

ZK3020A Batch 0000-PCT-00	12N/12S Towing Interface Relay Kit SUITABLE FOR USE ON 12V NEGATIVE EARTH VEHICLES ONLY
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COMPONENTS					
ITEM	QTY	DESCRIPTION	ITEM	QTY	DESCRIPTION
A	1	ZR1328A Type Approved Towing Interface Relay	I	2	Grommet
B	1	ZR1220 Type Approved Volton Combi Relay	J	2	Blade Fuse Holder
C	1	12N/12S Pre-Wired Socket (2m Cable, T-Plate)	K	2	15 Amp Blade Fuse
D	7	Red Insulation Displacement Tap Connector	L	4	Blue Fully Insulated Female Spade
E	1	1m x 9/0.3mm Black Wire	M	3	Red 6.4mm Ring Earth Terminal
F	1	0.2m x 9/0.3mm Black Wire	N	2	Blue 6.4mm Ring Earth Terminal
G	1	5m x 28/0.3mm Red Wire	O	7	Connection Identification Warning Labels
H	1	5m x 44/0.3mm Green Wire			

FITTING PROCEDURE
⇒ Before commencing with installation please read all pages of this fitting instruction carefully.
⇒ All vehicle road lights must be working correctly before commencing with installation.
⇒ Ensure vehicle circuits are de-energised, isolated and safe to work on (Always follow vehicle manufacturer's instructions).
⇒ Fasten Pre-Wired socket mounting plate between the towball and towbar neck flange using the existing towball bolts. Run the 12N and 12S 7 core cables into the boot through the grommets supplied. This may require appropriate holes to be drilled in the vehicle.
⇒ Locate the vehicle's wiring harness.
⇒ Connect terminal A of the ZR1328A to vehicle earth (-0 volts), using 1m of 9/0.3mm black wire and a red 6.4mm ring earth terminal.
⇒ Connect terminal B of the ZR1328A to +12 volts dc supply, through a 15 amp fuse, using 28/0.3mm red wire. The source of supply for the ZR1328A should not feed any other system or load. The source of +12 volts should be a spare fuse on the vehicle's fuse board (Check vehicle manual).
⇒ Using a high impedance automotive tester or digital volt meter check that vehicle +12volts dc is present on terminal B. The "Power On" LED should now be lit. (WARNING Only test for voltages through the wire aperture on the terminal blocks and not the screw head.)
⇒ Connect each of the ZR1328A's control input wires to the vehicle's rear road lights, as specified in the fitting diagram below. If insulation displacement tap connectors are the preferred method of connection, use the Red insulation displacement tap connectors supplied. Test the appropriate output terminal for +12volts dc after each connection. (WARNING Only test for the vehicle road light function wires using a high impedance automotive tester or a digital volt meter. PCT Automotive recommends ZM1383 Automotive Digital Multimeter.)
⇒ The connection identification warning labels should now be attached by folding around the relevant wires adjacent to the joints on the vehicle's wiring loom. (Remember to include contact details on warning label).
⇒ When all vehicle road light input wires have been connected and the output terminals have tested OK, connect the 12N socket 7 core cable to the appropriate ZR1328A output terminals as specified in the fitting diagram.
⇒ Connect the white wire from the 12N socket 7 core cable to vehicle earth using a red 6.4mm ring earth terminal.
⇒ Connect the white wire from the 12S socket 7 core cable to vehicle earth (-0 volts), using a blue 6.4mm ring earth terminal.
⇒ Connect the black wire from the 12S socket 7 core cable to vehicle earth (-0 volts), using a blue 6.4mm ring earth terminal.
⇒ Connect ZR1220 Earth terminal to vehicle earth (-0 volts), using 200mm of 9/0.3mm black wire and a red 6.4mm ring earth terminal.
⇒ Connect the green wire from the 12S socket 7 core cable to the Permanent Live Output terminal on the ZR1220.
⇒ Connect the blue wire from the 12S socket 7 core cable to the Switched Output 1 terminal on the ZR1220.
⇒ Connect the red wire from the 12S socket 7 core cable to the Switched Output 2 terminal on the ZR1220.
⇒ Connect ZR1220 +12V Input terminal to +12 volt supply, through a 15 amp fuse, using 44/0.3mm green wire. The ZR1220 supply should not feed any other system or load. The source of +12 volts should be a spare fuse on the vehicle's fuse board (Check vehicle manual).
⇒ Reconnect vehicle power (Always follow vehicle manufacturer's instructions.)

