

Harmony™ XB7 monolithic 22 mm push buttons

Catalog
2012





Harmony™ XB7 monolithic 22 mm push buttons

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Harmony™ XB7: Compact, robust, monolithic 22 mm push buttons for your machines

For your control systems that require high-performance, compact, and easy-to-install components...Harmony XB7 push buttons are your ideal solution. The new Emergency Stop push button design allows immediate identification of safety functions and status of contacts.

> Simple installation, simple integration...

Easy to install and to integrate into your Control Systems

> Designed for quality and conformity...

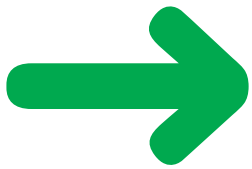
Conforms to industry standards and Machinery Directive

> High performance for industrial applications...

Robust, durable controls for industry and buildings

Make the most of your energySM





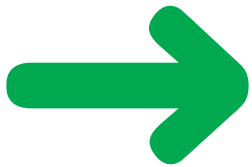
Simple installation...

The monolithic design of the Harmony™ XB7 makes it **easy to mount** on machines or control panels with only one ring nut.

The 4 top-down terminals enable **easy wiring** with finger protection (IP 20).



IEC 60529
compliant



Simple integration...

New ergonomic design in 6 colors, plus illuminated functions with **integrated LED**.

Complete product range



Push buttons ○ ● ● ● ● ● ● ●



Pilot lights ● ● ● ● ● ● ● ●

Long life: a duration of more than **70,000 hours** on pilot lights and **1 million** operations for push buttons.



Illuminated push buttons ● ● ● ● ● ● ● ●



Handle selectors ●



Key selectors ●

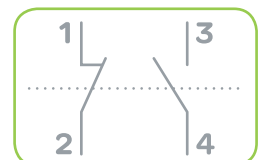


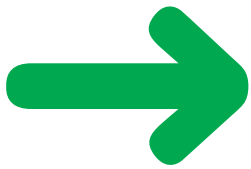
Emergency stop push buttons ●

1 reference  **1 function**

Electrical reliability

Contact functions are designed for **load switching** (I/O interface) and resistance to vibrations.





Designed for quality and conformity...

Harmony™ XB7 “Emergency stop” push buttons comply with EN/IEC and UL standards, EN 13850, EN/IEC 60947-5-5 and are designed for machines and industrial control panels. The emergency stop function consists of:

Red trigger action



Standardized yellow legend

Green mark on body allows contact state visualization



Off



On

Green
mark for contact state



Worldwide availability



Conforming to
EN/IEC 60947-5-5

International certifications:
CE, UL, CSA, CCC, GOST



High performance for industrial applications...

The Harmony XB7 push button is perfect for industry applications like packaging and other machine processes, and building applications, including: HVAC, electrical distribution, and lighting.

Assembly lines



Packaging machines



HVAC



Buildings



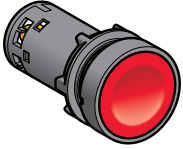
Degree of protection
IP 65

Harmony™ XB7 monolithic 22 mm push buttons

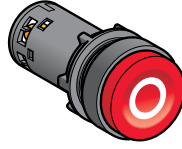
Push buttons, switches and pilot lights

Complete products: Contact functions

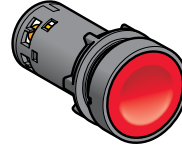
Spring return push buttons with/without marking



