

# Control Stations ø 22

## ► CONTROL STATIONS - NON-ILLUMINATED

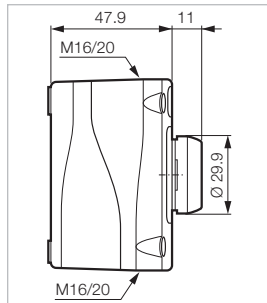
 Technical Info (p. 103)

### SPRING RETURN - FLUSH

Part Number



LBX10110



● Green  
● Red

NO  
NC



#### Marking

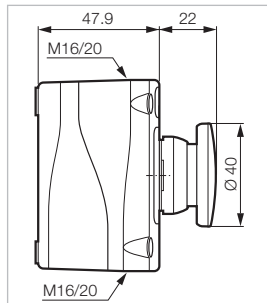


LBX10110  
LBX10610

### MUSHROOM HEAD ø 40 - SPRING RETURN

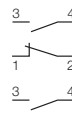


LBX10210



● Green  
● Red  
● Red

NO  
NC  
NO



#### Marking

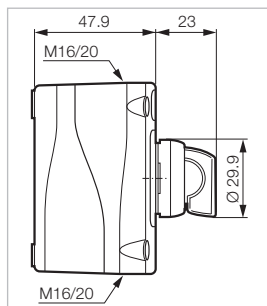


LBX107210  
LBX10210  
LBX130028

### SELECTOR SWITCH - WITH HANDLE



LBX12510



2 Maintained positions - 90°

● Black

NO



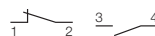
#### Marking



LBX12510

● Black

NC + NO



LBX12511

● Black

2 NO

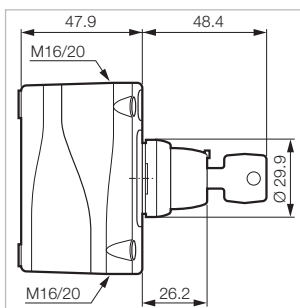


LBX12520

### SELECTOR SWITCH - WITH KEY



LBX12610



Supplied with 2 keys profile n° 455

2 Maintained positions - 90°

Key free in position 0-1

● Black

NO



#### Marking



LBX12610

# Technical Specifications

## ► GENERAL

Characteristics	Data	Standards
► Storage temperature	- 40 °C to + 70 °C	
► Operating temperature	- 25 °C to + 70 °C	
► Climatic resistance	Constant humid heat Cyclic damp heat Resistance to sea air	IEC 60068-2-3 IEC 60068-2-30 IEC 60068-2-52
► Degree of protection	IP 66 for standard heads IP 67 for shrouded heads IP 66 for equipped control stations IP 20 at the rear of the panel for contact blocks and one piece pilot lights Type 1, 2, 3, 3R, 3S, 4, 4X, 12, and 13 for heads and control stations	IEC 60529    NEMA standard
► Protection against mechanical impacts	IK 05 illuminated and non-illuminated heads IK 07 empty control station	IEC 62262
► Electrical insulation	Class II - heads and control station	IEC 60947-5-1
► Terminal marking		IEC 60947-1
► Tightening torques	Locking ring: recommended 3 N.m terminals: max. 1.2 N.m	
► Approvals	UL United states and Canada BV Bureau Véritas Certification OC/CB	UL 508, CSA 22.2 Marine rules IEC 60947-5-1 IEC 60947-5-5 IEC 60947-5-4
► Vibrations	withstand vibration Fc test: 2 to 25 Hz, 1.6 mm; 25-100 Hz, 4 g	IEC 60068-2-6

# Technical Specifications

## ► HEADS

Characteristics	Data	Standards
► Mechanical endurance	Spring return: 5,000,000 Push-push: 500,000 Selector switches: 300,000 Mushroom head maintained function EN 418: 10,000 Mushroom head maintained function: 150,000	
► Activation force in N	Spring return + NO: 6.5 Spring return + NC: 4.5 Additional NO contact: 4.5 Additional NC contact: 3.0 Push-pull mushroom head + NO + NC: 27 Push-turn mushroom head + NO + NC: 22 Push-pull mushroom head EN 418 + NO + NC: 37 Push-turn mushroom head EN 418 + NO + NC: 60	
► Activation force in Nm	Selector switch + NO: 0.04 Additional NO contact: 0.03	

## ► EMERGENCY STOP ACTUATORS - EN 418/ISO 13850:

According to IEC/EN60947-5-5, the emergency stop function can be provided by an EN418/ISO13850 mushroom head combined with a "positive opening" NC contact block.

The mechanism of our EN418/ISO13850 mushroom heads is so designed that a "push" action of sufficient force to open the contact systematically triggers an irreversible locking of this opening. This generates an "emergency stop" signal which can be cancelled only by deliberate manual resetting of the mushroom head (pull and turn or unlocking by key).

