

Please read these installation and operating instructions from beginning to end before starting work on the installation, and note carefully the sequence in which the installation steps have to be carried out. The safety of your vehicle could be affected if this work is not done properly.

BSX-Micro · BSX-Compact · BSX-Multi · HWL-X

Technical manual

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1.0 General information

BSX-Micro BSX Compact and BSX Multi – for active safety on active service

Extreme traffic situations and poor visibility, exacerbated by bad weather, make life difficult for everyone on the road. To keep emergency vehicles as safe as possible even under the worst conditions, there are now Hella flashing warning lamps

which use double-flash technology and are particularly effective in short-range work.

The two flashing warning lamps are operated from a high-power supply unit which also possesses a hi-tech electronic safety unit.

This supply unit requires little maintenance and suffers little wear. It is housed in a sturdy aluminium casting, and also has a separate outlet for functional monitoring of the system.

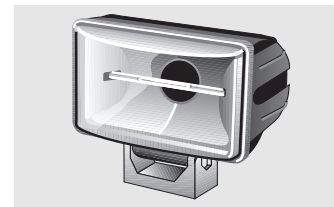
Other product features:

- electronic safety system to prevent electric shocks (triggers at < 30 mA).
- flasher failure sensor which immediately recognises a defective flasher tube, flasher failure, or broken wire.
- emergency cut-off - if one of the sensors is activated, the supply unit is switched off and the capacitor is discharged in less than 0.2 seconds to < 50V protective voltage.
- wrong way round connection is impossible.
- electronic system is secured against running with no load.
- cut-off at excessively low voltage.

BSX-Micro ~ K 45 for front mounting and for motorcycles

In the BSX Micro, the XENON flashing tubes, the special FF reflector, and the electronic ignition unit all form one entity. In conjunction with the blue polycarbonate cover lens, they create a very good warning effect. The BSX Micro can be

integrated harmoniously into the front of the vehicle on account of its very small dimensions. Another advantage is the tried-and-trusted Hella splay-plug fastening system which enables it to be installed easily but securely.



BSX-Compact ~ K 44
for front mounting

The flat, rounded housing enables the BSX Compact to be mounted without any difficulty on the front of a vehicle. Its round shape also makes it fit in easily with the vehicle's design. The BSX Compact model is fitted with a

high-power XENON flashing tube unit and a polycarbonate lens cover (with a special optical design), which between them create an outstandingly good warning effect.



BSX-Multi ~ K 116
for front installation

The BSX-Multi is a practically-oriented, versatile flashing headlamp for front installation. Its rectangular form provides optimum conditions for both attachment (plastic) and installation (plastic/rubber body) in all popular emergency vehicles. The BSX-Multi is

equipped with a high-performance xenon flash tube unit. Intensified via the polycarbonate lens (with special optics), an outstanding warning effect is achieved.



HWL-X ~ K 72
for installation
in the rear hatch or boot lid
(as a temporary warning at the
scene of an emergency)

The HWL-X rear warning light is a highly practical idea for increasing safety at the scene of an emergency. On some types of vehicle, opening the rear hatch or the boot lid conceals the rotating flashing beacon, but if the HWL-X is installed the warning value of the blue flashing light will still be maintained.

Its small dimensions allow this rear warning lamp to be installed quickly and easily into any type of emergency vehicle.

Two lamp models are available which cover every possible type of mounting, one with and the other without a mounting flange. The lamps are suitable for horizontal or vertical installation.



General information

1.1 Statutory regulations

Only applies for blue warning light.
As there are no appropriate regulations, the yellow BSX is not type-approved.

The Hella BSX Micro, BSX-Compact, BSX-Multi and HWL-X flashing warning lamps have type approval on the basis of the latest version of Article 52 of the German Road Vehicle Registration Ordinance, which covers "Beacons with only one main projection direction", and Technical Regulation 13a which provide the technical basis. The flashing warning lamps carry an official approval for the constructional type issued in coordination

with the LTIK, the official state testing institute, and the KBA, the Federal Motor Vehicles Office. On vehicles with more than one row of wheels, auxiliary warning lamps can be operated with a main projection direction (short-range operation) to the front and to the rear but only in conjunction with one or more rotating beacons. On motor-cycles, the BSX Micro can be used by aligning its reference axis at 45° to the left and the right of the motor-cycle's longitudinal axis, even if no



rotating beacon is in use (Fig. 1). Two HWL-X warning lamps can be used as a temporary warning to the rear at the scene of an emergency if, for instance, the open rear hatch or boot lid conceals the rotating beacon(s) and if the construction of the vehicle does not allow any additional short-range beacons (Fig. 2). In addition to this, these flashing warning lamps have also been granted type approval in Austria and Switzerland.

EMV Act
(the "electro-magnetic compatibility" Act)

Since 1st January 1996, all electrical and electronic equipment brought onto the market in the European Union have been required to comply with national legislation which in Germany means the EMV Act. Adherence to the relevant standards is documented by means of the "CE" symbol.

Your flashing warning lamps of course bear this "CE" symbol. They have been inspected by the "competent authorities" and meet all the basic requirements.