Flush
XB7 NA●●●●: see page 11



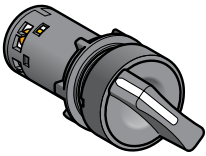
Projecting
XB7 NL●●●●: see page 11



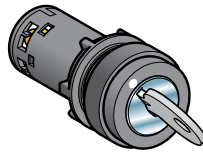
Latching push buttons without marking

Flush
XB7 NH●●: see page 11

Selector switches and key switches

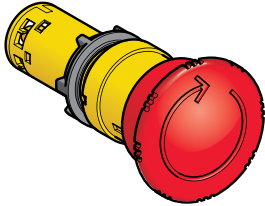


Standard handle, black
XB7 ND●●: see page 14



Key operated
XB7 NG●●: see page 14

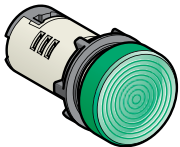
Emergency Stop push buttons



Turn to release/Push-pull/Key release
XB7 NS●●●●/XB7 NT●●●: see page 14

Complete products: Signalling functions

Pilot lights



With integral LED
XB7 EV0●●P: see page 13

Illuminated push buttons, with projecting push



With integral LED, spring return or latching
XB7 NW●●●●, XB7 NJ●●●●1: see page 13

Legend holders, legends, and accessories

See pages 15 and 16

Harmony™ XB7 monolithic 22 mm push buttons

Push buttons, switches and pilot lights

Environment			
Protective treatment	Standard version		"TH"
Ambient air temperature around the device	For storage	°C	-40 to +70
	For operation	°C	-25 to +70 for integral LED version
Electric shock protection	Conforming to IEC 61140		Class II
Degree of protection	Conforming to IEC 60529		Front face: <input type="checkbox"/> IP 65 for push buttons, illuminated push buttons, pilot lights, selector switches and Emergency Stop push buttons Rear face: <input type="checkbox"/> IP 20 (protection against direct contact)
	Conforming to UL 50E		<input type="checkbox"/> Suitable for enclosure type 3: push buttons, illuminated push buttons, selector switches, Emergency Stop push buttons <input type="checkbox"/> Suitable for enclosure type 4: pilot lights with integral LED <input type="checkbox"/> Suitable for enclosure type 12: Emergency Stop push buttons, pilot lights with integral LED
Conformity to standards	Generic standards UL, CSA, GOST, CCC and CE		<input type="checkbox"/> EN/IEC 60947-1, EN/IEC 60947-5-1 for push buttons, pilot lights, illuminated push buttons and selector switches <input type="checkbox"/> UL, EN/IEC 60947-1, EN/IEC 60947-5-1, EN/IEC 60947-5-5, EN/IEC 60204-1 and EN/ISO 13850 for Emergency Stop trigger action push buttons <input type="checkbox"/> UL 508, CSA C22 n° 14, CCC, GB 14048.5 for all XB7 range
Terminal referencing	Conforming to EN 50005 and EN 50013		Conforms

General specifications			
Mechanical durability (in operating cycles)			<input type="checkbox"/> Push buttons: 1,000,000 <input type="checkbox"/> Illuminated push buttons, spring return and latch type: 300,000 <input type="checkbox"/> Selector switches and key switches: 300,000 <input type="checkbox"/> Emergency Stop: 100,000
Vibration resistance	Conforming to IEC 60068-2-6		5 gn (frequency 2 to 500 Hz)
Mechanical shock resistance	Conforming to IEC 60068-2-27		Half sine wave acceleration 11 ms: 50 gn Half sine wave acceleration 18 ms: 30 gn Half sine wave acceleration 11 ms: - 15 gn for Emergency Stop push buttons
Mounting Conforming to EN/IEC 60947-5-1	Finished mounting hole	mm	22.5, recommended (22.3 + 0.4/0)
	Mounting center	mm	<input type="checkbox"/> 30 x 40 for all products (except Emergency Stop push buttons) <input type="checkbox"/> 40 x 40 for Emergency Stop push buttons
	Support panel thickness	mm	<input type="checkbox"/> Metal: 1 to 6 <input type="checkbox"/> Plastic: 2 to 6
	Mounting nut: head tightening torque	N•m	<input type="checkbox"/> 2.2 (+/-0.2)
Cablings capacity Conforming to EN/IEC 60947-1	Screw clamp terminal connection	mm ²	For all types of push buttons and pilot lights: <input type="checkbox"/> min: 1 x 0.34 mm ² without cable end <input type="checkbox"/> max: 2 x 1.5 mm ² with cable end or 2 x 2.5 mm ² without cable end
	Forked "U" type tag connection		2 max., fitted head to tail (for all types of push buttons and pilot lights) Recommended fork width: 6.5 mm (7 mm max.) for M3 screw
	Faston clip connection	mm	Type 6.35 x 0.8 mm (for pilot lights only)
Tightening torque of mounting screws		N•m	<input type="checkbox"/> 0.8 (nominal recommended) <input type="checkbox"/> 1.2 (max.) Screw heads compatible with Pozidriv, Phillips or JIS screwdrivers (size 1) and flat tipped screwdrivers (4 and 5.5 mm)

