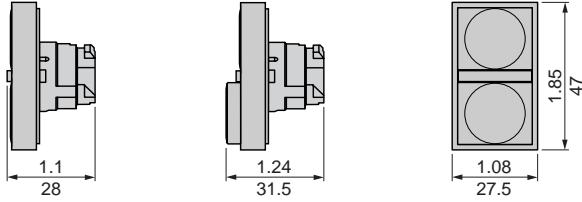
ZB4BP••



Dual Dimensions inches / mm

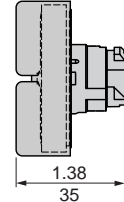


Heads for double-headed push buttons, momentary
ZB4BA81••
ZB4BA82••
ZB4BL83••
ZB4BL84••

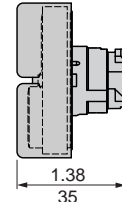


Common face view

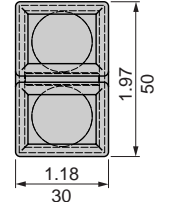
ZB4BA91••
ZB4BA92••



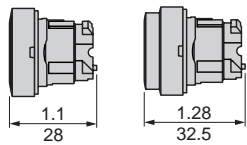
ZB4BL93••
ZB4BL94••



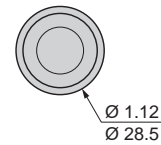
Common face view



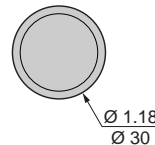
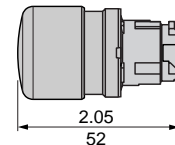
Heads for push buttons
 "Push-push to release"
ZB4BH0•, ZB4BH•



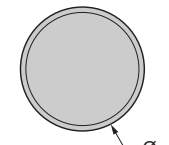
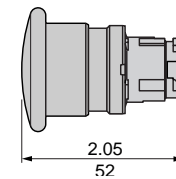
Common face view



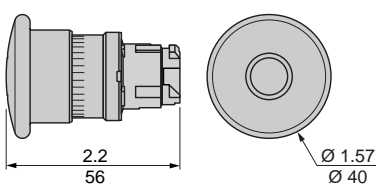
Mushroom head
ZB4BC•4



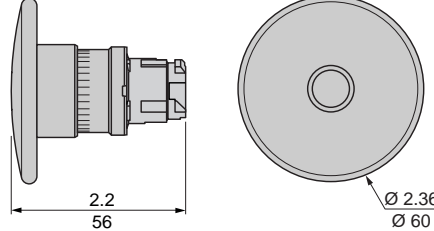
ZB4BC•, BR•



Mushroom heads for push buttons, maintained
 Push-pull
ZB4BT•, BT•4



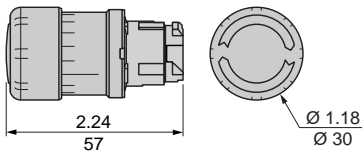
ZB4BX2, BX4



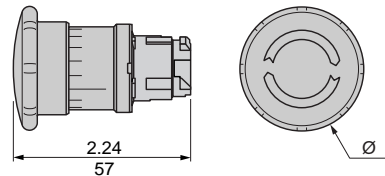
ZB4	Ø
BC•	1.57 in (40 mm)
BR•	2.36 in (60 mm)

Dual Dimensions inches / mm

Turn to release
ZB4BS4•, BS834

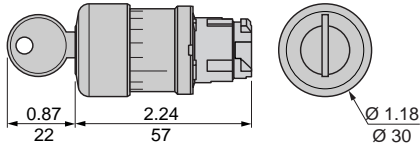


ZB4BS5•, BS844, BS6•

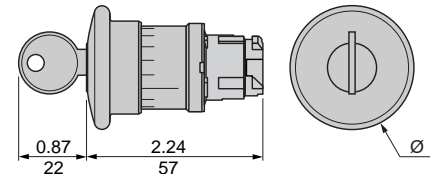


ZB4	Ø
BS5•, BS844	1.57 in (40 mm)
BS6•	2.36 in (60 mm)