Accessories for vehicles in German categories M, N, and O, meaning passenger cars,

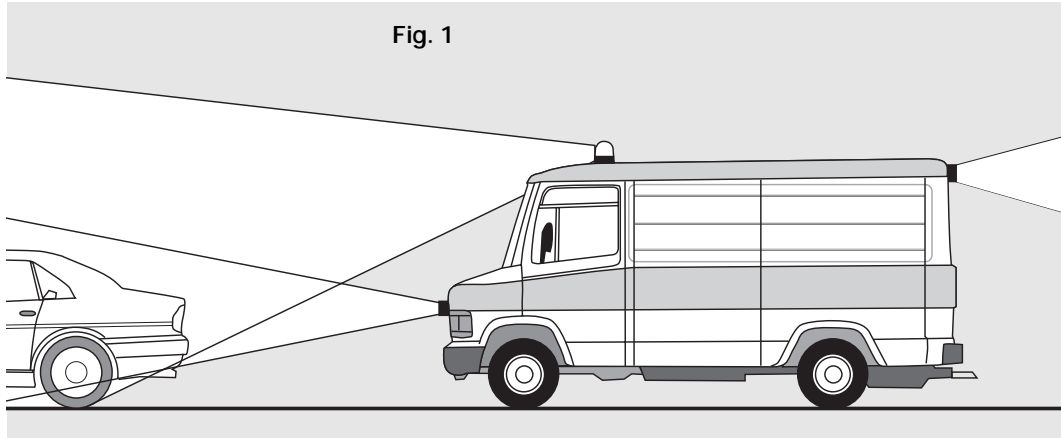
lorries, and buses, are exempt from the general EMV Act regulations but have to be subjected to EMV type-approval inspection. The KBA then issues them with an  type approval number. Your flashing warning lamps bear the KBA number  02 1169.

1.2 Items included with the warning lamps

The following items are
supplied:

- flashing warning lamps with the XENON flasher tubes already installed and the supply leads already connected.
- electronic supply unit.
- set of installation and operating instructions.

1.3 Purpose of use



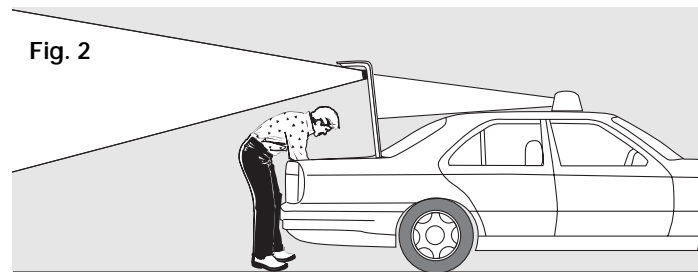
BSX-Micro BSX-Compact BSX-Multi

Optimum signal function!
Bypasses the blind spot of the
roof-mounted signal lamp in
the event of close proximity to
other vehicles.

- with constructional type approval
- geometrical visibility and light output in compliance with Article 52 of the Road Vehicles Registration Ordinance and TA 13a.

Important:

The latest edition of Article 52 of the Road Vehicles Registration Ordinance permits flashing warning lamps with only one main direction of projection to be fitted in pairs only.



HWL-X

Ensures full warning effect
when the rear hatch or boot lid
is open and partially conceals
the rotating beacon.

- with constructional type approval
- geometrical visibility as required by Article 52 of the Road Vehicles Registration Ordinance and by TA 13a.

2.0 Installation

Installation should only be carried out in a properly equipped workshop

2.1 Choice of installation location

Flashing warning lamps can, for instance, be fitted to suitable bumpers or let into the front of the vehicle.

A space of min. 8 mm is needed below the lens for ventilation and water drain-off.

- They must not be mounted on top of the bonnet, and must not project beyond the width of the vehicle. They must be mounted symmetrically.

- They must be mounted on a stable base and in such a way that they do not vibrate.
- They must not be allowed to reduce the flow of cool air to the engine.

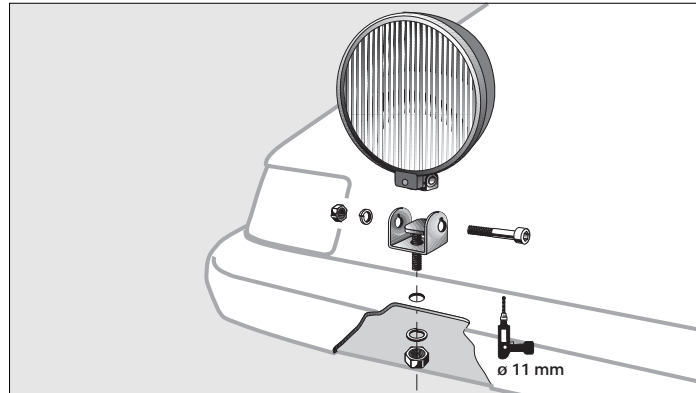
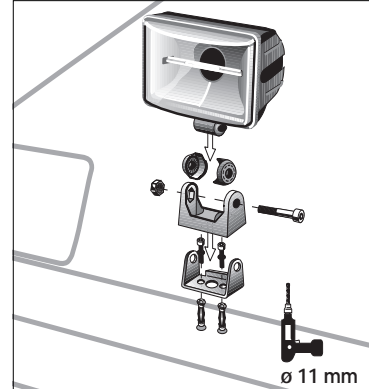
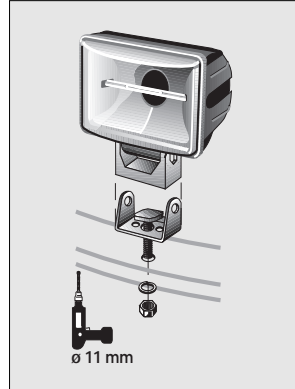
	BSX-Micro	BSX-Compact	BSX-Multi	HWL-X
Type of mounting	Upright or pendant (but observe the TOP marking on the cover lens)	Upright	Installation and attachment (Note TOP mark on lens)	is suitable for mounting inside the rear hatch or boot lid (but observe the TOP marking on the cover lens) Note: not to be mounted externally
Regulations on installation height	<p>Crossways direction: No special regulations.</p> <p>Height: At least 800 mm but no more than 1200 mm above the roadway. At least 650 mm if the shape of the vehicle prohibits installation at a height of 800 mm.</p>			

