
Notes

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1.0 Introduction

The LS-9-LED stroboscope is shipped ready for assembly and use.

1.1 Unpacking

Unpack the gauge and inspect it for any shipping damage. Notices of defect must be filed immediately, in writing, at the latest within 10 days on receipt of the goods.

Your shipment should include:

- LS-9-LED stationary stroboscope.
- Operating instructions.
- One connector for trigger input and power supply.

1.2 Optional Accessories Available

- Stand/wall mount.
- AC Adapter.
- Connector for trigger signal/supply connection.
- Stroboscope control units, handheld device for stroboscope control and regulation.
- Trigger sensors with corresponding cables.

8.0 Warranty

The manufacturer warrants to the original purchaser that this product is of merchantable quality and confirms in kind and quality with the descriptions and specifications thereof. Product failure or malfunction arising out of any defect in workmanship or material in the product existing at the time of delivery thereof which manifests itself within three years from the sale of such product, shall be remedied by repair or replacement of such product, at the manufacturer's option, except where unauthorized repair, disassembly, tampering, abuse or misapplication has taken place, as determined by the manufacturer. All returns for warranty or non-warranty repairs and/or replacement must be authorized by the manufacturer, in advance, with all repacking and shipping expenses to the address below to be borne by the purchaser.

THE FOREGOING WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE WARRANTY OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE OR APPLICATION. ELECTROMATIC SHALL NOT BE RESPONSIBLE NOR LIABLE FOR ANY CONSEQUENTIAL DAMAGE, OF ANY KIND OR NATURE, RESULTING FROM THE USE OF SUPPLIED EQUIPMENT, WHETHER SUCH DAMAGE OCCURS OR IS DISCOVERED BEFORE, UPON OR AFTER REPLACEMENT OR REPAIR, AND WHETHER OR NOT SUCH DAMAGE IS CAUSED BY MANUFACTURER'S OR SUPPLIER'S NEGLIGENCE WITHIN THREE YEARS FROM INVOICE DATE.

Some State jurisdictions or States do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. The duration of any implied warranty, including, without limitation, fitness for any particular purpose and merchantability with respect to this product, is limited to the duration of the foregoing warranty. Some states do not allow limitations on how long an implied warranty lasts but, notwithstanding, this warranty, in the absence of such limitations, shall extend for three years from the date of invoice.

Every precaution has been taken in the preparation of this manual. The manufacturer, assumes no responsibility for errors or omissions. Neither is any liability assumed for damages resulting from the use of information contained herein. Any brand or product names mentioned herein are used for identification purposes only, and are trademarks or registered trademarks of their respective holders.

7.0 Technical Data

General Parameters

Frequency range	0 to 120,000 FPM (flashes per minute)
Power supply	24 VDC (+/- 10%) / 20 W DIN 415245-pin standard plug Universal power supply unit available
External trigger input	3 to 30 V / max. 5 mA potential-free optocoupler DIN 41524 5-pin standard plug $U_{OUT} = U_{IN}$, max. 200 mA Switchable trigger input trigger output for parallel connection

Flash Parameters

Light intensity/sharpness	Adjustable with turning knob
Light intensity single flash	Approximately. 1 Mega-Lux / 12" (30 cm)
Light intensity	7,500 Lux / 12" (30 cm)
Illumination area	12 x 20" (30 x 50 cm)
Flash color	Ca. 5,000...8,300 K

Housing

Material	Aluminium
Dimensions	8.8 x 5.1 x 4.4" (224 x 130 x 112mm)
Weight	2.76 lbs. (1250 g)

Ambient Conditions

Ambient temperature	32 to 114 °F (0 to 40 °C)
Storage temperature	-10 to 125°F (-25 to 70 °C)
Humidity maximum	95% not condensing

Certifications	Certificate of CE conformity
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2.0 Safety Information

The LS-9-LED must only be used in accordance with these operating instructions. The LS-9-LED must not be altered in any way. The manufacturer will not be liable for any damage resulting from incorrect or improper use. This will also render the guarantee null and void.

WARNING!

