

For use where the direct connection of towing electrics to vehicles may affect bulb failure monitoring, multiplex wiring, or other electronic systems.

FITTING INSTRUCTIONS

- Suitable for 12v negative earth vehicles only.
- Examine the car carefully to see that all electrical circuits are working correctly and that no warning lights are showing.
- Decide whether to disconnect the car battery, or remove fuses. Take into account: Would disconnection disrupt memory circuits, alarms, engine management, audio etc. (You may need a device to maintain these circuits if the battery is disconnected).
- Can you make the necessary electrical connections safely with the battery connected.

The relay should be fitted in a dry ventilated space, in a position providing protection from physical damage and close to the trailer socket. When wired as below the relay switches power directly from the vehicle battery to operate the trailer lamps and draws typically around 1 milliamp from the vehicle lighting circuits. This current is not detected by vehicle monitoring or switching devices. Additionally, it is capable of detecting, analysing and rerouting modulated signals present on an increasing number of modern vehicles which would otherwise cause incorrect bulb operation, relay chatter, dimming and even non functioning of bulbs if a standard bypass relay were fitted.

1. Locate the wiring to the rear lights of the vehicle (usually on one side) and select a suitable point at which to mount the By-pass relay and make the necessary relay and 7 core cable connections. Connections must be made to conductors carrying a 12 Volt supply to the bulbs.
2. If access for the socket cables is not provided, drill suitable holes in the boot floor, close to the socket mounting point on the tow bar, taking care not to damage wires, pipes or vehicle bodywork. Remove any sharp edges from the holes with a file, treat with rust inhibitor and fit suitable grommets.
3. Feed the cables from the towing sockets through the grommets to the area selected for location of the relays and secure.
4. The **White** wire of the **7 core cable** must be connected to a good earth. Earth connections can be made to the vehicle chassis or bodywork, a good connection is important; this should be bare metal, free from paint or rust.

Relay Terminal TT - The relay is equipped with an internal buzzer to provide an audible signal when the trailer indicators are working correctly. In addition a dashboard warning light or external buzzer can be connected to terminal TT, the other terminal of the lamp/buzzer should be connected to earth.

Relay Terminal +12V - Connected to a 15 Amp fused supply (not controlled by the ignition switch)

The 7 long signal wires of the relay must be connected to the individual vehicle lamp circuits avoiding any multiplex wiring or other devices, as shown in the table overleaf. The White wire of the relay should be connected to a suitable good earth.

Identify the function of individual vehicle rear lamp wires by tracing back to the bulb holder or using a 12 Volt probe tester.

| 13 Pin Socket | Cable Colour | Socket pin No. | 7 core cable colour | to | Relay Terminal Number |
|---------------|--------------|----------------|---------------------|----|-----------------------|
| Pin 1 | Yellow | 12N pin1 | Yellow | | 1 |
| Pin 2 | Blue | 12N pin2 | Blue | | 2 |
| Pin 3 | White | 12N pin3 | White | | - |
| Pin 4 | Green | 12N pin4 | Green | | 4 |
| Pin 5 | Brown | 12N pin5 | Brown | | 5 |
| Pin 6 | Red | 12N pin6 | Red | | 6 |
| Pin 7 | Black | 12N pin7 | Black | | 7 |
| Pin 8 | Pink | 12S pin1 | Aux. Yellow | | R |

| Relay Signal Wire Colour | to | Vehicle Circuit |
|--------------------------|----|-----------------|
| Yellow | | L/H Flasher |
| Blue | | Fog Lamp |
| White | | Chassis / Earth |
| Green | | R/H Flasher |
| Brown | | R/H Tail light |
| Red | | Brake Lights |
| Black | | L/H Tail Lights |
| Grey | | Reverse |

| | | | | |
|-------------|--|--|--|-------------------|
| + 12V | | | | Battery (+12V) |
| TT (option) | | | | Flasher Tell tale |

Notes

For a common tail & brake wire combination, connect only the red signal lead to the car harness, insulate and tape up the brown and black relay leads.

Similarly for a common tail & fog combination, connect only the blue signal lead to the car harness, insulate and tape up the brown and black relay leads.

5. Run a power supply cable 28/0.3 (2.0 sq mm) from the battery to the terminal "+12V" of the relay, fitting a 15 amp in line fuse close to the battery. The cable should be routed where it will not be cut or crushed, particularly attention should be paid to places where the cable passes through bulkheads etc. **(do not insert fuse until the installation is complete).**

6. Check all wiring connections and if correct, reconnect the battery or replace fuses and connect the auxiliary lighting. The unit will automatically flash the lights on the test board. Check that both the vehicle lights and the auxiliary lights function correctly. Auxiliary indicator lamps should flash in unison with vehicle indicator lamps and the buzzer / panel lamp should operate. If any lamp fails to operate, check all wiring connections and the bulb. The buzzer or panel lamp will not operate if the auxiliary lighting is not connected or if the auxiliary indicator lamps fail.

7. Bulb failure warning lights will only operate if a fault occurs on the towing vehicle, with the exception of indicator circuits trailer lamps are not monitored.

In case of difficulty in fitting this product, advice can be obtained by consulting an auto electrician or phoning **0121-423-3011**