2.2 Warning lamp installation

Mark the point at which the warning lamp is to be mounted.

Before drilling a hole, make sure that no vehicle parts behind it would be damaged.

We recommend sealing holes in metal with a rust-preventer.



The supply unit is fitted at a point inside the vehicle where it is protected from spray water.

BSX-Micro

1. Mark and drill the mounting points.
Splay-plug mounting:
2 holes, 11 mm diameter
Screw mounting: 1 hole,
11 mm diameter (for upright
or pendant installation).
If installed in the pendant
position, the warning lamp set
must be rotated through 180°
(observe the TOP marking).
2. Secure the warning lamp
base (see illustration).
3. Mount the warning lamp and
align it parallel with the
vehicle's longitudinal axis.

BSX-Compact

1. Mark and drill the mounting
points.
Screw mounting: 1 hole,
11 mm diameter.
2. Secure the base of the
warning lamp (see illustration).
3. Mount the warning lamp and
align it parallel with the
vehicle's longitudinal axis.

Installation

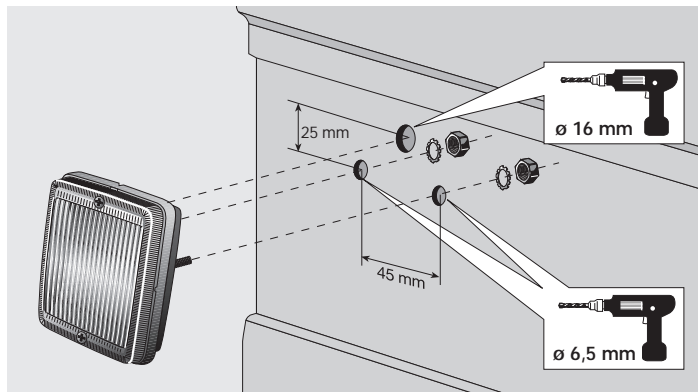
Fitting the headlamp

Mark the headlamp mounting location.

Before drilling and sawing, make sure the parts of the vehicle underneath cannot be damaged.

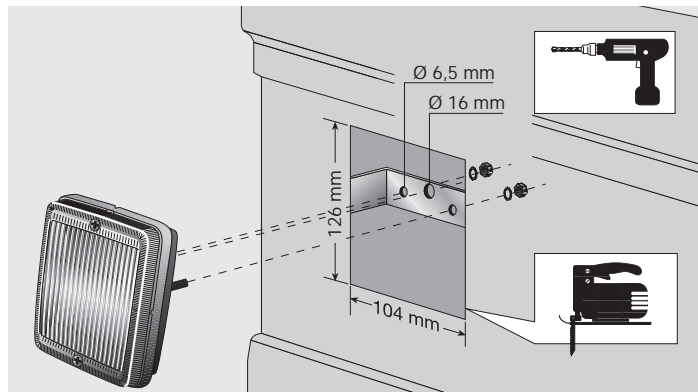
We recommend sealing holes drilled and sections cut in metal with a rust protection agent.

Mount the supply inside the vehicle, where it is protected from spray water.



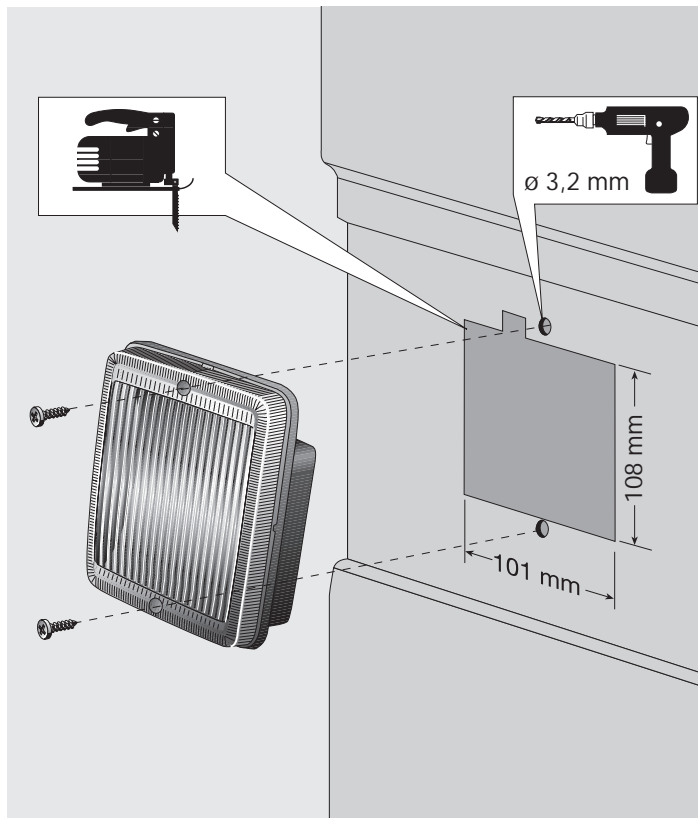
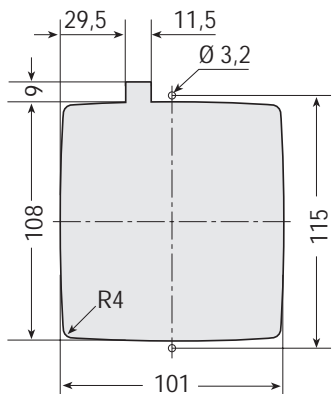
BSX-Multi Attachment of plastic body

