Direction Detection Ltd.
Auto rail light switch.

Direction Detection Ltd. manufacture ‘Auto rail light switches’ to control trailer lights based on the direction of travel.

Operating Principle

Sensing is by means of a magnet on the vehicle wheel. A 50 Gauss south pole magnetic field triggers two hall effect switches, and the triggering order determines the vehicle direction.
Two LEDs indicate when the switches are triggered.
When neither switch has detected a change for 10 seconds, the vehicle is assumed to be stationary.

Inputs & Outputs

The sensor operates from 8 to 28 volts and draws 10mA of current, in addition to the load current, to power the outputs.
Four current-sourcing outputs are supplied, controlling white and red lights in each direction.
When first powered-up, white lights are displayed both ends for 10 seconds to allow for lamp testing.
When the vehicle moves, white lights are displayed in the direction of travel and red in the other direction.
When the vehicle is stationary, red light are shown in both directions.
Each output sources up to 150 milliamps of current at a nominal operating voltage of 12 to 24 volts.
The outputs are protected against short circuits and the input is protected against incorrect polarity.
The unit is designed for driving LED lamps. If used to operate a relay then a diode must be connected in parallel with the relay coil to suppress the back emf.

Housing

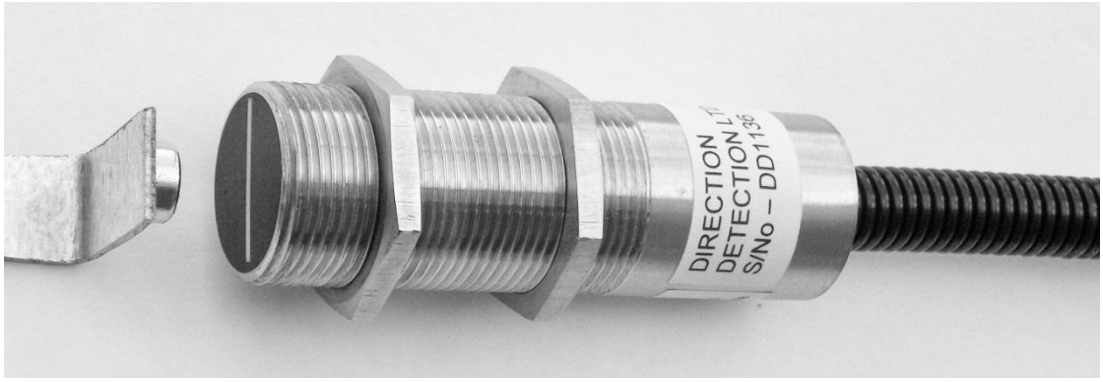
A stainless steel threaded enclosure allows for through-hole mounting and two nuts are supplied. All the components are sealed in the housing to IP68. The body of the sensor is 25 mm diameter and 80 mm long with 50 mm of thread (M25 x 1.5 conduit thread) to allow for adjustment to suit the magnet.
The magnet has to be from 2 mm to 12 mm from the sensing face.
The sensor includes 2 m of cable, supplied in flexible conduit.
Longer cables are available on request.

Installation Instructions

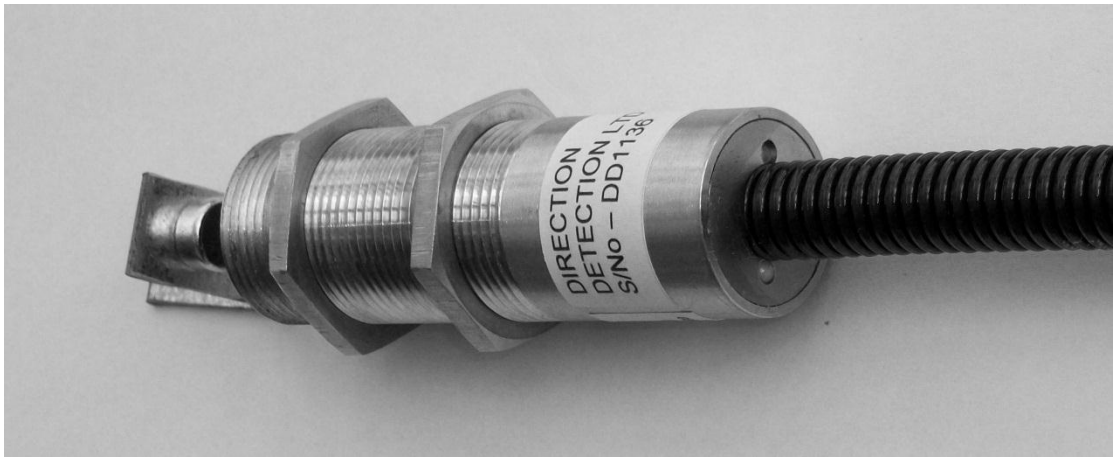
The south pole of a magnet must be mounted onto the wheel of the trailer such that the magnet can pass in front of the direction sensor unit.
One common method of mounting the magnet is to machine a recess into the top of an M10 hex. head set screw and bond the magnet into the recess.
A tapped hole can be made on the inner face of the wheel and the bolt fitted into the hole.

