

IMPORTANT PRODUCT INFORMATION & GUARANTEE (TO BE RETAINED WITH THE VEHICLE AND PASSED TO SUBSEQUENT OWNERS)

Thank you for purchasing a PCT Automotive product. Please read the following information carefully before fitting or using your PCT Automotive product.

GUARANTEE

We shall free of charge either repair or at our option replace defective goods where the defects appear

- if the goods are a towbar manufactured by us, during the economic lifetime of the vehicle it was first fitted to
- in the case of all other products manufactured by us, within 3 years following the date of your order

PROVIDED THAT (in each case) such defects shall be found to our reasonable satisfaction to have arisen substantially from our faulty design, workmanship or materials and have not arisen by reason of a failure to follow our instructions (whether written or oral), any modification, misuse, neglect or interference with the installation, any damage or abuse to the goods or vehicle by impact or vandalism or by a failure to carry out reasonable inspection, maintenance and/or adjustment.

At all times, the above guarantee is subject to our standard terms and conditions of sale a copy of which is available upon request from our offices.

TOWING LIMITS

Our towbars have been designed for towing up to the vehicle manufacturer's maximum recommended trailer weight and nose load limits for your model. Towing with gross weights above that recommended at any time will invalidate the guarantee and cancel any liability for damage. Towing a twin axle trailer, towing over rough ground or using a bicycle/motorcycle carrier, etc, exerts extreme loads on a towbar and extra care should be taken in these situations not to exceed the vehicle manufacturer's maximum recommended limits.

PRODUCT IDENTIFICATION MARK

Your product carries a product identification mark. This mark carries important product and batch code information and if the product is type approved it also carries the type approval details which are required by law. Under no circumstances should this mark be defaced, removed or damaged.

INSTALLATION, INSPECTION, MAINTENANCE AND ADJUSTMENT

GENERAL INSTALLATION

- ⇒ All products should only be fitted by competent persons. Electrical products must only be fitted by an experienced auto-electrician.
- ⇒ Read the product fitting instructions carefully and check all components are included in the fitting kit before commencing installation.
- ⇒ Check vehicle for corrosion and/or accident damage. Towbars should not be fitted to any vehicle suffering from corrosion or accident damage or which is not in a roadworthy condition.
- ⇒ Clean off all road dirt, underseal and sound deadening mastic where parts are to fit to ensure correct seating of all components.
- ⇒ Bumper cut information is given as a guide only. Variations in models may occur therefore the fitter should always check that the bumper cut is necessary and of the correct size and shape before commencing with the cut.
- ⇒ All drilling swarf should be removed from the vehicle and all holes drilled in the vehicle should be treated with an appropriate rust inhibitor.
- ⇒ Do not fully tighten bolts before towbar is completely fitted unless instructed to do so in the fitting instruction, this will allow some variances to be overcome before final tightening of bolts.

PAINT & CORROSION

Towbars manufactured by PCT Automotive undergo a phosphate chemical pre-treatment prior to a polyester powder coat finish being applied. For long lasting good looks and in order to prevent corrosion the towbar should be regularly inspected for paint damage and wherever necessary re-painted in an appropriate finishing paint or underseal. The vehicle should also be regularly checked for any corrosion that could affect the towbar installation. Towbars should not be used on any vehicle suffering from corrosion that could affect the towbar installation.

BOLTS

All towbar fixing bolts should be checked initially after the first 300 towing miles, or the initial 500 miles of driving uncoupled, and then every 3,000 towing miles or to coincide with the vehicle manufacturer's recommended service intervals, whichever is the sooner. All towbar fixing bolts should be tightened using an appropriate torque wrench to the settings specified in the towbar fitting instruction.

ELECTRICAL INSTALLATION, TEST/COMMISSIONING AND MAINTENANCE

Failure to comply with the following instructions may cause damage to the towing vehicle's wiring loom and/or towing electrics installation.

Where displacement tap connectors e.g. Scotchlocks, are the preferred method of connection, always use the correct colour coded tap connector for the size of cable to which it is to be connected. All towing relays and modules manufactured by PCT Automotive have cabling with a copper cross-sectional area in the range 0.5mm² to 1mm².