Harmony™ XB7 monolithic 22 mm push buttons

Push buttons, switches and pilot lights

Contact function specifications

Type of contact	N/C, N/O or N/C+N/O		<input type="checkbox"/> Slow break <input type="checkbox"/> Snap action for Emergency Stop push buttons
Positive operation	Conforming to EN/IEC 60947-5-1 Appendix K		All functions incorporating a N/C contact are positive opening operation
Short-circuit protection	Conforming to EN/IEC 60947-5-1	A	4 (using gG cartridge fuse conforming to IEC 269-1)
Rated insulation voltage	Conforming to EN/IEC 60947-1	V	U _i = 250 (degree of pollution 3)
Rated impulse withstand voltage	Conforming to EN/IEC 60947-1	kV	U _{imp} = 6
Rated operational specifications conforming to EN/IEC 60947-5-1	a.c. supply: utilization category		U _e = 240 V and I _e = 0.3 A or U _e = 120 V and I _e = 0.6 A
	AC14, D300		U _e = 120 V and I _e = 1.5 A or U _e = 240 V and I _e = 0.75 A (Emergency Stop only)
	AC15, C300 DC13, R300		U _e = 250 V and I _e = 0.1 A or U _e = 125 V and I _e = 0.22 A
Electrical reliability at 17 V and 5 mA	Failure rate in accordance with EN/IEC 60947-5-4		<input type="checkbox"/> $\lambda \leq 10^{-6}$ <input type="checkbox"/> $\lambda \leq 5 \times 10^{-7}$ (Emergency Stop only)

Light function specifications

Type of signaling units		Illuminated push buttons		Pilot lights	
Integral LED					
Current consumption	For all colors	$\overline{\sim}$ / \sim 24 V	mA	18 (27 max.)	20 (27 max.)
		\sim 120 V	mA	12 (17 max.)	18 (21 max.)
		\sim 230 V	mA	22 (27 max.)	16 (20 max.)
Voltage limits	At nominal voltage	$\overline{\sim}$ 24 V	V	19.2 to 30	
		\sim 24 V	V	21.6 to 26.4	
		\sim 120 V	V	100 to 132	
		\sim 230–240 V	V	195 to 264	
Service life	At nominal voltage and at an ambient temperature of 25 °C		Hr	70,000	
Overvoltage withstand	Level of protection	\sim 120 V	VA	100	
		\sim 230 V	VA	200	
Resistance to electrostatic discharges	Conforming to IEC 61000-4-2		kV	6: on contact, on metal parts 8: in free air, in insulating parts	
Resistance to electromagnetic fields	Conforming to IEC 61000-4-3		V/m	10	
Resistance to fast transients	Conforming to IEC 61000-4-4		KV	2	
Surge withstand	Conforming to IEC 61000-4-5		KV	1	
Immunity to conducted disturbances	Conforming to IEC 61000-4-6		V	10	
Brightness	At nominal voltage and for all colors		Lux	> 200	