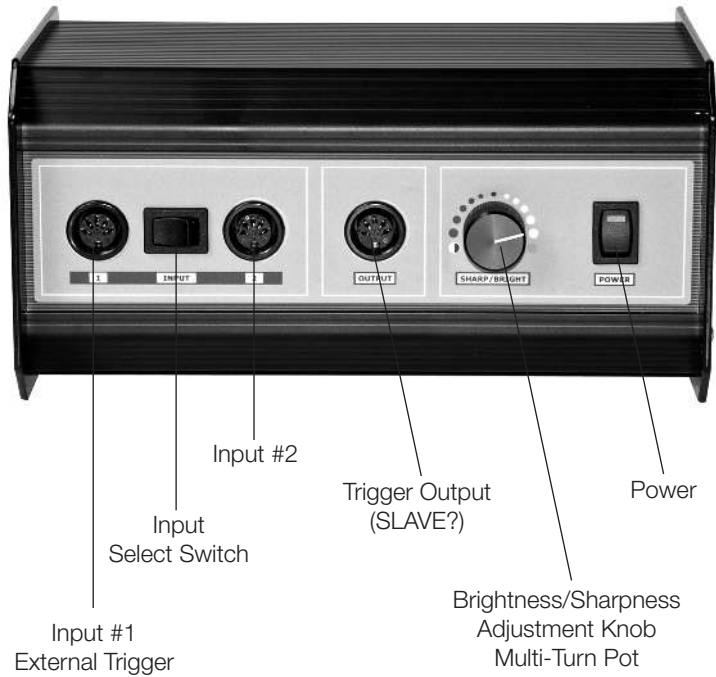
- Under strobe lighting, moving objects appear stationary or in slow motion. The objects should never be touched.
- The LS-9-LED must not be used in explosion hazard areas.
- Store the LS-9-LED in a dry place. It must not be exposed to water (dripping or splashing). No objects filled with liquids (e.g. vases) should be placed on the unit
- Strobe lighting can trigger epileptic fits in those who are susceptible.

CAUTION!

- Repairs should only be carried out by the manufacturer or supplier.
- The stroboscope's electronic components contain environmentally harmful substances. They must be disposed of in accordance with the relevant national environmental guidelines.

3.0 Controls

On the rear side of the device you will find the following controls. Use of these controls is explained in the following section:



1. Rocker switch marked POWER:
Use to switch the strobe power ON and OFF.
2. Rotary knob marked SHARP/BRIGHT:
Use to adjust the flash duration brightness/sharpness.
3. Rocker switch marked INPUT
Use to select whether socket 1 or 2 should be used for the trigger signal input.

CAUTION

This rocker switch only alternates between the trigger signals. It is still possible, to feed the supply voltage through both

6.0 Operation

6.1 Aligning the unit and switching it on.

1. Point the stationary stroboscope at a moving object and switch it on. The red LED inside the rocker switch indicates that it is ready for use. If the LED flashes, the unit is connected to the voltage supply but no trigger signal is present. If the LED remains constantly lit, the unit is receiving both voltage and a trigger signal.
2. As soon as the trigger signal is applied, the unit will start to flash with the trigger frequency.
3. If the flashing frequency coincides with the movement frequency, a stationary image will appear.



NOTE!

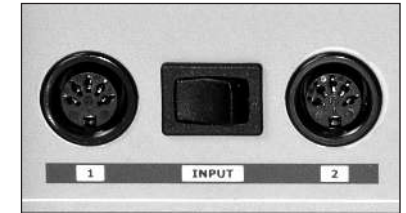
A stationary image will not only appear with an identical flashing frequency, but also with multiples and fractions thereof.

6.2 Switching between sockets 1 and 2.





1. Use the rocker switch located between the two sockets to select which socket will be used for the trigger signal input.

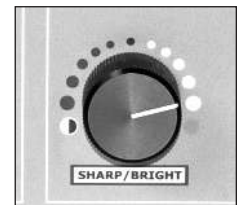
CAUTION!

Ensure that an input signal is present for the selected socket.

