

Separate units: Blocks

► SPECIFIC BLOCKS

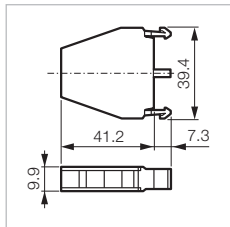
 Technical Info (p. 103)

FOR JOYSTICKS (SCREW TERMINALS)

Part Number



LM11



Joysticks (p. 44)

NO/NC

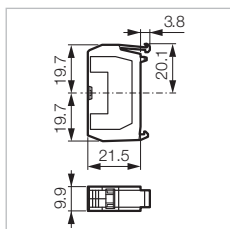


LM11

LAMP-TEST BLOCKS (SCREW TERMINALS)



33ET



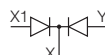
For 24 and 48 V

1 diode



33ET

2 diodes



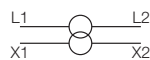
33ETT

TRANSFORMER BLOCKS (SCREW TERMINALS)

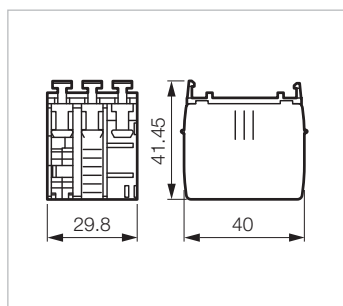


33EHC

230/24 V
400/24V



33EHC
33ELC



Separate units: Blocks

► SPECIFIC BLOCKS



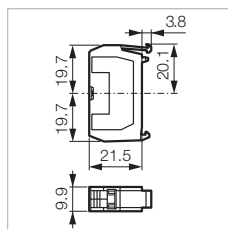
Technical Info (p. 103)

FILTER BLOCKS (SCREW TERMINALS)

Part Number

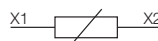


33EFH



Prevents from voltage peaks for LED block
To be wired in parallel of the LED block

130 Vac
230 Vac

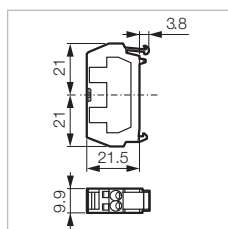


33EFM
33EFH

FILTER BLOCKS (PLUG-IN TERMINALS)

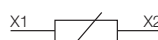


33RFH



Prevents from voltage peaks for LED block
To be wired in parallel with the LED block

130 Vac
230 Vac

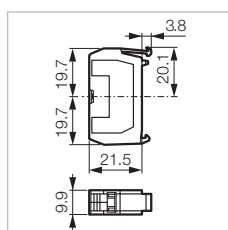


33RFM
33RFH

JUNCTION BLOCK (SCREW TERMINALS)



33EY



2 interconnected
terminals

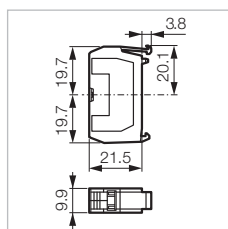


33EY

EMPTY BLOCK



33EX



For empty positions on 3 or 5 position clip

33EX

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>Alternating current 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 Minimum operating current - standard blocks Ue = 24 V DC and Ie = 5 mA Failure rate < 10⁻⁸ UL508 Alternating Current 50/60Hz - A600 Continuous Current - 10 amps Rated Voltage - 600Vac</div><div>Direct current 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 < 10⁻⁸</div></div>		IEC 60947-5-1																																										
	<table><tr><td></td><td>Max. Amps</td><td>Max. Amps</td><td></td><td>Max. Amps</td><td>Max. Amps</td></tr><tr><td>Voltage</td><td>Make</td><td>Break</td><td>Voltage</td><td>Make</td><td>Break</td></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				
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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	<div><div>1 million cycles for: - AC15 - B 300 Ue = 120 V, Ie = 3 A Ue = 240 V, Ie = 1.5 A</div><div>- DC13 - R 300 Ue = 125 V, Ie = 0.22 A Ue = 250 V, Ie = 0.1 A</div></div>																																												
▶ Applicable wire sizes	Rigid or flexible wire without ferrule: 0.5 mm ² to 2 x 2.5 mm ² Rigid or flexible wire with ferrule: 0.5 mm ² to 2 x 1.5 mm ²																																												

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	<div><div>Alternating current AC15 - A 300 Ue = 120 V, Ie = 6 A Ue = 240 V, Ie = 3 A Minimum current of use Ue = 24 V DC and Ie = 5 mA Failure rate < 10⁻⁸ UL508 Alternating Current 50/60Hz - A300 Continuous Current - 10 amps Rated Voltage - 300Vac</div><div>Direct current DC13 - Q 300 Ue = 125 V, Ie = 0.55 A Ue = 250 V, Ie = 0.27 A IEC 60947-5-1 Direct Current - Q300 Continuous Current - 2.5 amps Rated Voltage - 300Vdc</div></div> <table><tr><td></td><td>Max. Amps</td><td>Max. Amps</td><td></td><td>Max. Amps</td><td>Max. Amps</td></tr><tr><td>Voltage</td><td>Make</td><td>Break</td><td>Voltage</td><td>Make</td><td>Break</td></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></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	IEC 60947-5-1	
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240	30	3.0	250	0.27	0.27																													
▶ Electrical operating life	1 million cycles for: - 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	Alternating current AC 15 - B 300 Ue = 120 V, Ie = 3 A Ue = 240 V, Ie = 1.5 A		Direct current DC13 - R 300 Ue = 125 V, Ie = 0.22 A Ue = 250 V, Ie = 0.1 A	
	Minimum current of use - standard blocks Ue = 24 V DC and Ie = 5 mA Failure rate < 10 ⁻⁸		IEC 60947-5-1 IEC 60947-5-4 - golden contacts Ue = 5 V DC and Ie = 1 mA Failure rate < 10 ⁻⁸	
	UL508 Alternating Current 50/60Hz - B300 Continuous Current - 5 amps Rated Voltage - 300Vac		Direct Current - R300 Continuous Current - 1 amp Rated Voltage - 300Vdc	
	Max. Amps Make	Max. Amps Break	Max. Amps Make	Max. Amps Break
	Voltage	Voltage	Voltage	Voltage
	72	30	24	1.0
	120	30	125	0.22
	240	15	250	0.11
► Electrical operating life	1 million cycles for: - 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 Uimp 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