Mushroom heads for push buttons, maintained
 Key release
ZB4BS7•, BS934



ZB4BS1•, BS2•, BS944, BS964

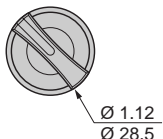
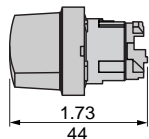


ZB4	Ø
BS1•, BS944	1.57 in (40 mm)
BS2•, BS964	2.36 in (60 mm)

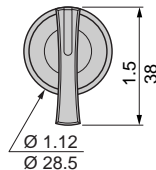
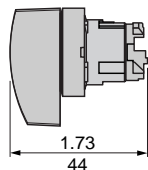


Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Dimensions

Heads for selector switches Standard lever ZB4BD•

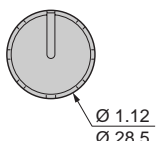
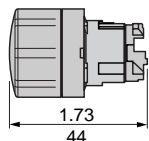


Extended lever ZB4BJ•

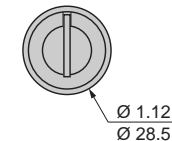
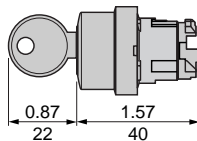


Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

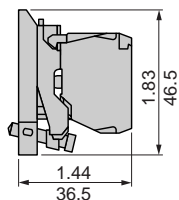
Knurled knob ZB4BD•9



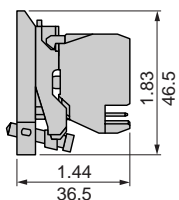
Key switches ZB4BG•, BG0•



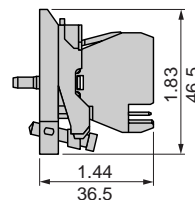
Bodies for push buttons and switches Screw clamp terminal connections ZB4BZ10•, BZ141



Plug-in connector ZB4BZ10•4, BZ1414

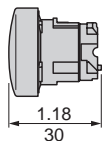


Bodies for pilot lights, plug-in connector Protected LED ZB4BV••4

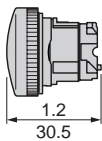


Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

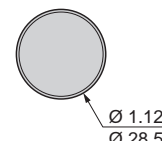
Heads for pilot lights, with light module Protected LED ZB4BV0•3



Incandescent, neon or LED ZB4BV0•

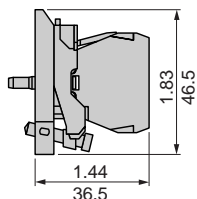


Common face view

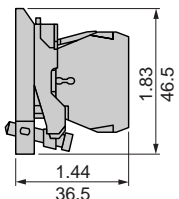


Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

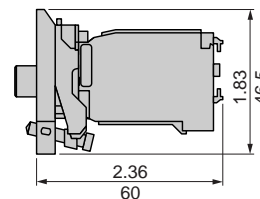
Bodies for pilot lights, screw clamp terminal connections Protected LED ZB4BV••



Direct supply, for BA 9s bulb ZB4BV6

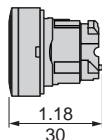


Transformer type, for BA 9s bulb ZB4BV•, BV•D•

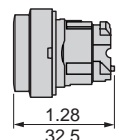


Heads for illuminated push buttons, momentary, for light source LED

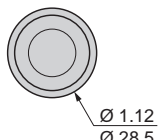
ZB4BW3•3 ZB4BW5•3, BA•8



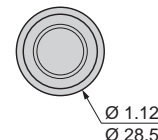
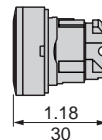
ZB4BW1•3 ZB4BL•8



Common face view



ZB4BW9•3



Dual Dimensions $\frac{\text{inches}}{\text{mm}}$



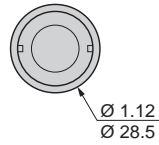
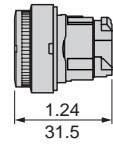
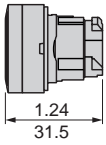
Push Buttons and Operator Interface – XB4 22 mm Die Cast Chrome Plated Dimensions