Harmony™ XB7 monolithic 22 mm push buttons

Push buttons, switches and pilot lights



XB7NA31



XB7NL4●







XB7NH2●

Push buttons									
Shape of head	Type of push	Type of contact		Marking		Color of push	Sold in lots of	Unit reference	Weight
		N/O	N/C	Text	Color				
Spring return push button without marking									
	Flush	1	–	–	–	White	10	XB7NA11	0.021
		1	–	–	–	Black	10	XB7NA21	0.021
		1	–	–	–	Green	10	XB7NA31	0.021
		1	–	–	–	Yellow	10	XB7NA81	0.021
		1	1	–	–	White	10	XB7NA15	0.021
		1	1	–	–	Black	10	XB7NA25	0.021
		1	1	–	–	Green	10	XB7NA35	0.021
		1	1	–	–	Red	10	XB7NA45	0.021
		1	1	–	–	Blue	10	XB7NA65	0.021
		1	1	–	–	Yellow	10	XB7NA85	0.021
		–	1	–	–	Red	10	XB7NA42	0.021
		2	–	–	–	Black	10	XB7NA23	0.021
		2	–	–	–	Green	10	XB7NA33	0.021
–	2	–	–	Red	10	XB7NA44	0.021		
	Projecting	–	1	–	–	Red	10	XB7NL42	0.021
		1	1	–	–	Red	10	XB7NL45	0.021
		–	2	–	–	Red	10	XB7NL44	0.021
Latch type push button without marking									
	Flush	1	–	–	–	Black	10	XB7NH21	0.021
		1	–	–	–	Green	10	XB7NH31	0.021
		1	1	–	–	Black	10	XB7NH25	0.021
		1	1	–	–	Green	10	XB7NH35	0.021
		1	–	–	–	Yellow	10	XB7NH81	0.021

Harmony™ XB7 monolithic 22 mm push buttons

Push buttons, switches and pilot lights

Push buttons (continued)										
Shape of head	Type of push	Type of contact		Marking		Color of push	Sold in lots of	Unit reference	Weight	
		N/O	N/C	Text	Color					
Spring return push button with marking										
	Flush		1	–	I	White	Green	10	XB7NA3131	0.021
			1	–	II	White	Green	10	XB7NA3136	0.021
			1	–	START	White	Green	10	XB7NA3133	0.021
			1	–	↓	Black	White	10	XB7NA11343	0.021
			1	–	↑	Black	White	10	XB7NA11341	0.021
			1	–	↓	White	Black	10	XB7NA21343	0.021
			1	–	↑	White	Black	10	XB7NA21341	0.021
			–	1	O	White	Red	10	XB7NA4232	0.021
			–	1	STOP	White	Red	10	XB7NA4234	0.021
			2	–	I	White	Green	10	XB7NA3331	0.021
			2	–	II	White	Green	10	XB7NA3336	0.021
			2	–	START	White	Green	10	XB7NA3333	0.021
			1	1	O	White	Red	10	XB7NA4532	0.021
			1	1	STOP	White	Red	10	XB7NA4534	0.021
			1	1	↓	Black	White	10	XB7NA15343	0.021
			1	1	↑	Black	White	10	XB7NA15341	0.021
			1	1	↓	White	Black	10	XB7NA25343	0.021
			1	1	↑	White	Black	10	XB7NA25341	0.021
	Projecting		–	1	O	White	Red	10	XB7NL4232	0.021
			–	1	STOP	White	Red	10	XB7NL4234	0.021
			1	1	O	White	Red	10	XB7NL4532	0.021
			1	1	STOP	White	Red	10	XB7NL4534	0.021

Harmony™ XB7 monolithic 22 mm push buttons

Push buttons, switches and pilot lights



XB7NW33●1

Illuminated push buttons, projecting push								
with integral LED								
Shape of head	Type of push and contacts	Color of lens	Sold in lots of	Unit reference by supply voltage (1)			Weight kg	
				~ / ∩ 24 V	~ 120 V	~ 230 V		
●	Spring return push with N/O or N/C contacts (1)	Green	10	XB7NW33B1	XB7NW33G1	XB7NW33M1	0.023	
		Red	10	XB7NW34B1	XB7NW34G1	XB7NW34M1	0.023	
			10	XB7NW34B2	XB7NW34G2	XB7NW34M2	0.023	
		Orange	10	XB7NW35B1	XB7NW35G1	XB7NW35M1	0.023	
		Blue	10	XB7NW36B1	XB7NW36G1	XB7NW36M1	0.023	
		Clear	10	XB7NW37B1	XB7NW37G1	XB7NW37M1	0.023	
		Yellow	10	XB7NW38B1	XB7NW38G1	XB7NW38M1	0.023	
		Latch push	Green	10	XB7NJ03B1	XB7NJ03G1	XB7NJ03M1	0.023
			Red	10	XB7NJ04B1	XB7NJ04G1	XB7NJ04M1	0.023
			10	XB7NJ04B2	XB7NJ04G2	XB7NJ04M2	0.023	
	Orange		10	XB7NJ05B1	XB7NJ05G1	XB7NJ05M1	0.023	
	Blue		10	XB7NJ06B1	XB7NJ06G1	XB7NJ06M1	0.023	
		Clear	10	XB7NJ07B1	XB7NJ07G1	XB7NJ07M1	0.023	
		Yellow	10	XB7NJ08B1	XB7NJ08G1	XB7NJ08M1	0.023	