1. Mark mounting points and drill.
Bolt installation:
2 x Ø 6.5 mm
Grogmet hole:
1 x Ø 16 mm
2. Install headlamp perpendicular to vehicle longitudinal axis.



BSX-Multi Installation of plastic body

1. Mark installation hole (plastic body) on vehicle according to drawing and cut out.
2. Mark mounting points and drill.
Bolt installation:
2 x Ø 6.5 mm
3. Install headlamp perpendicular to vehicle longitudinal axis.



BSX-Multi Installation of rubber body

1. Mark installation hole (rubber body) on vehicle according to drawing and cut out.
2. Mark mounting points and drill.
Bolt installation:
2 x Ø 3.2 mm
3. Install headlamp perpendicular to vehicle longitudinal axis.

Installation

2.3 Rear warning lamp installation

Mark and saw out the installation aperture.

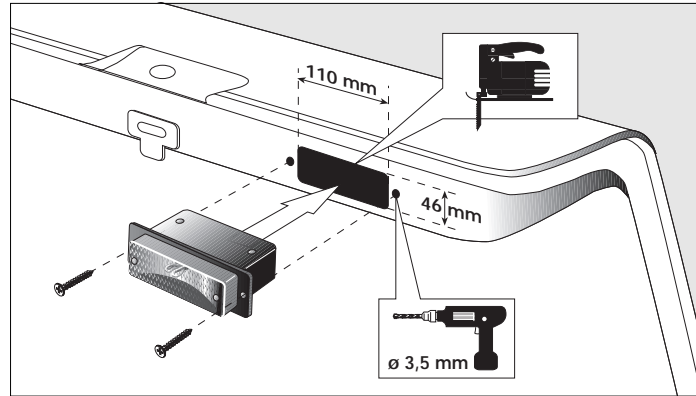
Mark and drill the mounting points.

Seal metal edges with rust-preventer.

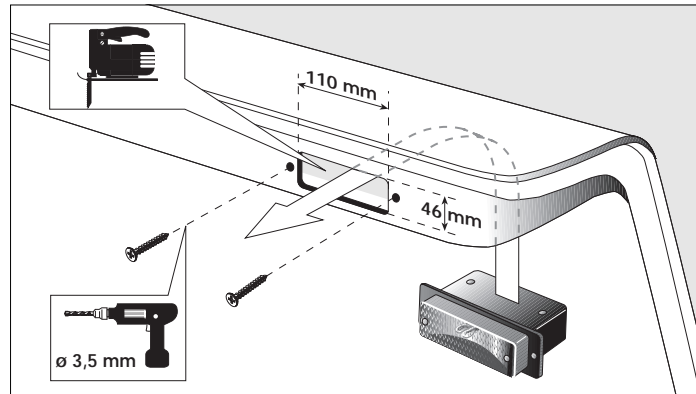
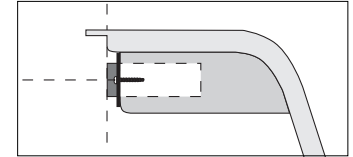
Lead the connecting wires through the installation aperture and screw the lamps firmly to the mounting frame.

The lamps must be aligned in such a way that the cover lenses are vertical to the vehicle's longitudinal axis when the rear hatch or boot lid is open.

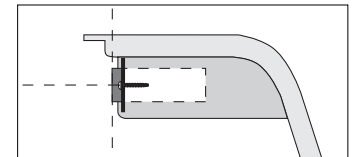
The supply unit is fitted at a point inside the vehicle where it is protected from spray water.