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COMMISSIONING AND TEST PROCEDURE

1. Switch the vehicle engine off and remove the 15 Amp supply fuse to the ZR1328A.
2. Re-insert the 15 Amp supply fuse, and check the "Power On" LED is lit.
3. **Start the vehicle engine** and turn on and off the vehicle road lights in the following sequence:-
Side lights, Brake lights, Left indicator light, Right indicator light, Fog lights, Reversing lights
4. As each vehicle road light function is switched on in the sequence indicated above, test the corresponding 12N/12S socket output (as shown in the fitting diagram), +12 volts dc should be measured on each corresponding output.

The ZR1328A contains electronic resettable fuses on the 12N socket outputs f and g. If any of the 12N/12S socket road light outputs fails to be energised +12volts dc, turn off the vehicle road light function that is being tested, disconnect the corresponding socket road light function wire at the ZR1328A terminal, and re-test the ZR1328A output terminal. If the output terminal is measured +12volts dc, this shows that a fault exists in the 12N/12S socket wiring. Replace or repair socket and/or cable as necessary and repeat from stage 3 of the Commissioning and Test Procedure.

5. With the vehicle engine running, commission the installation by plugging a 12N/12S socket tester or trailer test board into the 12N/12S sockets. (**Note** some socket testers do not trigger the indicator audible bulb failure warning.). The operation of the tester or test board should mirror the vehicle's rear road light operation.