After installation of the 12N/12S sockets, prior to testing, a water displacement agent e.g. WD40 should be applied into the rear connection void through the water drain hole at the bottom of the sockets and also into the front pins under the socket flap. This socket maintenance should be carried out at least twice a year in the spring and autumn.

The towing electrics test procedure must be undertaken with the engine running. If any of the towing relays fail to function correctly, with the engine running and no other vehicle electrical systems turned on, check that the voltage across the vehicle's battery is between 13V and 14V approx, if this voltage is not correct, check the condition of the vehicle's battery/alternator.

Always ensure that the trailer/caravan/lighting board's own electrical systems are installed and functioning correctly before coupling to the vehicle's 12N/12S sockets.

Every six months (spring and autumn recommended) the battery and alternator of the vehicle should be checked to determine correct electrical functioning. All connections of the electrical installation including the earth should be checked for mechanical soundness and electrical quality. Plugs, sockets, relays and fixings should be checked for water ingress, mechanical soundness, electrical quality and general wear and tear.

Please complete the following information to validate the guarantee and for future reference.

VEHICLE OWNER NAME & ADDRESS:

VEHICLE MAKE & MODEL:

VEHICLE REGISTRATION NUMBER:

FITTER NAME & ADDRESS:

DATE TOWBAR FITTED:

If you have any comments or suggestions about the PCT Automotive product fitted to your vehicle, please address them to PCT Automotive, New Street, Holbrook Industrial Estate, Sheffield S20 3GH or email techsupport@pctautomotive.com

Your comments will help us in our aim to continually upgrade our products to meet the high standards expected by our customers.

© PCT Limited (Rev. Nov 2015)



FITTING INSTRUCTION

ZR2000

Towing Interface Module
SUITABLE FOR USE ON 12V NEGATIVE EARTH VEHICLES ONLY (Not Jaguar S or XJS)

PRODUCT DESCRIPTION

The ZR2000 Towing Interface Module prevents any faults on the towed unit's road lights system damaging the towing vehicle's road lights system by the incorporation of current damp technology. The Towing Interface module is designed to switch power directly from the towing vehicle's battery/alternator, to the towed unit's road lights using very small signals from the towing vehicle's road lights system, without the towing vehicle's check control sensory systems being adversely affected. The Towing Interface module includes a built in audible device (and C2 output pin) which buzzes when the towed unit's directional indicators operate.

- * multiplexed bulb failure, digital controlled lighting
- * dual function/complex low voltage lighting systems

SUITABLE FOR USE ON 12V NEGATIVE EARTH VEHICLES ONLY

COMPONENTS

ITEM	QTY	DESCRIPTION
A	1	ZR2000 Towing Interface Module (7 Channels, Towing Car to Trailer Road Lights electronic control unit with Trailer indicator operational tell-tale + C2)
B	1	Blade Terminal (ZT2343)