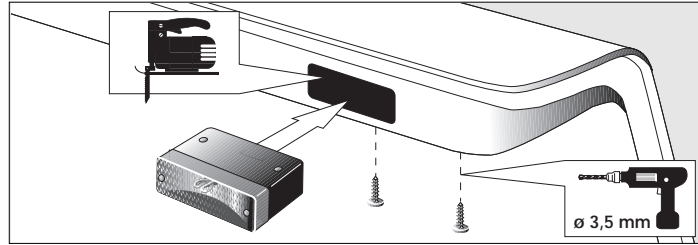


HWL-X
Flush fitting with mounting frame (external)

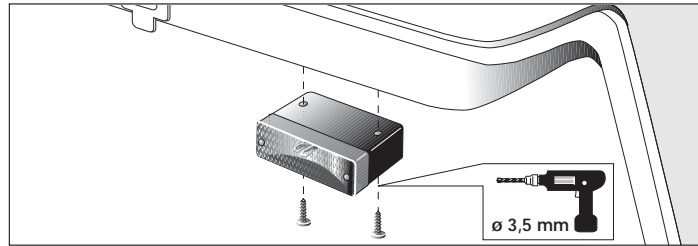
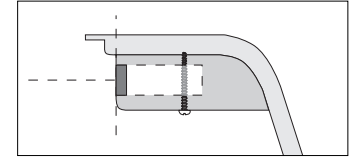


HWL-X
Flush fitting with mounting frame (internal)

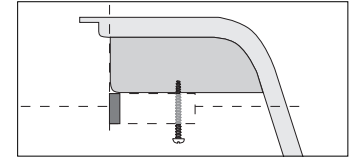




HWL-X
Flush fitting without
mounting frame



HWL-X
Surface mounting without
mounting frame



2.4 Electrical connections

Make sure the motor is not running, and take the earth cable (-) off the battery terminal.

When the electrical connection work is finished, fasten the earth cable (-) back onto the battery terminal and carry out a function test.

1. Connecting the flashing warning lamp

No leads must be used for the flashing warning lamp other than the high-voltage leads already connected to it, and they must not be longer than 3.5 metres. The functioning of the lamp would be affected if longer leads were to be used.

Wire the circuit up as shown in the wiring diagram on Pages 12 and 13.

Fasten the leads you have laid firmly to the vehicle with cable-binders (not included with lamps).

When laying these leads between the warning lamps and the booster unit, avoid tight curves (with a radius of less than 20 mm) and do not twist the leads through more than 90°.

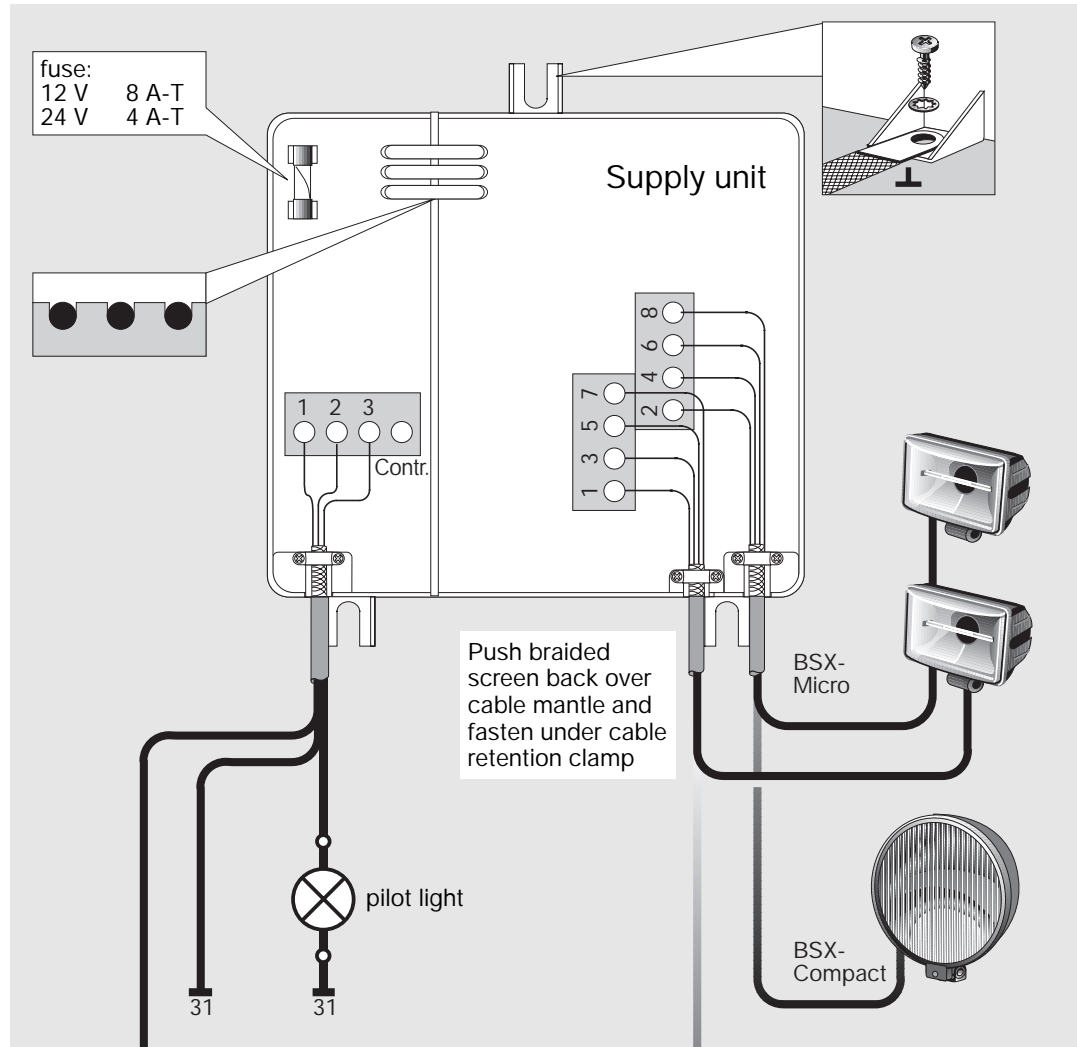
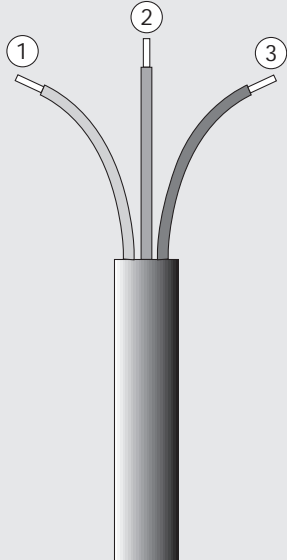
2. Connection to supply unit

