



MP3816B 12N - 7 PIN

TOW BAR WIRING KIT WITH SEVEN WAY UNIVERSAL BY-PASS RELAY INCLUDING AUDIBLE SENSOR

For use where the direct connection of towing electrics to vehicles may affect bulb failure monitoring, multiplex wiring, or other electronic systems. When wired as below the relay switches power directly from the vehicle battery to operate the trailer lamps using very small signals from the towing 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 lighting operation, dimming and even non-functioning of bulbs.

FITTING INSTRUCTIONS

- Suitable for 12v negative earth vehicles only.
- Examine the car carefully to see that all electrical and electronic circuits are working correctly and that no warning lights are showing.
- Decide whether to disconnect the car battery, or remove fuses, always follow the vehicle manufacturer's instructions. 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.
- The use of digital multi-meters or high impedance testers is essential if installing on digitally controlled or multiplexed lighting systems

The relay should be fitted in a dry ventilated space, in a position providing protection from physical damage and close to the trailer socket and should be secured to the vehicle with adhesive pads, screws or cable ties with drip loops formed in the cables both sides of the relay.

Instructions for Screw-less terminal connections:

Remove 1cm of the wire sheathing and twist the copper strands together. Depress the lock button releasing the spring contact inside the terminal. Insert the twisted wire core to the backstop inside the terminal block and release the button.

1. Locate the wiring to the rear lights of the vehicle (usually on one side of the vehicle) and select a suitable point at which to mount the By-pass relay and make the necessary relay and towing socket cable connections. Connections must be made to conductors carrying the supply to the bulbs.
2. If access for the socket cable 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 cable from the towing socket through the grommets to the area selected for location of the relay 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 using a Blue ring terminal provided, a good connection is important; this should be bare metal, free from paint or rust.
5. **Relay Terminal 0V** - Connected to the vehicle chassis earth not to a vehicle earth wire, using the short white wire and Blue ring terminal provided.
6. **Relay Terminal +12V** - Connect the Red power supply cable provided (2.0 mm²) from the battery or a spare fuse terminal not controlled by the ignition switch, fitting the 15 amp in line fuse holder close to the battery using the Yellow insulated crimps and Yellow ring terminal provided. 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.

After fitting the fuse, use a multi-meter check the +12V supply to relay terminal +12V and then remove the 15A in line fuse.

Relay Terminal C2 - The relay is equipped with an internal buzzer to provide an audible signal when the trailer indicators are working correctly. Alternatively a dashboard warning light or external piezo buzzer can be connected to terminal C2, the other terminal of the lamp/buzzer should be connected to earth.

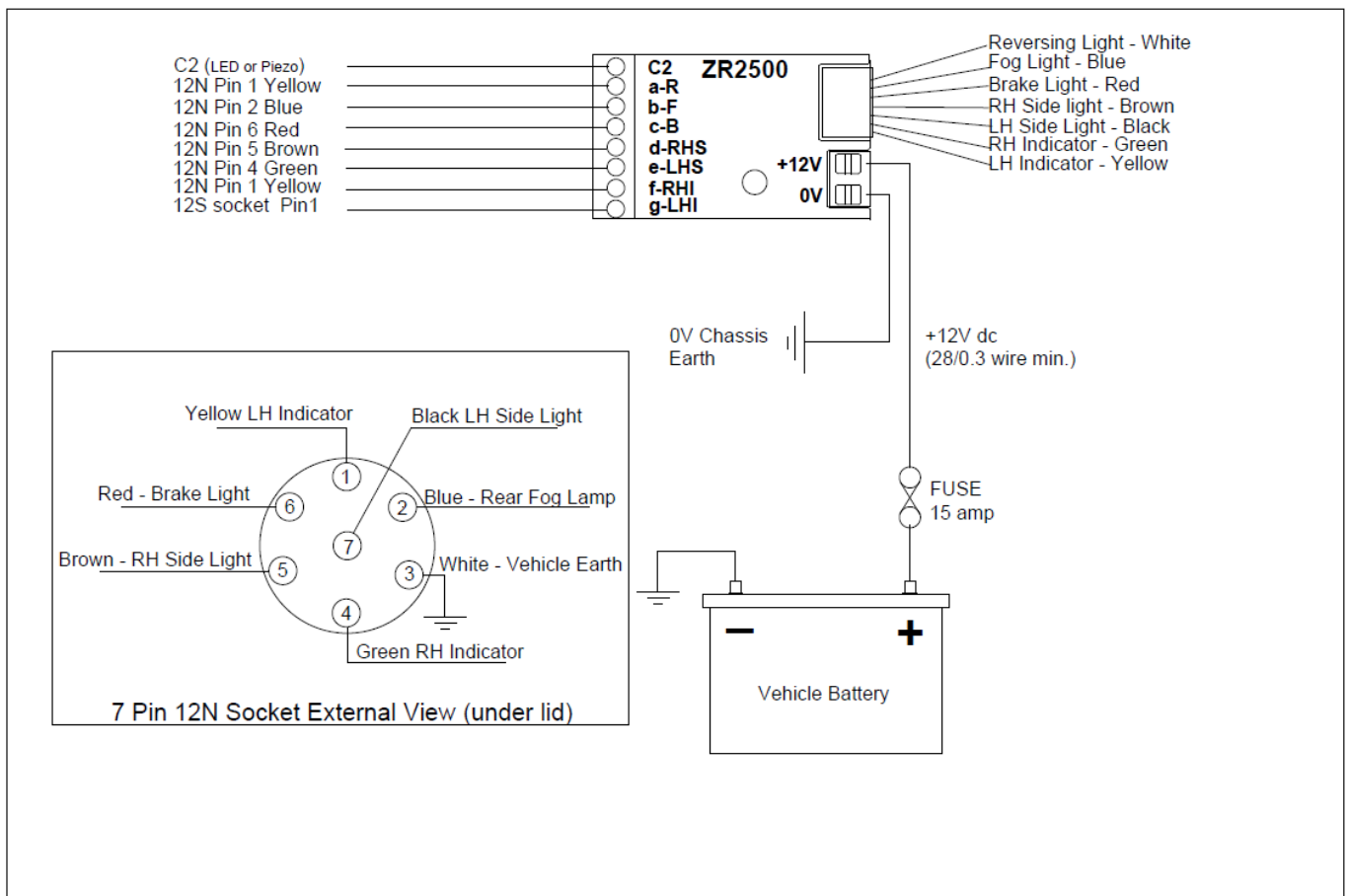
The 7 long signal wires of the relay must be connected to the individual vehicle rear lamp circuits avoiding any multiplex or data cables. These can be connected using the Blue snap connectors provided. Identify the function of individual vehicle rear lamp wires by tracing back to the bulb holder or using a digital multi-meter or high impedance tester.