FITTING PROCEDURE

- ⇒ **Attention: - The ZR2000 is not a watertight electronic product and must be installed in a clean and dry environment. The ZR2000 must be securely attached to the vehicle body using the screw attachment tabs or double sided adhesive fixing pads or cable ties. The control input lead and the 12N socket cable should be connected to the ZR2000 with drip loops adjacent to the ZR2000 to stop water ingress.**
- ⇒ The vehicle's battery condition and battery / alternator power output should be tested before commencing the ZR2000 installation.
- ⇒ All the vehicle electrical and electronic systems should be checked for correct operation before commencing with installation of the ZR2000 (PCT recommends the use of Digital Voltage Multi-meters and Automotive CAN Diagnostic Scanners (OBD-II) to confirm correct operation were appropriate).
- ⇒ Ensure vehicle circuits are safe to work on (Always follow vehicle manufacturer's instructions).
- ⇒ Connect terminal B of the ZR2000 to the vehicle chassis earth (0 volts dc-battery negative), using a wire of 16/0.2mm (0.5mm², 4.25amp) specification minimum. This connection should be made directly to the vehicle chassis earth and **NOT** to a vehicle chassis earth wire.
- ⇒ Connect terminal A of the ZR2000 to the vehicle power supply >+12volts dc, through a 15 amp fuse, using a wire of 28/0.3mm (2mm², 17.5 amp) specification minimum. The fused power supply for the ZR2000 should not supply any other system or load. If the vehicle manufacturer provides a spare fuse way in the vehicle fuse board for towing electrics this should be used to connect the ZR2000 to the vehicles power supply >+12volts dc (Check vehicle manual).
- ⇒ Start the vehicle engine and using a high impedance automotive electrical circuit tester or digital volt meter check that vehicle power supply >+12volts dc, is present on terminal A.
- ⇒ Turn the vehicle engine off and remove the ZR2000 15 amp supply fuse.
- ⇒ Connect the ZR2000 control input wires to the vehicle rear road lights supply wires as specified in the fitting diagram below. Note: - When installing the ZR2000 in vehicles with a single wire supplying the side light (pulse width modulated) and brake light (direct current), only the Red brake control input wire needs to be connected to the offside for the ZR2000 side and brake outputs to work correctly. The Black and Brown side light control input wires should be insulated and folded back.
- ⇒ When the ZR2000 control input wires have been connected to the appropriate vehicle rear road light supply wires, start the vehicle engine and re-insert the ZR2000 15 amp supply fuse. The ZR2000 will emit one audible tone, the ZR2000 is now set to operate with the vehicles electrical/electronic systems specification.
- ⇒ Turn on and off the vehicle road lights in the following sequence: - side lights, brake lights, left indicator, right indicator, fog lights (note 7 in commissioning and test), reversing lights (12N/12S or 13 pin towing electrics installations only) and parking light. As each vehicle rear light function is turned on, test with an automotive electrical circuit tester or a digital volt meter (PCT part ZM1383) that the ZR2000 towing socket output terminals as specified in the fitting diagram below are energised to the vehicles power supply >+12 volts dc.
- ⇒ Turn the vehicle engine off and remove the ZR2000 15 amp supply fuse.
- ⇒ Connect the 12N socket, 7 core cable, and the Yellow wire in the 12S socket 7 core cable in 12N/12S towing electrics installations or the 13 pin socket cable to the ZR2000 output terminals as specified in the fitting diagram below.
- ⇒ When the towing socket has been connected to the ZR2000 as specified in the fitting diagram below, start the vehicle engine and re-insert the ZR2000 15 amp supply fuse. The ZR2000 will emit one audible tone, the ZR2000 is now set to operate with the vehicles electrical/electronic systems specification.
- ⇒ Turn on and off the vehicle road lights in the following sequence, side lights, brake lights, left indicator, right indicator, fog lights (note 7 in commissioning and test), reversing lights (12N/12S or 13pin towing electrics installations only) and parking light. As each vehicle rear light function is turned on, test with an automotive electrical circuit tester or a digital volt meter (PCT part ZM1383) that the 12N/12S or 13pin socket output pins as specified in the fitting diagram below are energised to the vehicle power supply >+12 volts dc.
- ⇒ The installation of the ZR2000 is now complete, turn the vehicle engine off and remove the ZR2000 15 amp supply fuse.

COMMISSIONING AND TEST PROCEDURE

Designed And Manufactured By PCT Limited, Sheffield, S20 3GH, UK. Telephone +44 (0)845 123 1111 Email, Techsupport@pctautomotive.com



FITTING INSTRUCTION

ZR2000

Towing Interface Module

SUITABLE FOR USE ON 12V NEGATIVE EARTH VEHICLES ONLY (Not Jaguar S or XJS)