The leads to the supply unit are not included with the lamps. Connect them as shown in the relevant illustration. The cross-sectional size of the leads must be at least 3 x 0.75 mm². The housing of the supply unit must be connected properly and permanently to the vehicle earth, e.g. with a bolt and a star washer and/or earthing strip.

Installation

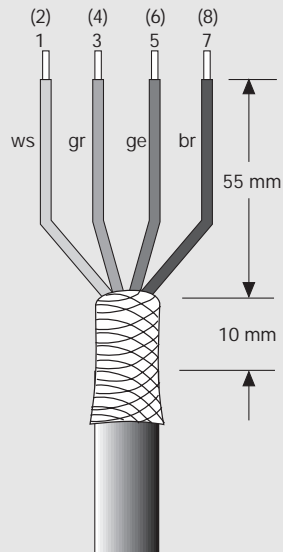
2.5 Wiring diagram

Connection to supply
3 leads of 0.75 mm² cross-section (use sleeves at ends of wires)

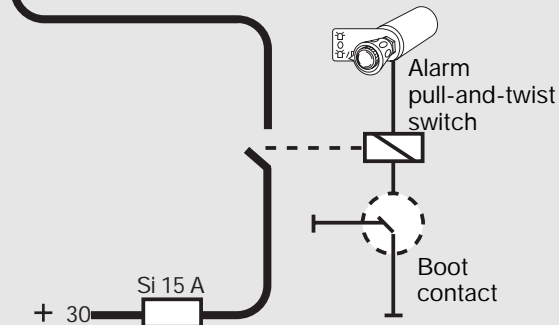
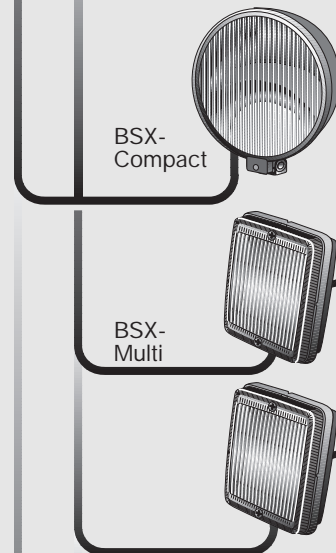
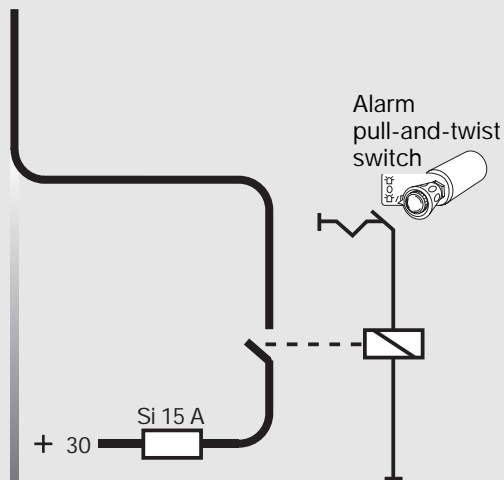


Flashing tube connection to supply unit

4 LIYCY leads of 0.5 mm² cross-section (use sleeves at ends of wires)



Electrical connection in combination with RTK 6-SL (see Technical Manual 3.0 Wiring Diagram)



3.0 Replacing XENON flashing tube units

If one of the warning lamps fails to function properly, both will be automatically switched off for safety reasons and in order to avoid shortening the service life of the second one. The pilot light will go out (the output to the pilot light is then "dead"). If one of the flasher tubes can be seen to have started blackening, we recommend that both tubes should be replaced.

Please observe the safety instructions provided with the units and marked on them.

Fault location:

1. Check the voltage supply at the supply unit.
2. Check the fuse (and the correct polarity)
3. Proceed as follows in order to identify which of the two lamps has tripped the cut-out: bridge across from the white to the brown lead in one of the warning lamps. The other lamp should now flash. Then reclose the lamp and switch on briefly (for a maximum of 5 seconds).

Safety instructions:

We recommend having the units replaced by trained personnel in a properly equipped motor workshop only.