This function allows to generate an "emergency stop" signal for any equipment subject to directive 98/37CE (machinery safety) completed by the IEC 60204-1 standard.

The EN418/ISO13850 mushroom heads also comply with the safety requirements detailed in standards EN418 and ISO13850.

# Technical Specifications

## ► CONTACT BLOCKS

Screw and plug-in connection characteristics	Data		Standards																																										
▶ Rated insulation voltage	690 V AC 600 V AC		IEC/EN 60947-1 UL 508																																										
▶ NC contacts	Positive opening		IEC/EN 60947-5-1																																										
▶ Rated impulse voltage Uimp Pollution degree	6kV 3																																												
▶ Conventional thermal current in free air conditions	AC15: 10 A DC13: 2.5 A		IEC 60947-5-1																																										
▶ Electrical ratings	<div><div><b>Alternating current</b> AC15 - A 600 Ue = 120 V, Ie = 6 A Ue = 240 V, Ie = 3 A Ue = 380 V, Ie = 1.9 A Ue = 480 V, Ie = 1.5 A Ue = 500 V, Ie = 1.4 A Ue = 600 V, Ie = 1.2 A  <b>Minimum operating current</b> - standard blocks Ue = 24 V DC and Ie = 5 mA Failure rate &lt; 10<sup>-8</sup>  <b>UL508</b>  Alternating Current 50/60Hz - <b>A600</b> Continuous Current - 10 amps Rated Voltage - 600Vac</div><div><b>Direct current</b> DC13 - Q 600 Ue = 125 V, Ie = 0.55 A Ue = 250 V, Ie = 0.27 A Ue = 400 V, Ie = 0.15 A Ue = 500 V, Ie = 0.13 A Ue = 600 V, Ie = 0.1 A  - gold plated contacts Ue = 5 V DC and Ie = 1 mA Failure rate &lt; 10<sup>-8</sup></div></div> <table><tr><th></th><th>Max. Amps</th><th>Max. Amps</th><th></th><th>Max. Amps</th><th>Max. Amps</th></tr><tr><th>Voltage</th><th>Make</th><th>Break</th><th>Voltage</th><th>Make</th><th>Break</th></tr><tr><td>72</td><td>60</td><td>10</td><td>24</td><td>2.5</td><td>2.5</td></tr><tr><td>120</td><td>60</td><td>6.0</td><td>125</td><td>0.55</td><td>0.55</td></tr><tr><td>240</td><td>30</td><td>3.0</td><td>250</td><td>0.27</td><td>0.27</td></tr><tr><td>480</td><td>15</td><td>1.5</td><td>301-600</td><td>0.10</td><td>0.10</td></tr><tr><td>600</td><td>12</td><td>1.2</td><td></td><td></td><td></td></tr></table>			Max. Amps	Max. Amps		Max. Amps	Max. Amps	Voltage	Make	Break	Voltage	Make	Break	72	60	10	24	2.5	2.5	120	60	6.0	125	0.55	0.55	240	30	3.0	250	0.27	0.27	480	15	1.5	301-600	0.10	0.10	600	12	1.2				IEC 60947-5-1
	Max. Amps	Max. Amps		Max. Amps	Max. Amps																																								
Voltage	Make	Break	Voltage	Make	Break																																								
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120	60	6.0	125	0.55	0.55																																								
240	30	3.0	250	0.27	0.27																																								
480	15	1.5	301-600	0.10	0.10																																								
600	12	1.2																																											
▶ Electrical operating life	<b>1 million cycles for:</b> - AC15 - B 300 Ue = 120 V, Ie = 3 A Ue = 240 V, Ie = 1.5 A - DC13 - R 300 Ue = 125 V, Ie = 0.22 A Ue = 250 V, Ie = 0.1 A																																												
▶ Applicable wire sizes	Rigid or flexible wire without ferrule: 0.5 mm <sup>2</sup> to 2 x 2.5 mm <sup>2</sup> Rigid or flexible wire with ferrule: 0.5 mm <sup>2</sup> to 2 x 1.5 mm <sup>2</sup>																																												