Incandescent or neon

ZB4BW3•

ZB4BW1•

Common face view



Heads for double-headed push buttons with pilot lights

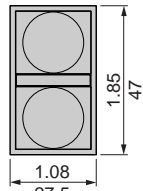
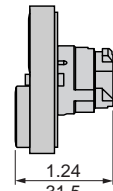
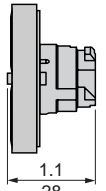
ZB4BW81•••3

ZB4BW83•••3

Common face view

ZB4BW82•••3

ZB4BW84•••3



Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

Heads for "push-push to release" illuminated push buttons

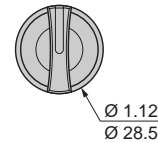
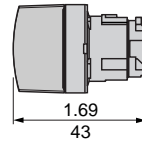
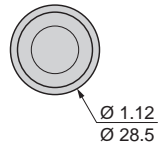
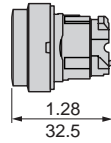
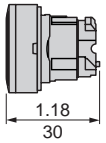
ZB4BH0•3

ZB4BH•3

Common face view

Heads for illuminated selector switches, standard lever

ZB4BK1•••3



Bodies for illuminated push buttons and selector switches

Screw clamp terminal connections

Protected LED

Direct supply

for BA 9s bulb

ZB4BW06•

Transformer type

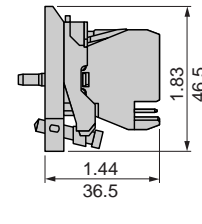
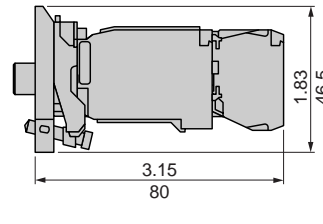
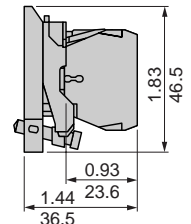
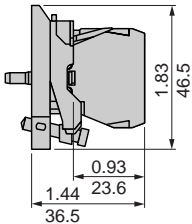
for BA 9s bulb

ZB4BW0••, BW0•D••

Plug-in connector

Protected LED

ZB4BW0•••4



Manual overload reset buttons

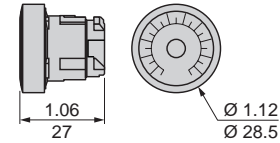
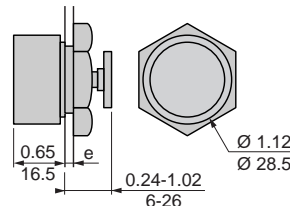
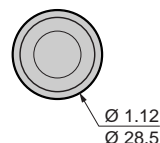
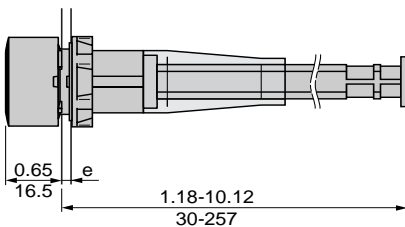
XB4BA9••

Common face view

XB4BA8••

Head + mounting base for potentiometer

ZB4BD9•2



Dual Dimensions $\frac{\text{inches}}{\text{mm}}$

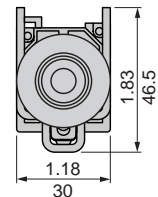
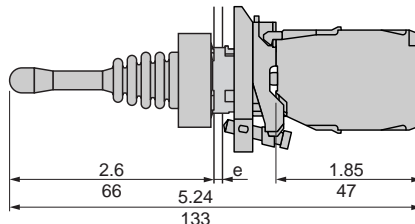
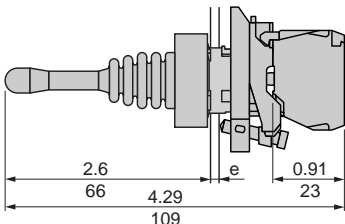
e: Panel thickness, 0.04 to 0.24 in (1 to 6 mm).

Manipulators

XD4PA•2

XD4PA•4

Common face view



e: Panel thickness, 0.04 to 0.24 in (1 to 6 mm).