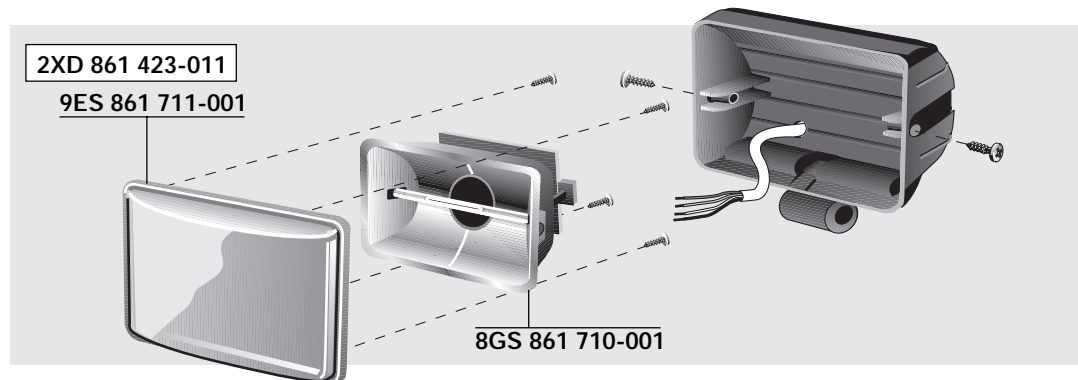
When tracking down a fault or replacing a flasher tube unit, observe the following safety instructions very carefully.

- Always switch off the headlamps before replacing the flasher tube. Before opening, switch off the voltage supply at the supply unit (wait at

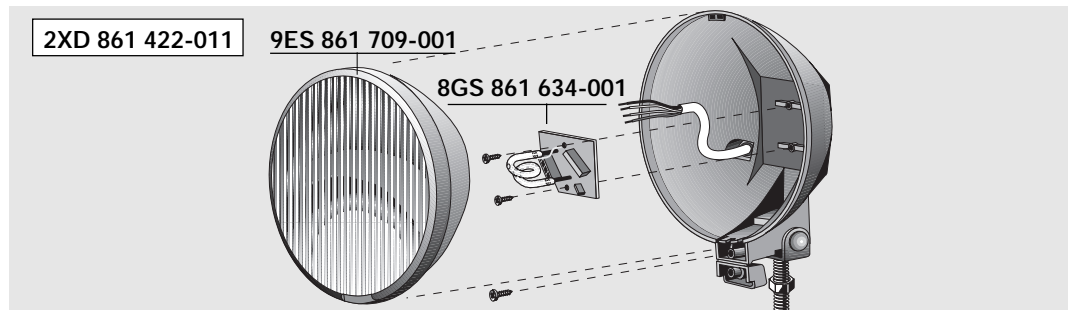
least 1 minute in case a condenser discharges).

- Allow the flasher tube time to cool down.
- Never touch the glass cylinder of the flasher tube - hold it by its base or at the circuit board.
- Carefully remove any finger prints from the glass tube with a clean cloth dipped in alcohol.
- Dispose of the used flasher tube as special waste.

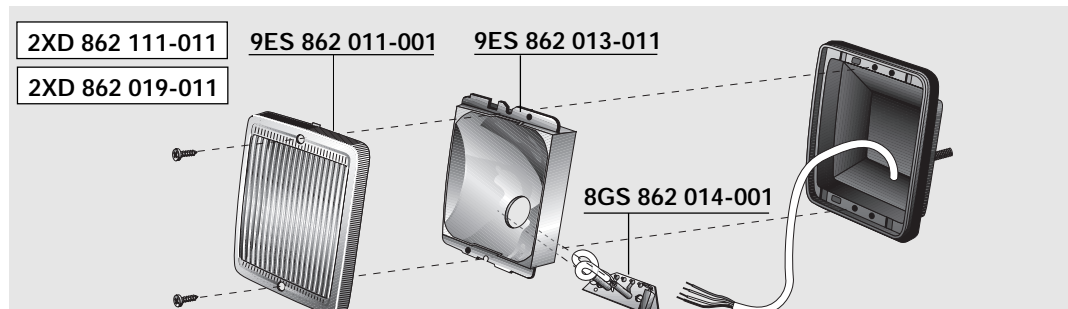
BSX-Micro



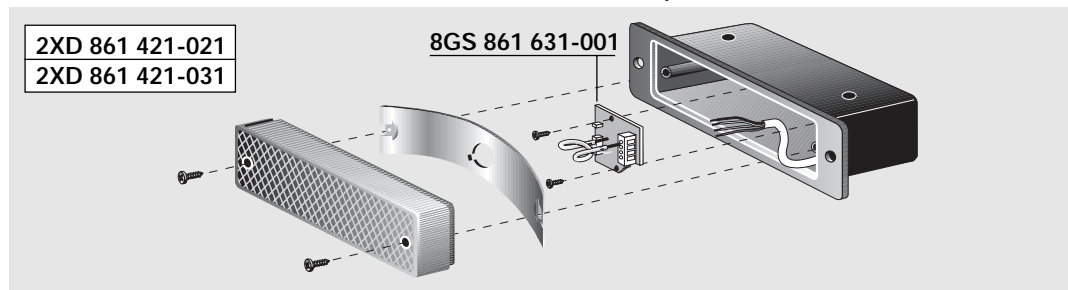
BSX-Compact



BSX-Multi



HWL-X



4.0 General technical data

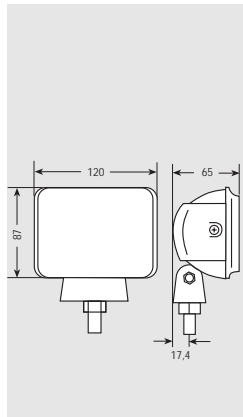
Optical design

In compliance with Road Traffic Registration Ordinance specifications in D, A and CH.