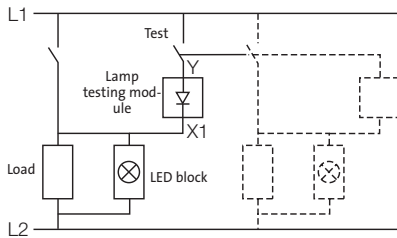
Characteristics	Data	
▶ Rated insulation voltage	400 V	IEC 60947-5-1
▶ Rated impulse withstand voltage Uimp	4 kV	IEC/EN 60947-1
▶ Bulb rating	400 V max. - 2.6 W max. 240 V max. - 2.6 W max.	IEC 60947-5-1 UL 508

Technical Specifications

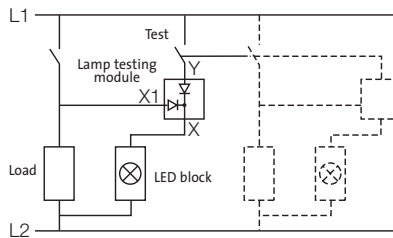
► DIAGRAMS

PUSH-TO-TEST LED PILOT LIGHT DIAGRAMS

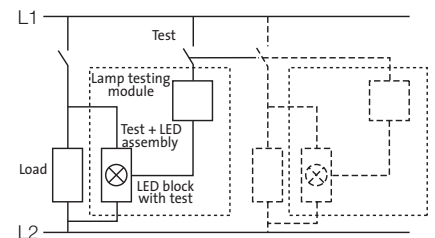
Lamp-testing module with
1 diode (33ET) for direct
supply 24 V and 48 V



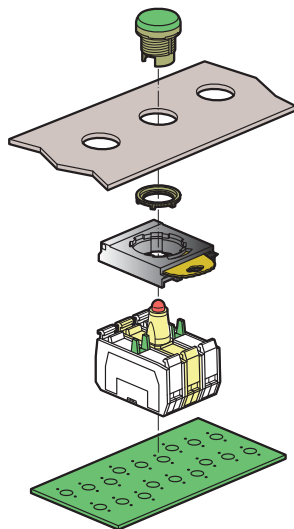
Lamp-testing module with
2 diodes (33ETT) for direct
supply 24 V and 48 V



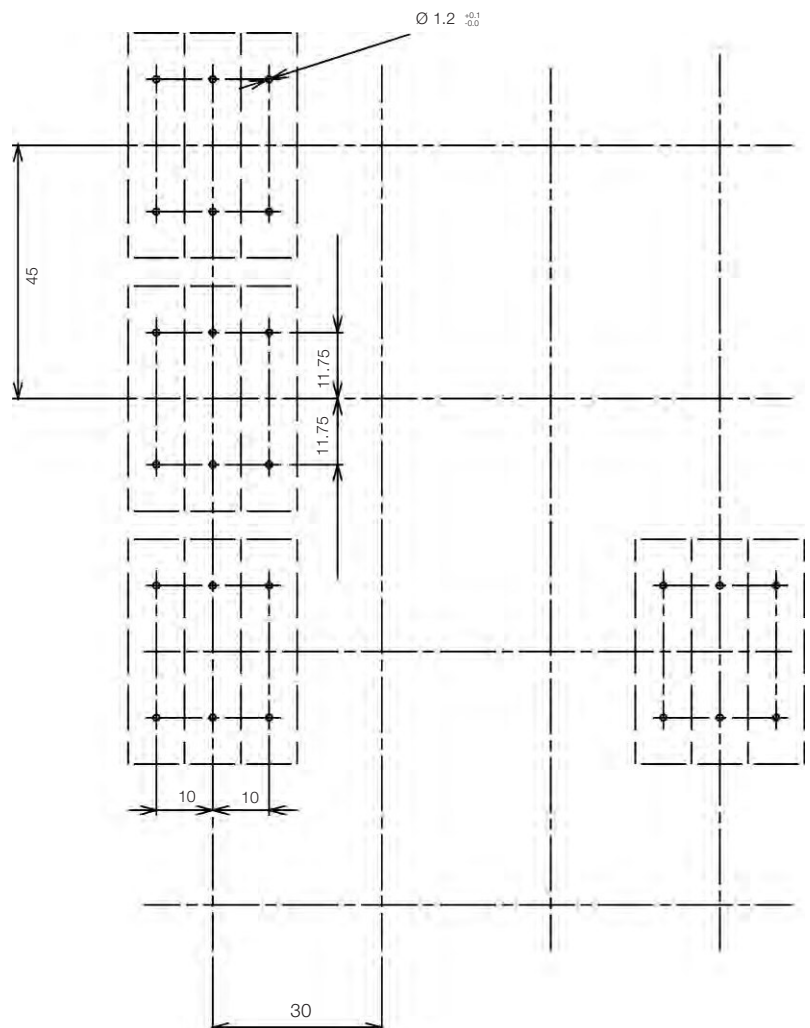
Lamp-testing assembly
for direct supply 130 V and 240 V



PRINTED CIRCUIT BOARD MOUNTING



PCB BOARD DRILL PLAN



PCB TERMINAL - SINGLE CLIP

PCB TERMINAL - 3 POSITION CLIP