# Technical Specifications

## ▶ CONTACT BLOCKS

Faston connection	Data		Standards			
▶ Rated insulation voltage	320 V AC 300 V AC		IEC/EN60947-1 UL 508			
▶ NC contacts	Positive opening		IEC/EN 60947-5-1			
▶ Rated impulse withstanding voltage Uimp Pollution degree	6 kV 3					
▶ Conventional thermal current in free air conditions	AC 15: 10 A DC 13: 2.5 A		IEC 60947-5-1			
▶ Electrical ratings	<b>Alternating current</b> AC15 - A 300 Ue = 120 V, Ie = 6 A Ue = 240 V, Ie = 3 A  <b>Minimum current of use</b> Ue = 24 V DC and Ie = 5 mA Failure rate < 10 <sup>-8</sup>  <b>UL508</b>  Alternating Current 50/60Hz - <b>A300</b> Continuous Current - 10 amps Rated Voltage - 300Vac		<b>Direct current</b> DC13 - Q 300 Ue = 125 V, Ie = 0.55 A Ue = 250 V, Ie = 0.27 A  IEC 60947-5-1  Direct Current - <b>Q300</b> Continuous Current - 2.5 amps Rated Voltage - 300Vdc			
	Voltage	Max. Amps Make	Max. Amps Break	Voltage	Max. Amps Make	Max. Amps Break
	72	60	10	24	2.5	2.5
	120	60	6.0	125	0.55	0.55
	240	30	3.0	250	0.27	0.27
▶ Electrical operating life	<b>1 million cycles for:</b> - AC15 - B 300 Ue = 120 V, Ie = 3 A Ue = 240 V, Ie = 1.5 A		- DC13 - R 300 Ue = 125 V, Ie = 0.22 A Ue = 250 V, Ie = 0.1 A			
▶ Faston size	6.35 mm (0.25") or 2 x 2.8 mm (0.110")					

# Technical Specifications

## ► CONTACT BLOCKS

Pin-style connection (for PCB)	Data		Standards			
▶ Rated insulation voltage	250 V AC 250 V AC		IEC/EN60947-1 UL 508			
▶ NC contacts	Positive opening		IEC/EN 60947-5-1			
▶ Rated impulse withstanding voltage Uimp Pollution degree	4 kV 3					
▶ Conventional thermal current in free air conditions	AC 15: 5 A DC 13: 1 A		IEC 60947-5-1			
▶ Electrical ratings	<b>Alternating current</b> AC 15 - B 300 Ue = 120 V, Ie = 3 A Ue = 240 V, Ie = 1.5 A		IEC 60947-5-1			
	<b>Direct current</b> DC13 - R 300 Ue = 125 V, Ie = 0.22 A Ue = 250 V, Ie = 0.1 A		IEC 60947-5-4			
	<b>Minimum current of use</b> - standard blocks Ue = 24 V DC and Ie = 5 mA Failure rate < 10 <sup>-8</sup>					
	- golden contacts Ue = 5 V DC and Ie = 1 mA Failure rate < 10 <sup>-8</sup>					
	<b>UL508</b>  Alternating Current 50/60Hz - <b>B300</b> Continuous Current - 5 amps Rated Voltage - 300Vac		Direct Current - <b>R300</b> Continuous Current - 1 amp Rated Voltage - 300Vdc			
	Voltage	Max. Amps Make	Max. Amps Break	Voltage	Max. Amps Make	Max. Amps Break
	72	30	5.0	24	1.0	1.0
	120	30	3.0	125	0.22	0.22
	240	15	1.5	250	0.11	0.11
▶ Electrical operating life	<b>1 million cycles for:</b> - AC15 - B 300 Ue = 120 V, Ie = 3 A Ue = 240 V, Ie = 1.5 A		- DC13 - R 300 Ue = 125 V, Ie = 0.22 A Ue = 250 V, Ie = 0.1 A			
▶ Pin diameter	ø 1 mm					

## Technical Specifications

### ▶ LED BLOCKS FOR ILLUMINATED HEADS

Characteristics	Data	Standards
▶ Rated insulation voltage	300 V	IEC/EN 60947-5-1
▶ Rated impulse voltage U <sub>imp</sub> Pollution degree	4 kV (with filter block see p. 70) 3	IEC/EN 60947-1
▶ Operating voltage	12 to 24 V AC/DC 48 V AC/DC (for LED block) 130 V AC 230 V AC	
▶ Frequency	50 or 60 Hz	
▶ Lifetime at rated supply voltage	Red and yellow: 100 000 hours at 25 °C Other colors: 50 000 hours at 25 °C	
▶ Consumption of LED blocks	Voltage: - 24 V: 25 mA ± 20% - 48 V: 15 mA ± 5% - 130 V: 20 mA ± 10% - 230 V: 16 mA ± 30%	

### ▶ ONE PIECE PILOT LIGHT BA9S

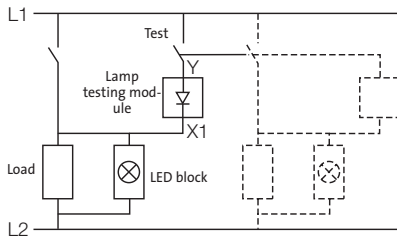
Characteristics	Data	
▶ Rated insulation voltage	400 V	IEC 60947-5-1
▶ Rated impulse withstand voltage U <sub>imp</sub>	4 kV	IEC/EN 60947-1
▶ Bulb rating	400 V max. - 2.6 W max. 240 V max. - 2.6 W max.	IEC 60947-5-1 UL 508