The detector has to be positioned so that the magnet travels along the white line moulded in the sensing face of the direction sensor. The magnet can be spaced 2mm to 12mm from the sensor.

There are two LEDs (one green, one amber) next to the cable opposite the white line. As the magnet passes over each of the two sensing elements the corresponding LED is illuminated. The sequence of these LEDs determines which end of the trailer has white lights when travelling.
If the white lights are at the wrong end then rotate the direction sensor half a turn in its mounting hole, the sequence will be reversed and the lights will be correct.
The unit can be mounted on either side of the trailer as long as the amber/green sequence is set correctly.
All the direction sensors are identical so they are interchangeable.
If the magnet has a north pole outwards the sensing elements will not function.

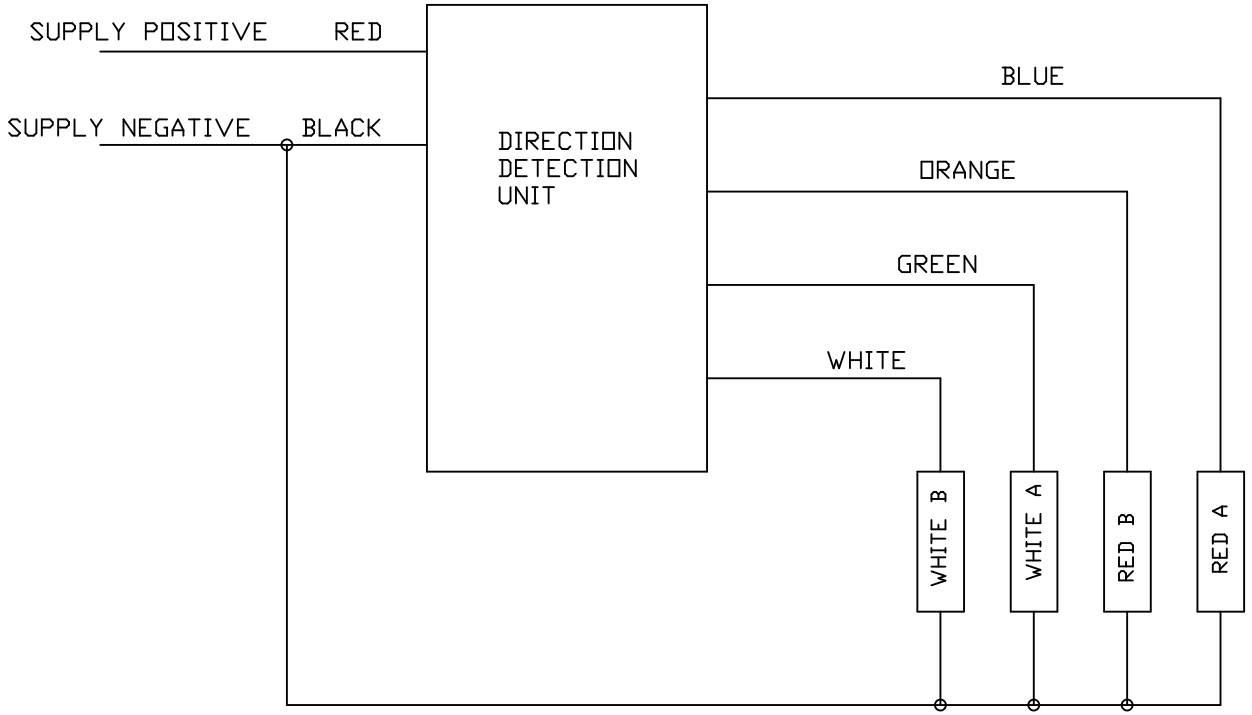


Sensing end with moulded in white line.