XB7EV08●P

Pilot lights							
with integral LED							
Shape of head	Type of light source (included)	Color of lens	Sold in lots of	Unit reference by supply voltage (2)			Weight kg
				~ / ∩ 24 V	~ 120 V	~ 230 V	
●	Integral LED	Green	10	XB7EV03BP	XB7EV03GP	XB7EV03MP	0.020
		Red	10	XB7EV04BP	XB7EV04GP	XB7EV04MP	0.020
		Yellow	10	XB7EV05BP	XB7EV05GP	XB7EV05MP	0.020
		Blue	10	XB7EV06BP	XB7EV06GP	XB7EV06MP	0.020
		Clear	10	XB7EV07BP	XB7EV07GP	XB7EV07MP	0.020
		Orange	10	XB7EV08BP	XB7EV08GP	XB7EV08MP	0.020

(1) All product references ending with "1" correspond to products with N/O contacts (Example: XB7NW34B1). All product references ending with "2" correspond to products with N/C contacts (Example: XB7NW34B2).

(2) For Faston® connection version (1 x 6.35 mm and 2 x 2.8 mm), add the number "3" to the end of the reference. Example: XB7EV07BP becomes XB7EV07BP3.

Harmony™ XB7 monolithic 22 mm push buttons

Push buttons, switches and pilot lights

Selector switches and key switches



XB7ND2●



XB7NG33



XB7 NS84●

Shape of head	Type of operator	Type of contact		Number and type of positions (1)	Sold in lots of	Unit reference	Weight	
		NO	NC					
	Standard handle, black	1	–	2, stay put		10	XB7ND21	0.026
		1	1	2, stay put		10	XB7ND25	0.026
		2	–	3, stay put		10	XB7ND33	0.026
	Key (key n° 455)	1	–	2, key withdrawal in LH position		10	XB7NG21	0.050
		2	–	3, key withdrawal in center position		10	XB7NG33	0.050

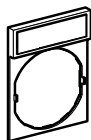
Ø 40 mm Emergency stop trigger action and mechanically latching push buttons

Shape of head	Type of push	Standards	Type of contact		Color of push	Sold in lots of	Unit reference	Weight
			NO	NC				
	Turn to release	EN/IEC 60204-1, EN/ISO 13850, EN/IEC 60947-5-5, Machinery directive 2006/42/EC and UL	–	1	Red	10	XB7NS8442	0.045
			1	1	Red	10	XB7NS8445	0.045
			–	2	Red	10	XB7NS8444	0.045
	Push-pull	EN/IEC 60204-1, EN/ISO 13850, EN/IEC 60947-5-5, Machinery directive 2006/42/EC and UL	–	1	Red	10	XB7NT842	0.040
			1	1	Red	10	XB7NT845	0.040
			–	2	Red	10	XB7NT844	0.040
	Key release (n° 455)	EN/IEC 60204-1, EN/ISO 13850, EN/IEC 60947-5-5, Machinery directive 2006/42/EC and UL	–	2	Red	10	XB7NS9444	0.072
			–	1	Red	10	XB7NS9445	0.072

(1) The symbol "⌘" indicates key withdrawal position.