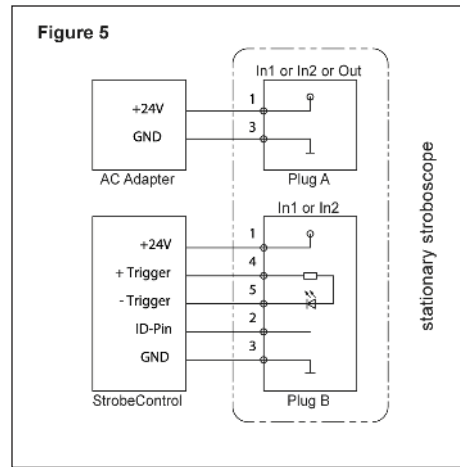


6.3 Adjusting the flash duration.

1. You can adjust brightness and sharpness according to your requirements using the rotary knob marked SHARP/BRIGHT with the symbols  /  .
2. To reduce the brightness, and increase sharpness, turn the knob counterclockwise towards  (SHARP).
3. To increase brightness and reduce sharpness, turn the knob clockwise towards  (BRIGHT).



D. Trigger signal from optional, hand-operated stroboscope control unit (e.g. RT Strobe control or RT Strobe eco control), supply voltage from optional AC adapter (Fig. 5).



The power is either supplied by the LS-9-LED power supply unit (available as an option) or the equipment being observed.

The LS-9-LED requires an external trigger source. Possible trigger sources include a stroboscope control unit, an external machine or a sensor.

NOTE!

When using the stationary stroboscope without stroboscope control unit, the stroboscope flashes with the trigger signal of the connected equipment. This signal cannot be influenced without a stroboscope control unit.

4.0 Installation/Mounting

Mount the strobe in the desired location using the threaded inserts located on the underside of the strobe housing (shown below). There are two (2) M5 metric threaded inserts and one (1) 1/4-20 inch threaded insert. Use appropriated plate and screw to attach to customer-supplied mounting fixture.



5.0 Connection

The stationary stroboscope has three connection sockets on the reverse of the unit which share some identical functions and therefore offer a high level of flexibility. The possible uses and labelling of these sockets are as follows:

Marking: 1

Use: Trigger signal input, connection of voltage supply.

Marking: 2

Use: Trigger signal input, connection of voltage supply.

Marking: Output

Use: Output of a trigger signal that is input into 1 or 2, connection of voltage supply.

The assignment of plug contacts is shown in Fig 1 below..

CAUTION!

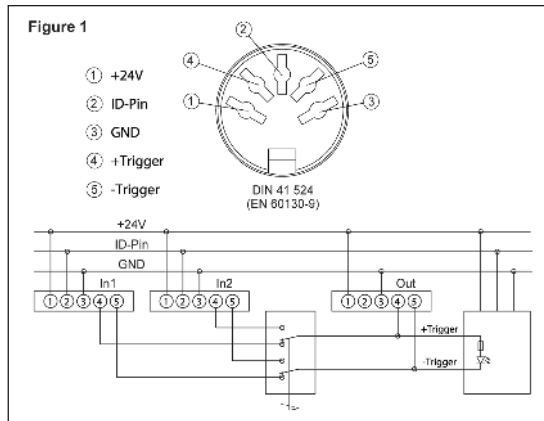
Please make the connections in accordance with the wiring diagram (Fig.1). The trigger input is potential-free. The potential-free input is suitable for PNP and NPN signals. A matching plug for these input sockets is included with the LS-9-LED.

RECOMMENDATION!

Use a shielded cable to connect the trigger signal.

CAUTION!

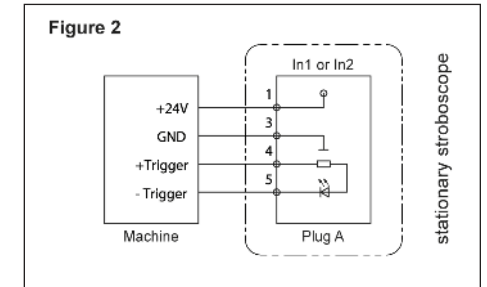
Do not trigger the LS-9-LED with signals above 120,000 FPM.