Cable end with green and amber LEDs

For more details or to purchase, e-mail enquiries@dirdet.co.uk
or telephone 01278 789022
Direction Detection Ltd
6 Swell Close, West Huntspill, Highbridge, Somerset. TA9 3SL



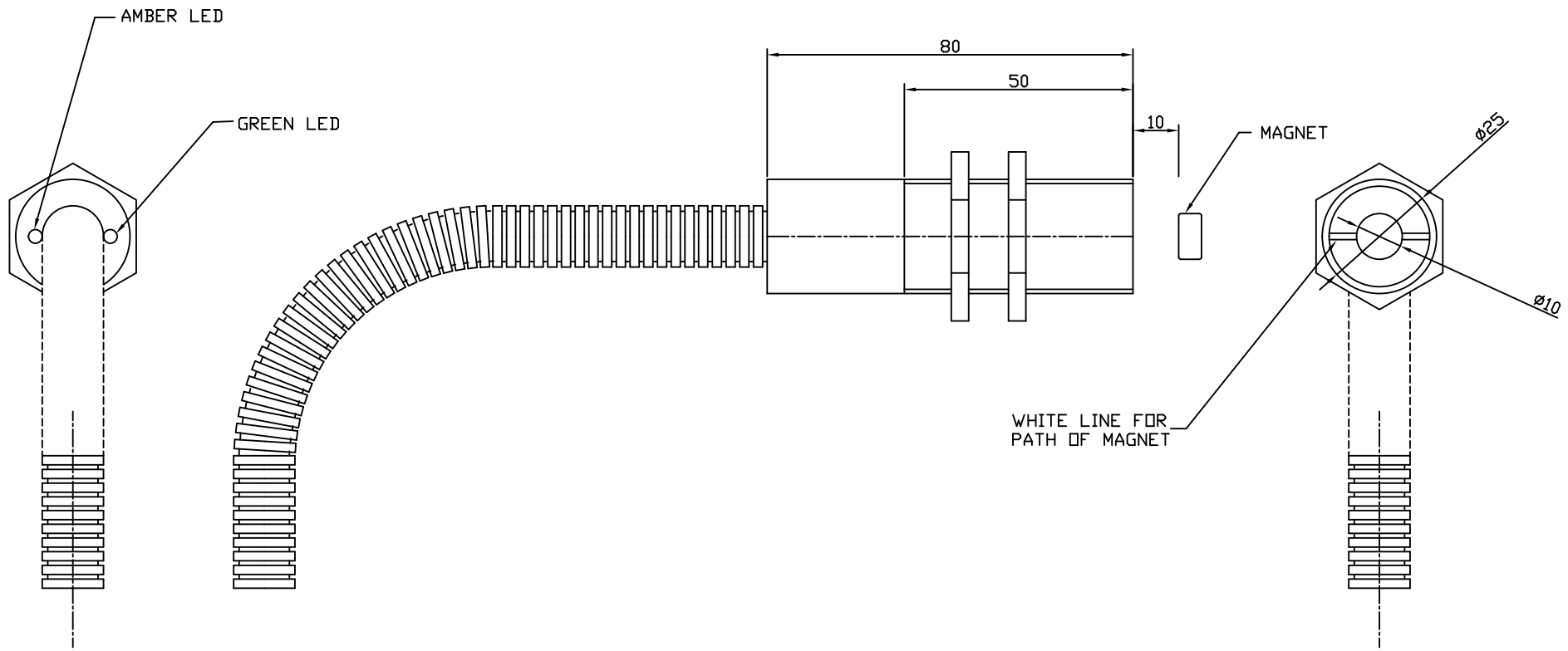
Maximum current output 150mA per output

Supply Voltage 10 to 28 Volts DC

6 SWELL CLOSE HIGHBRIDGE TA9 3SL

TOLERANCES		
XXX	+/- 1.0	
XX.X	+/- 0.5	
X.XX	+/- 0.05	

TITLE	CONNECTION DIAGRAM
DRAWING No	00006
DATE	22/06/2011
MATERIAL	



6 SWELL CLOSE HIGHBRIDGE TA9 3SL

TOLERANCES		
XXX	+/- 1.0	
XX.X	+/- 0.5	
X.XX	+/- 0.05	

TITLE	OUTLINE DIMENSIONS
DRAWING No	00007
DATE	22/06/2011
MATERIAL	