Notes

- For common stop & tail lamp combinations using a pulse modulated supply, only the red signal lead from the relay should be connected to the car harness, the brown and black relay leads should be insulated and taped back to the loom. The relay will interpret the signals on the brake signal wire (Red) and operate the lights, including the side lights correctly.
- The relay has short circuit protection for all seven lighting outputs. If a short circuit is detected, the individual output is automatically turned off without blowing the supply fuse until the fault is corrected. The circuit will then be automatically be re-connected when the fault has been cleared.
- If connections for the offside indicator and position light cannot be made adjacent to the relay, a 3m twin cable and 2 Blue snap connectors are provided to extend the relay signal wires across to the nearside of the vehicle.

Socket pin No.	7 core cable colour	Circuit	Relay Terminal Number
12N pin1	Yellow	Indicator L/H	g-LHI
12N pin2	Blue	Fog	b-F
12N pin3	White	Earth Return	
12N pin4	Green	Indicator R/H	f-RHI
12N pin5	Brown	Position R/H	d-RHS
12N pin6	Red	Stop	c-B
12N pin7	Black	Position L/H	e-LHS
12S pin1	Aux. Yellow	Reverse	a-R

Relay Signal Wire Colour	to	Vehicle Circuit
Yellow		L/H Indicator
Blue		Fog Light
Green		R/H Indicator
Brown		R/H Position light
Red		Brake Light
Black		L/H Position Light
White		Reverse Light



7. Check all wiring connections and if correct, reconnect the battery, start the engine and replace the 15A relay fuse. The relay will emit one audible tone and is now ready to operate with the vehicles lighting circuits.
8. Turn ON and OFF the vehicle road lights in the following sequence, side lights, brake lights, left indicator, right indicator, fog lights, reversing light and parking light. As each vehicle rear light function is turned on, test with a multi-meter or automotive electrical tester that the correct socket output pins are energised +12V
9. Connect a socket tester or auxiliary lighting board. Turn ON and OFF the vehicle road lights in the following sequence, side lights, brake lights, left indicator, right indicator, fog lights and parking light. 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.
10. Vehicle fog light cut off function - A sequence of fog light switch operations will allow use of the trailer fog light with the towing vehicle fog light switched off.
 - With the trailer connected
 - Switch ON the fog light - Both vehicle and trailer fog lights will be ON
 - Switch OFF the fog light - The vehicle fog light will be OFF - The trailer fog light will be ON and the relay will emit an audible tone every minute to remind the driver that the trailer fog light is ON
 - To switch OFF the trailer fog light. Turn ON and then turn OFF the vehicle fog light or switch OFF the vehicle side lights.
11. C2 output - When the operational tell-tale audible buzzer operates, the "C2" terminal will be energised +12V. This output is designed for use with a piezo sounder or LED dashboard warning lamp.
12. The relay installation should now be "load" tested by connecting a lighting board or tester and operating all of the vehicle rear lighting circuits simultaneously. Cables, connectors and fuse holders should be checked for "cool" operation. All lighting functions should be observed to work normally.
13. 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 **0121-270-4301**