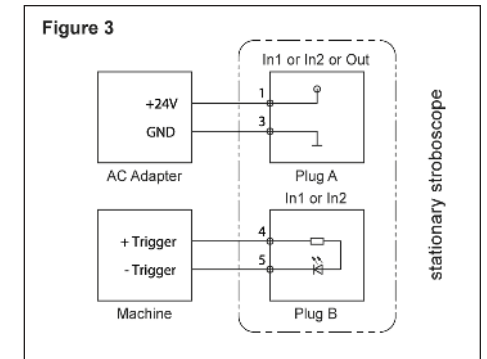
5.1 Typical connection examples:

Please take connection examples from Figures 2 to 5. Please note that you will need optional accessories for some of the examples (stroboscope control unit, AC Adapter, sensor).

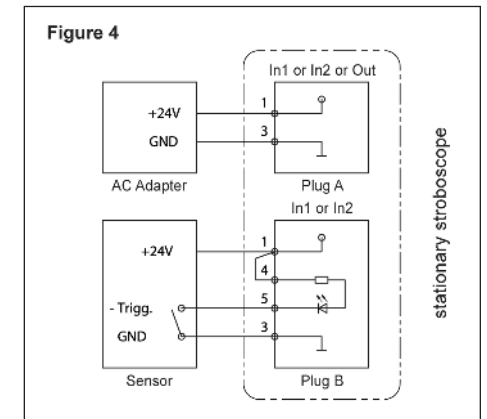
- A. Trigger signal and supply voltage from external equipment (Fig. 2).



- B. Trigger signal from external equipment (Fig. 3), supply voltage from optional AC Adapter.

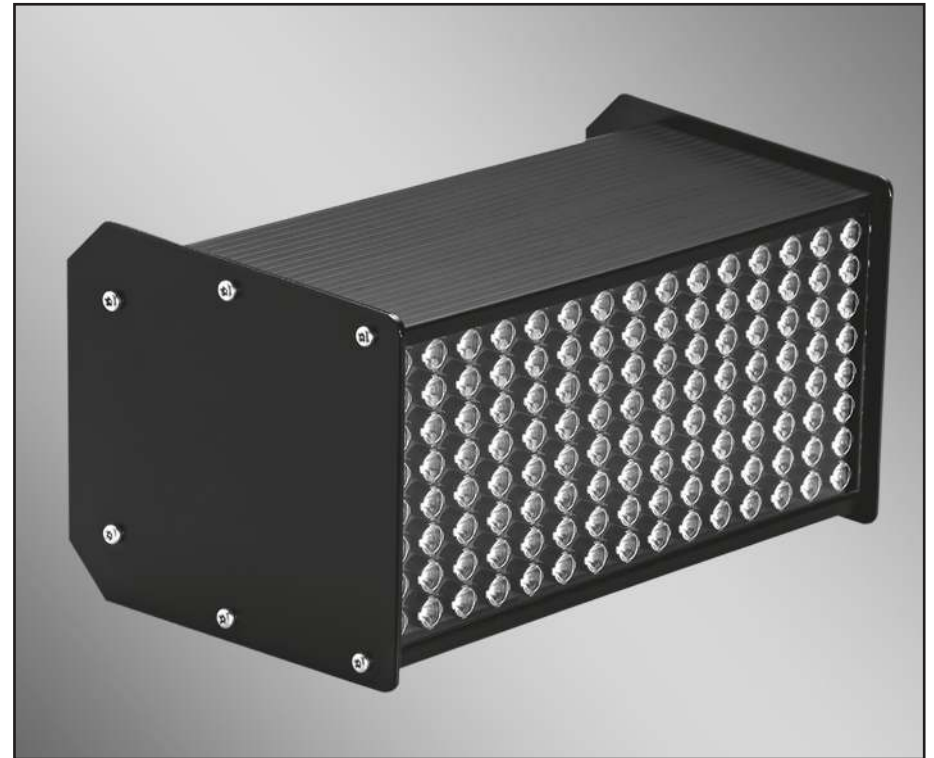


- C. Trigger signal from optional sensor (Fig. 4), supply voltage for unit and sensor from optional AC Adapter.



Stationary Stroboscope

Model LS-9-LED



Operating Manual