Harmony™ XB7 monolithic 22 mm push buttons

Push buttons, switches and pilot lights



ZBY 2101

Standard (30 x 40 mm) legend holders for 8 x 27 mm legends

Text	Sold in lots of	Unit reference	Weight kg
Without legend	10	ZBZ32	0.001

Legend holder, 30 x 40 mm with legend (black or red background)

with blank legend

Text	Sold in lots of	Unit reference	Weight kg
Without	10	ZBY2101	0.001

with marked legend (sold singly)

- Start functions: White characters on black background.
- Stop functions: White characters on red background.

Text	Unit reference	Weight kg	Text	Unit reference	Weight kg
Auto	ZBY2115	0.001	Reset	ZBY2323	0.001
Down	ZBY2308	0.001	Reverse	ZBY2306	0.001
Forward	ZBY2305	0.001	Right	ZBY2309	0.001
Hand	ZBY2316	0.001	Start	ZBY2303	0.001
Inch	ZBY2321	0.001	Stop	ZBY2304	0.001
Left	ZBY2310	0.001	Up	ZBY2307	0.001
Off	ZBY2312	0.001	O	ZBY2146	0.001
On	ZBY2311	0.001	I	ZBY2147	0.001
Power on	ZBY2326	0.001	O-I	ZBY2178	0.001

Standard (30 x 50 mm) legend holders for 18 x 27 mm legends

Text	Sold in lots of	Unit reference	Weight kg
Without legend	10	ZBZ 3	0.001

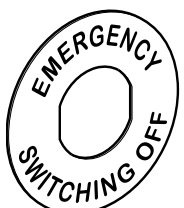


ZBY9330

Circular legends, yellow, for mushroom head push buttons

used for "Emergency stop" function (1)

Conforming to standards	Diameter mm	Marking on yellow background	Unit reference	Weight kg
EN/IEC 60204-1 and EN/ISO 13850 (1)	60	–	ZBY9140	0.004
	90	EMERGENCY STOP	ZBY9330	0.004
90		–	ZBY8140	0.008
	90	EMERGENCY STOP	ZBY8330	0.008



ZBY9360

used for "Emergency switching off" function

Conforming to standard	Diameter mm	Marking on yellow background	Unit reference	Weight kg
EN/IEC 60204-1	60	–	ZBY9101	0.004
	90	EMERGENCY SWITCHING OFF	ZBY9360	0.004
90		–	ZBY8101	0.008
	90	EMERGENCY SWITCHING OFF	ZBY8360	0.008

Nameplates, 30 x 40 mm, blank

Text color	Background color	Unit reference
White	Black	ZBY42101
White	Red	ZBY44101
Black	Yellow	ZBY41101
Black	White	ZBY45101

Nameplates, 30 x 50 mm, blank

Text color	Background color	Unit reference
White	Black	ZBY62101
White	Red	ZBY64101
Black	Yellow	ZBY61101
Black	White	ZBY65101



ZBY42101



ZBY62101

(1) For compliance with standard EN/ISO 13850, paragraph 4.4.6, the Emergency stop logo  has been added.

Harmony™ XB7 monolithic 22 mm push buttons

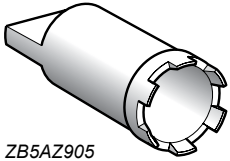
Push buttons, switches and pilot lights



ZB5AZ902



ZB5AZ901



ZB5AZ905



ZB5SZ3

Accessories

Description	Color	Sold in lots of	Unit reference	Weight kg
Anti-rotation plate	–	10	ZB5AZ902	0.008
Mounting nut	–	10	ZB5AZ901	0.002
Mounting nut tightening tool	–	1	ZB5AZ905	0.016
Plastic circular blanking plug (with mounting nut)	Black	10	ZB5SZ3	0.009

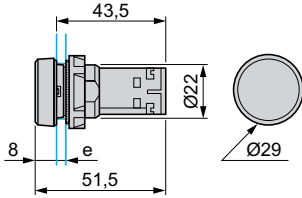
Harmony™ XB7 monolithic 22 mm push buttons