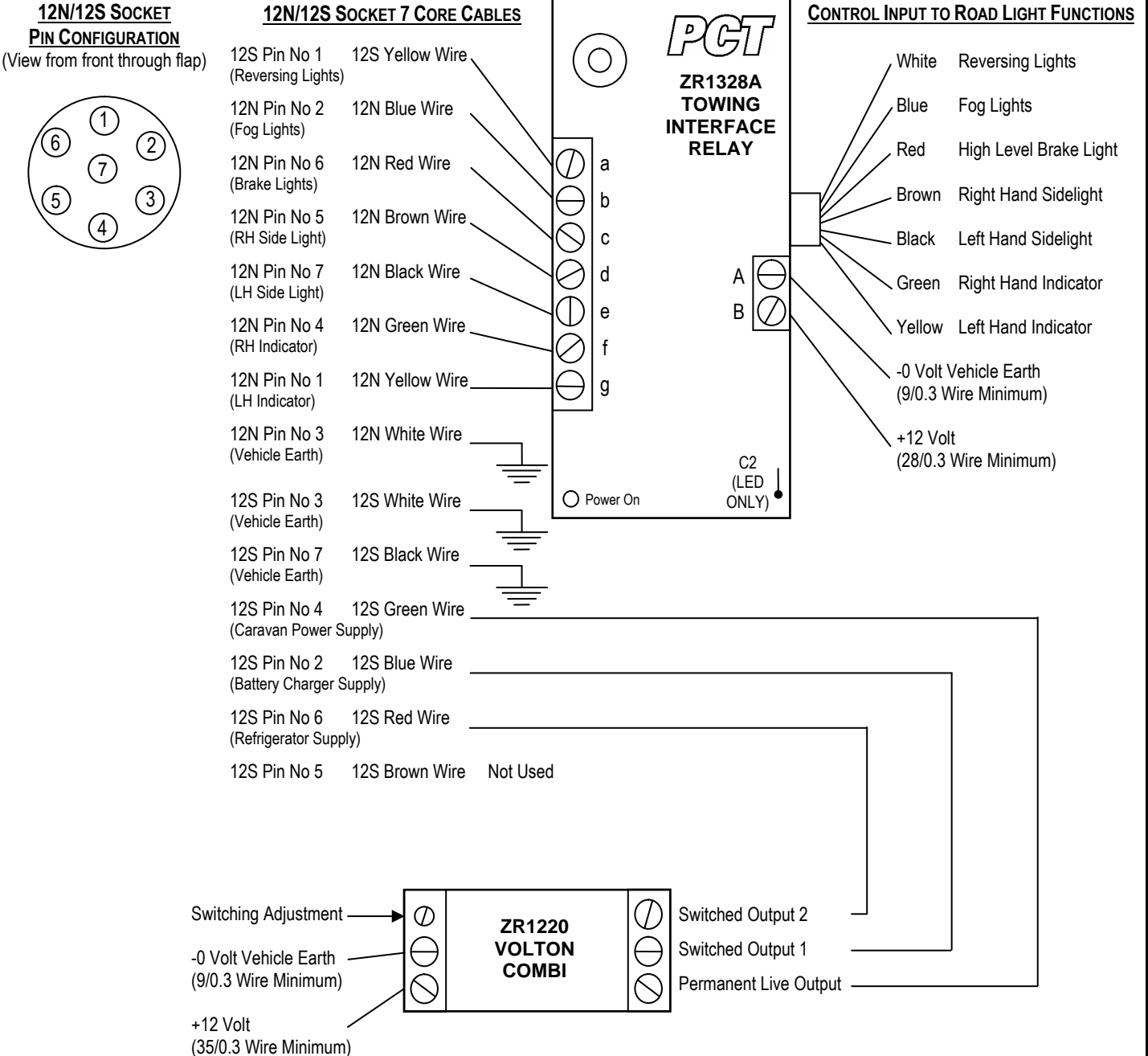
It is important to remember that the ZR1328A incorporates electronic resettable fuses on the 12N socket outputs f and g. If at this stage of commissioning the socket test equipment indicates that one of the 12N road lights socket outputs is not energising, turn off all the vehicle road light functions, disconnect the socket tester and test the socket road light function output that was not energising using a high impedance automotive tester or a digital volt meter, if the socket output is now found to be energised +12volts dc (when switched on), this shows that a fault exists in the socket tester/trailer board. Repair or replace as necessary.

6. The complete 12N/12S towing electrics installation can now be tested. Check that each pin in the 12N and 12S sockets operate as specified in the 12N/12S socket 7 core cable fitting diagram. Note that if the ZR1220 does not switch 12S pins 2 and 6 ON (Between 12V and 14.2V) after 10 to 15 seconds with the engine running, slowly turn the switching adjustment on the ZR1220 clockwise until 12S pins 2 and 6 switch ON (Between 12V and 14.2V).
7. All the vehicle road light functions should now be turned on together to 'pressure test' the complete electrics installation. All input cables and terminations should be checked for 'cool' operation. All the road light functions should be seen to operate on the 12N/12S socket tester. When a trailer test board or trailer is connected to the 12N socket and the directional indicators operate, an audible indication of operation should be heard and the C2 pin output should become energised. This output is for use with a second buzzer or LED dashboard warning light.

If the customer's towed unit's lights fail to operate correctly, turn off all the vehicle road light functions, disconnect the customer's towed unit and test the socket road light function output that was not energising using a high impedance automotive tester or a digital volt meter, if the socket output is now found to be energised +12volts dc (when switched on), this shows that a fault exists in the customer's towed unit.

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FITTING DIAGRAM



The C2 output pin becomes energised at the same time as the audible buzzer sounds. The C2 output pin is for use with a second buzzer or an LED dashboard warning light.

PCT Automotive recommends:-

- ZL1083 LED Warning Light
- ZR1018 Mini Buzzer
- ZR1019 Mini Buzzer in Box