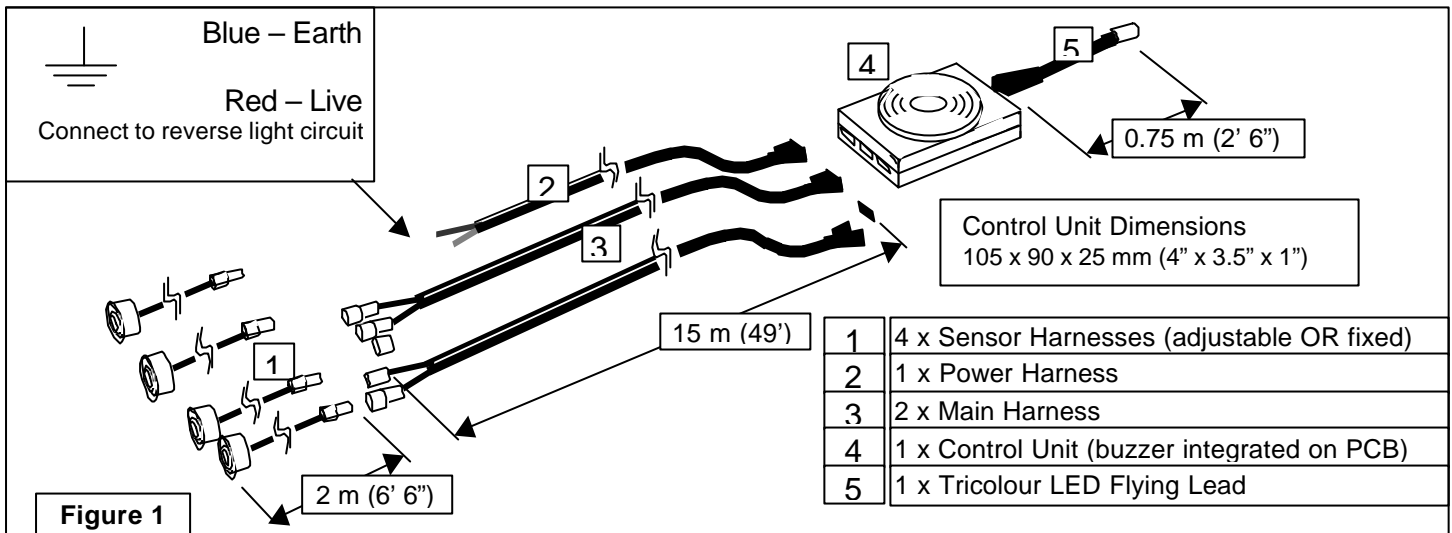


**Step 1: Check Contents of Box**



**Step 2: Tools Required**

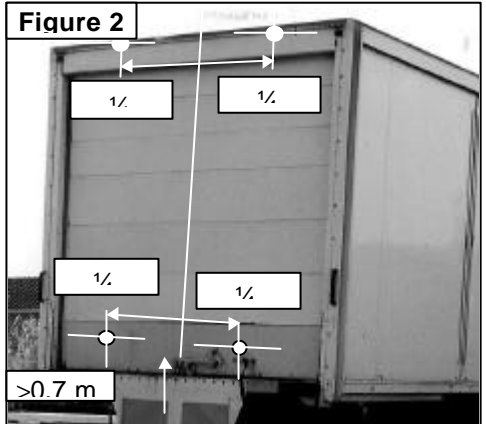
- Philips 75mm x no. 1 screwdriver
- Steel Measuring Tape
- Masking Tape & Pencil
- Power Drill
- Ø4.8mm Drill Bit
- Drill Bit & Ø27mm Arbor
- Scissors / Knife
- Voltmeter or Circuit tester

**Step 3: Test before Installing**

- Determine if the vehicle reverse light circuit (to power BackMinder) can be tapped into at the front of the vehicle near to the Control Unit – such as the gearbox switch or fuse junction box to obtain a power feed from the reverse light circuit. As a last resort the cable can be extended and tapped into the offside rear light cluster.
- Turn the ignition on and select reverse gear.
- Use a voltmeter / circuit tester to identify the reversing light live and earth.
- Connect the other cable harnesses into BackMinder as shown in Figure 1 taking care to ensure the connectors mate correctly.
- Connect the reverse light live to the red wire of the power cable and the reverse light earth to the blue or black wire of the power cable.