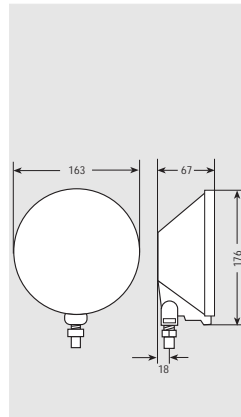
EMV Act standards:

- VDE 0879 Part 3; radio interference suppression Level 5
- Technical Guideline for radio-controlled patrol vehicles in compliance with TR 010
- DIN 40 839 Parts 1, 3, and 4
- ISO 7637 Parts 1 and 2, CISPR 25

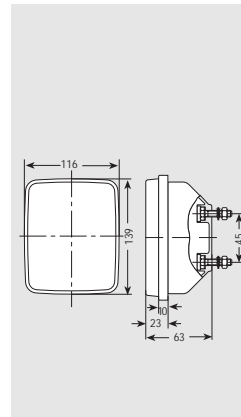
BSX-Micro



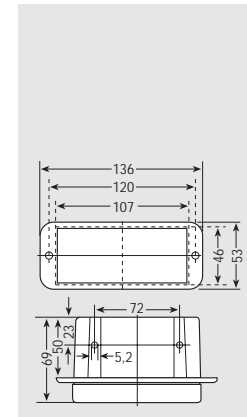
BSX-Compact



BSX-Multi



HWL-X



Type-approval symbols:



EMVG

~ K45

A 71482

CH 12077

[e1] 02 1169 CE

~ K44

A 71483

CH 12076

[e1] 02 1169 CE

~ K116

A 71484

CH 12079

[e1] 02 1169 CE

~ K72

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[e1] 02 1169 CE

Dimensions

Supply unit:

Weight: Warning lamp
Supply unit

160 x 165 x 45 mm

400 g

750 g

160 x 165 x 45 mm

450 g

750 g

160 x 165 x 45 mm

300 g

750 g

160 x 165 x 45 mm

150 g

750 g

General electrical data:

Rated voltage (U_N)	12 V / 24 V	12 V / 24 V	12 V
Operating voltage (U_B)	10 – 15 V / 20 – 30 V	10 – 15 V / 20 – 30 V	10 – 15 V
Current consumption without control:	3.8 / 1.8 A	3.8 / 1.8 A	3.8 A
Control output:	12 / 24 V – 3 W	12 / 24 V – 3 W	12 V – 3 W
Flash frequency:	2.1 Hz (approx. 120 double flashes/min.)		
Flash energy:	2 x (6.5 + 1.5 Ws)	2 x (6.5 + 1.5 Ws)	2 x (6.5 + 1.5 Ws)
Operating temperature range:	– 40° C to + 60° C	– 40° C to + 60° C	– 40° C to + 60° C
Type of protection DIN 40050 Sheet 9	Warning lamp	IP 5K4K, IP 9K	IP 5K4K
	Lamp		IP 5K
	Supply unit	IP 5K	IP 5K
Pole confusion protection:	fuse	fuse	fuse
Supply unit short-circuit and no-load-proof:	yes	yes	yes
Supply unit with low-voltage cut-off:	< 8/16 V	< 8/16 V	< 8 V
Supply unit with safety electronics and flash monitor:	yes	yes	yes

5.0 Spare parts and accessories

Range:

BSX-Micro

BSX-Compact

BSX-Multi

HWL-X



Part no.:

blue 12 V
2XD 007 854-801

blue 12 V
2XD 007 853-801

blue 12 V
2XD 008 135-801

blue 12 V
with mounting frame
2XD 007 852-801

blue 24 V
2XD 007 854-811

blue 24 V
2XD 007 853-811

blue 24 V
2XD 008 135-811

blue 12 V
without mounting frame
2XD 007 852-811

yellow 12 V
2XD 007 854-821

yellow 24 V
2XD 007 854-831

Supply unit:

12 V 8ES 861 420-001	12 V 8ES 861 420-001	12 V 8ES 861 420-001	12 V 8ES 861 420-001
24 V 8ES 861 420-011	24 V 8ES 861 420-011	24 V 8ES 861 420-011	

Flashing tube unit

12 V / 24 V incl. Reflector 8GS 861 710-001	12 V / 24 V 8GS 861 634-001	12 V / 24 V 8GS 862 014-001	8GS 861 631-001
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Cover lens:

9ES 861 711-001 blue	9ES 861 709-001 incl. Reflector	9ES 862 011-001	-
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Lamp assembly without leads:

2 XD 861 423-011 blue	2 XD 861 422-011	Plastic housing 2 XD 862 019-011	with mounting frame: 2 XD 861 421-021
		Rubber housing 2 XD 862 111-011	without mounting frame: 2 XD 861 421-031

Other

Reflector	-	8ES 862 013-011	-
Rubber housing		9BG 121 740-001	

If you have any questions or problems relating to installation, please contact your stockist.

Hella KGaA Hueck & Co,
P.O. Box 2840,

59592 Lippstadt, Germany

One last tip:

Always keep the cover lenses of your flashing warning lamps nice and clean - dirt can reduce their output by up to 20 percent!