1. Start the vehicle engine and re-insert the 15 Amp supply fuse.
2. The ZR2000 will emit one audible tone, the ZR2000 is now set to operate with the vehicle's electrical/electronic systems specification.
3. Turn on and off the vehicle road lights in the following sequence: - side lights, brake lights, left indicator, right indicator, fog lights (note 7 below), reversing lights (12N/12S and 13pin towing electrics installations only) and parking light.
4. As each vehicle road light function is switched on in the sequence indicated above test the corresponding towing socket output pin with an automotive electrical circuit tester or a digital volt meter (PCT part ZM1383) as shown in the fitting diagram below. The vehicle power supply >+12 volts dc should be measured on each corresponding output pin.
5. When the tests in 4 have been conducted satisfactorily, commission the installation by plugging a towing socket tester, trailer test board or towed unit into the trailer socket. Turn on and off the vehicle road lights in the following sequence: - side lights, brake lights, left indicator, right indicator, fog lights, reversing lights (12N/12S or 13pin towing electrics installations only) and parking light.
6. The operation of the trailer socket tester, trailer test board or towed unit light functions should mirror the operation of the vehicle's rear road lights.
7. When the vehicle directional indicators are operated the towed units directional indicators will illuminate and an audible tone will be emitted from the ZR2000 at the same time. The audible tone is the towing vehicles "operational tell-tale" function indicating the towed units directional indicators are working, as required by the Road Vehicles Lighting Regulations 1989 (Note: - Some trailer socket testers do not trigger the directional indicator "operational tell tale" audible warning).
8. All the ZR2000 towing interface installation should now be tested simultaneously, all the vehicle road light functions should now be turned on together for a reasonable length of time (5 minutes approximately) to 'pressure test' the complete ZR2000 installation. All input and output cables and all terminations should be checked for 'cool' operation, all the road light functions should be seen to operate on the trailer socket tester or towed unit.
9. When the towed unit directional indicator "operational tell tale" audible warning operates the C2 pin output will be energised +12v dc, this output is for use with a second piezo sounder or a light emitting diode (LED) dashboard warning light.
10. Carefully read and implement the Electrical Installation, Test/Commissioning and Maintenance Instructions detailed in the Product Information & Guarantee.
12. The fitting instruction booklet should be retained by the vehicle owner.

Note:-

The ZR2000 has short circuit protection on all seven of the road light outputs, this works by incorporating thermal over current protection in the solid state switches. The system works when a fault such as a short circuit is detected in any one of the outputs, the faulty circuit is turned off until the fault is repaired, when the fault is repaired the circuit is automatically turned back on. The whole installation is protected and the front supply fuse will not blow turning off the whole road lights operation.



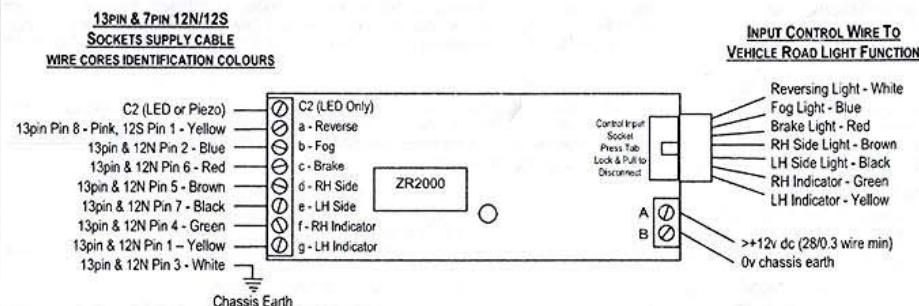
FITTING INSTRUCTION

ZR2000

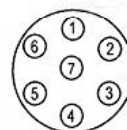
Towing Interface Module

SUITABLE FOR USE ON 12V NEGATIVE EARTH VEHICLES ONLY (Not Jaguar S or XJS)

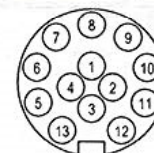
FITTING DIAGRAM



12N/12S SOCKET PIN CONFIGURATION
(View from front through flap)



13 PIN SOCKET PIN CONFIGURATION
(View from front through flap)



NOTE: When installing in vehicles with a single wire supplying the side light (pulse width modulated) and brake light (direct current), only the Red brake light input control wire needs to be connected to the offside for the ZR2000 side and brake light outputs to work correctly. The Black and Brown side light input control wires should be insulated and folded back.

7 pin 12N/12S & 13 pin Socket Pin Road Light Function / Wire Colour

- | | |
|-----------------------|-------------------------|
| 7 pin 12S | pin 1, Reverse / Yellow |
| 7 pin 12N & 13 pin 1, | LH Indicator / Yellow |
| 7 pin 12N & 13 pin 2, | Rear Fog Light / Blue |
| 7 pin 12N & 13 pin 3, | Vehicle Earth / White |
| 7 pin 12N & 13 pin 4, | RH Indicator / Green |
| 7 pin 12N & 13 pin 5, | RH Side Light / Brown |
| 7 pin 12N & 13 pin 6, | Brake Light / Red |
| 7 pin 12N & 13 pin 7, | LH Side Light / Black |
| 13 pin 8, | Reverse / Pink |

Use the blue blade terminal (ZT2343) for the power connection +12v on the relay.