Push buttons, switches and pilot lights

Dimensions

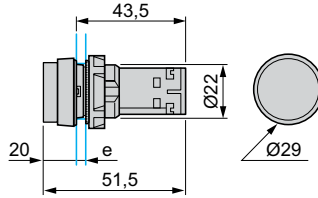
Push buttons, flush type

XB7NA●●●●, XB7NH●●



Push buttons, projecting type

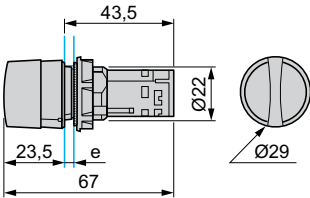
XB7NL●●●●



e : support panel thickness: 1 to 6 mm (metal), 2 to 6 mm (plastic).

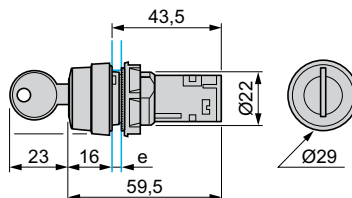
Selector switches, standard handle

XB7ND●●



Key switches

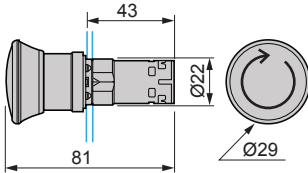
XB7NG●●



e : support panel thickness: 1 to 6 mm (metal), 2 to 6 mm (plastic).

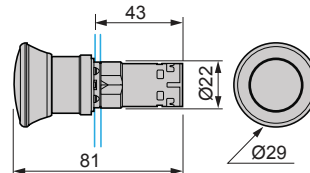
Emergency Stop push buttons (Turn to release)

XB7NS84●●



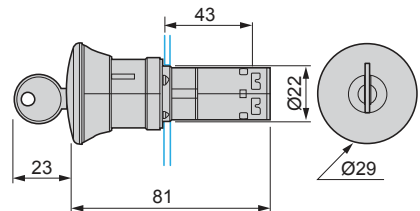
Emergency Stop push buttons (Push-pull)

XB7NT84●



Emergency Stop push buttons with key

XB7NS94●●



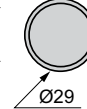
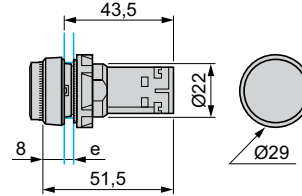
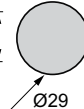
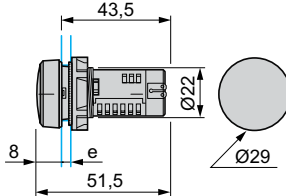
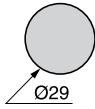
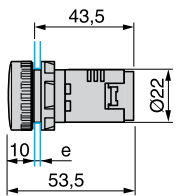
e : support panel thickness: 1 to 6 mm (metal), 2 to 6 mm (plastic).

Dimensions (continued)

Pilot lights with screw terminal
XB7EV●●●P

Pilot lights with Faston® terminal
XB7EV●●●P3

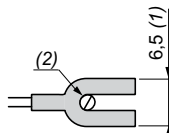
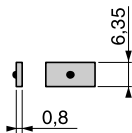
Illuminated push buttons
XB7NW●●●●, XB7NJ●●●●



e : support panel thickness: 1 to 6 mm (metal), 2 to 6 mm (plastic).

Faston clip connection (for pilot lights only)

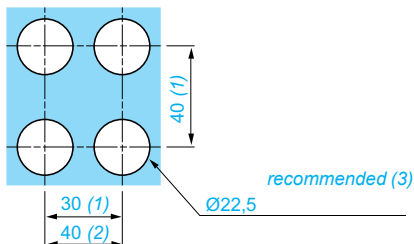
“U” type tag connection



(1) 6.5 recommended, 7 mm max.
(2) M3 screw clamp terminal.

Mounting

Diameter of finished mounting holes



(1) Minimum value.
(2) 40 mm for Emergency Stop push buttons only.
(3) Standard value: Ø 22.3 (0; + 0.4).

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