**Step 4: Determine Sensor Locations**

- Determine the centre of the vehicle using a measuring tape. Roughly mark with masking tape and mark centreline with a pencil. Then subdivide each half of the vehicle width again using the same technique such that the vehicle width is now divided into four. See Figure 2.
- Determine the centre of the vehicle using a measuring tape. Roughly mark with masking tape and mark centreline with a pencil. Then subdivide each half of the vehicle width again using the same technique such that the vehicle width is now divided into four. See Figure 2.
- The sensors should be located on a vertical plane ideally on the cross member supports for the under run bar at a distance half way between the centre line of the vehicle and the side of the vehicle. To avoid ground reflection it is recommended that the sensors are located at least 0.7 m above the ground when the surface is perpendicular to the ground. **If required sensor brackets are available.**
- Equally, if the under run bar is indented and not flush with the rear of the vehicle then consideration should be given to potential reflection from the underside of the truck above the sensors. On coaches the sensors need to be located at 0.8m and installed using wedges to avoid ground reflection.
- The upper sensors should be located on a vertical plane as near as possible at a distance half way between the centre line of the vehicle and the side of the vehicle. There is no specific height constraint.



- Additional equipment at the rear of the vehicle such as tow bars, spare wheels, lifts and steps can affect the performance of BackMinder and influence the decision on locating the sensors. If in doubt contact Autosonics LTD.

**Step 5: Install Sensors**

- Drill the four Ø27mm holes at 90° to surface at determined locations.
- Ensure that the sensor eyeballs are positioned in the centre of the housing. See Figure 4.
- Route the sensor cables through the drilled holes and push the sensor housing into the drilled holes. Ensure that the ARROW on housing face is located at 12 O'clock for the lower sensors and at 6 O'clock for the upper sensors

**Step 6: Locate / Route Tricolour LED Flying Lead**

- Locate the LED on the 'A' pillar in line with the door mirror is ideal. If this is not suitable then an appropriate location on the dashboard is required.
- Drill Ø4.8mm hole at chosen location.
- Feed the LED flying lead from the underside of the dashboard so only the LED is visible through the Ø4.8mm hole.
- Insert LED into mounting clip provided and push LED mount into the hole.



**Figure 3**

**Ideal location of Ø4.8mm hole for LED**

**Step 7: Install the Control Unit**

- Secure Control Unit inside the dashboard using the Velcro® provided. The chosen location should be within reach of the 0.75m LED fly lead.
- Ensure that the vents on the top of the Control Unit casing are not unduly covered when securing the Control Unit in its chosen location, as this will have an adverse effect on the sound level and quality.

**Step 8: Routing & Connecting Cable System**

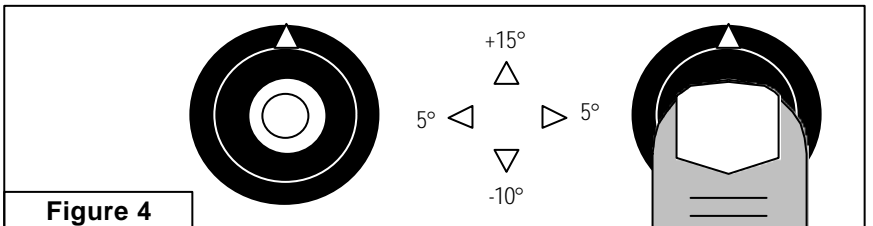
- Route the Power Lead to determined location in Step 3. Route the Main Harness from the underside of the dashboard in the cab to the rear of the vehicle, securing where necessary with cable ties. The sensor harnesses can then be connected to the Main Harness. Ensure that the round connectors are mated correctly and none of the pins are bent when making the connection.
- Connect the Power Lead into the reverse light circuit. Soldering is preferred, however, T-Taps are provided if necessary.
- Connect the LED flying lead, Power Cable and Main Harness in to the Control Unit as indicated in Figure 1. Ensure that the connectors are mated properly. Ensure that the Power Lead is not connected into the Main Harness plug on the Control Unit.
- Store any excess cable away from other cables or electrical systems.

**Step 9: Check Detection Coverage**

- Turn on ignition, engage reverse gear but do not start engine.
- TEST 1: Lightly touch the eyeball of each sensor. A faint vibration should be felt on each one. If not but the start up warble operates, then repeat Step 8
- TEST 2: Stand 3m (10ft) behind the vehicle inline with the quarter light. Walk towards the vehicle. The sound and LED should change as follows:  
3m (10ft) to 1.8m (6ft). Green LED slow pulse (Not everything will be detected in this zone).  
1.8m (6ft) to 0.9m (3ft). Amber LED increasing pulse intensity.  
0.9m (3ft) and less. Red LED Constant tone.  
Repeat for the other side and then at the centre.

**Step 10: Adjusting the Sensors**

- Autosonics LTD hold a patent on their sensor housing design. It enables the angle to be adjusted so that the system can be set up to your needs.
- A spring washer holds the sensor eyeball to the determined angle.
- Press the sensor eyeball with the thumb taking care not to scratch the surface of the sensor. This pushes it back a little clear of the front of the housing enabling the sensor to pivot in the housing.
- Eradicating unwanted ground reflection and avoiding the sensors reflecting off steps and tow bars can be achieved this way.
- N.B. For standardised fleet fits the sensors can be supplied fixed.



**Figure 4**

**Press Eyeball Centre with thumb to adjust**