# Technical Specifications

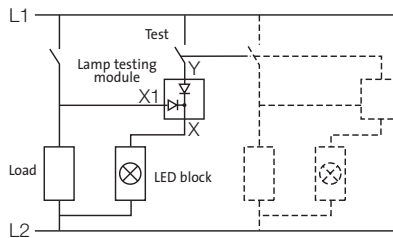
## ► DIAGRAMS

### PUSH-TO-TEST LED PILOT LIGHT DIAGRAMS

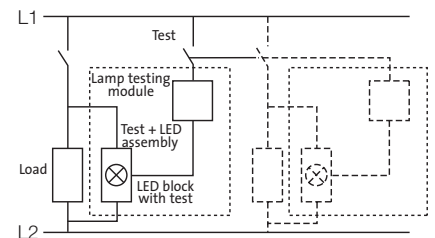
Lamp-testing module with  
1 diode (33ET) for direct  
supply 24 V and 48 V



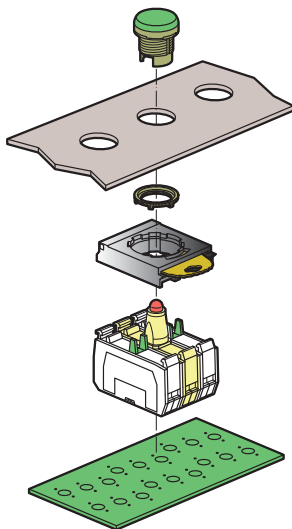
Lamp-testing module with  
2 diodes (33ETT) for direct  
supply 24 V and 48 V



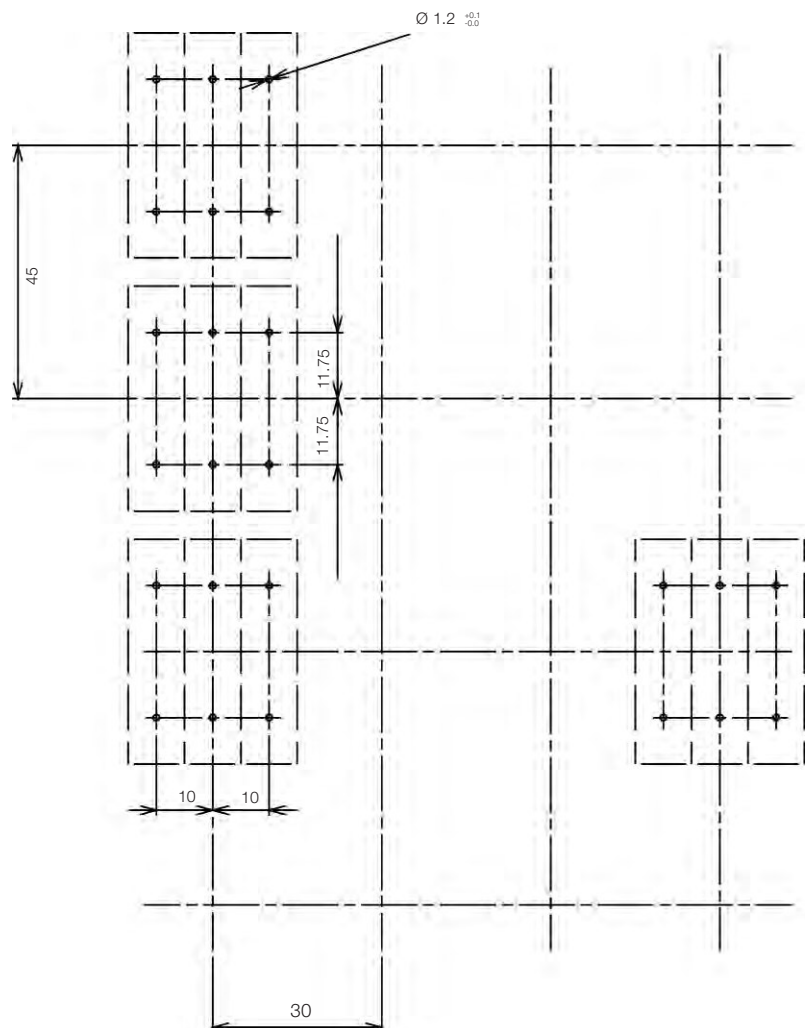
Lamp-testing assembly  
for direct supply 130 V and 240 V



### PRINTED CIRCUIT BOARD MOUNTING



### PCB BOARD DRILL PLAN



PCB TERMINAL - SINGLE CLIP

PCB TERMINAL - 3 POSITION CLIP

