Ryder Towing Equipment Ltd
Frequently asked technical questions

Contents

Frequently asked technical questions

Fuses

Q. What is the maximum rating fuse you can use on a specific relay (i.e. what current can the relay tolerate without blowing)?

A. Although each component relay in the products below can handle up to 20 amps, the circuit boards have lower tolerances. The figures below are for the complete circuits. For optimum protection, uses should be as low as possible for the load each relay is driving.

Relay	Fuse, amps
TF1011	10
TF1013	10
TF1014	10
TF2218/7E Series	2 x 10 on the relay’s power leads with a 15 amp relay at the power source
TF1013	25
TF1170-4	20

TF2218/7 series smart bypass relays

Q. Why are there two fuses on the TF2218/7 relays?

A. To protect the circuit board. With the power source split into two 10amp supplies, if there is a short circuit in the lines to or on the trailer, one of the fuses will blow before the circuit board burns out.

Q. How do you connect a buzzer or panel lamp to the pink wire?

A. The pink wire becomes negative during the time one or both of the trailer flashers are on. Connect the positive side of a buzzer (or panel lamp) to a live +12v source and the negative side to the pink wire.

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TF1170 series, Smart Combi

Q. Why does the TF1170 sometimes go on and off repeatedly (cycling on and off)?

A. **Cause 1.** When the relay has no load, the full voltage available is detected. When there is a load, the load causes a voltage drop in the circuit. If the relay is set high compared to the voltage detected, the relay will switch off. Because the relay has switched off, there is now no and the voltage increases. This makes the relay switch on again and the load is applied again. This makes the relay switch off. This cycle continues.

Cause 2. If there is poor connection at some point in the circuit, causing heating and a high resistance, this can have the same effect.

Q. How do you tune a TF1170-3 or TF1170-4?

NOTE: TF1170-3 – anti-clockwise to turn off. TF1170-4 – clockwise to turn off

A. 1 In the case of the TF1170-3, carefully turn the centre slot in the small trimmer (potentiometer) inside the case fully **anti clockwise**. This should turn it off. Then, with the engine ticking over, slowly turn it clockwise until the relays click. Switch the engine off and the relays should click off within a short time. If they do not click off within a maximum of five minutes, try switching on the headlights to lower the battery. This should turn the relays off.

If the relay stays on, repeat the process from the beginning.

A. 1 In the case of the TF1170-4 the process is the same except that you must turn the trimmer fully **clockwise** to switch the relay off.

Q. How do you wire a TF1011 to switch a negative-switched lamp on and off (e.g. Chrysler Voyager fog light)?

A. See appendix 1.

TF2301 series SmartCAN module

Q. How many different SmartCAN modules are there?

A. Two: the TF1302GM for GM vehicles and the TF2302 for other compatible vehicles

Q. Can I buy a dedicated SmartCAN kit for a specific vehicle?

A. Yes

Q. How can the SmartCAN be compatible with so many vehicles?

A. The chip in the module can hold a vast amount of data and an algorithm within the chip can identify which vehicle it is in from the signals it receives when it is switched on.

Q. How do I know if the SmartCAN will fit a particular vehicle?

A. If you do not have access to the list of compatible vehicles at www.rydertowing.co.uk or to a printed list, you can make a temporary connection, to the CANbus circuit, to +12V and earth. If, when the vehicle's CAN wakes up, the LED in the

module flashes once every second, the module has recognised the vehicle. If it flashes quickly three times and repeats this or if the LED goes on permanently of not at all, it is not compatible.

Q. Does the SmartCAN module "talk back" to the vehicle?

A. If the car has that capability, the SmartCAN will "talk back".

Q. Can the SmartCAN activate towing-related functions on the car?

A. Yes

Recoding for SmartCAN CANbus module

Q. Is the SmartCAN compatible with the vehicle being recoded for towing?

A. Yes

Q. How do I know if a vehicle needs recoding?

Go to the link below and look up the vehicle. If your model is not shown, it is reasonable to look at similar vehicles of the same age from the same manufacturer to see whether they require coding. Your vehicle is likely to have the same requirement.
http://www.rydertowing.co.uk/vehicle-data/sheets

Q. How can I recode vehicles?

A. 1. Dealerships have coding equipment for the vehicles they supply and many independents carry a range of diagnostic and code writing equipment.

2. Towbar installers, can buy VCDS, a complete laptop (or PC) software and connectors for recoding all VAG vehicles (Audi*, Seat, Skoda and Volkswagen) for a little over £220 plus VAT. You can find a complete guide to using VCDS on our website at:
http://www.rydertowing.co.uk/download/recoding-data

Contact our sales for where to buy.

3. You can also buy a recoding system from Westfalia. This is more expensive but there are better deals if you are buying Westfalia towbars. There is a short guide to the Westfalia recoder on our website with the VCDS guide. Click the link above.
Top contact Westfalia about the Westfalia recoder, click the link below.
http://westfalia-automotive.co.uk/

Installation

What does the flashing LED mean?

The LED will flash quickly three times only, when the module is powered up.
The LED will flash three times and repeat this continuously If the CAN connection is the wrong way round,
The LED will not flash at all if there is no CAN signal present
The LED will stay on continuously if the CAN is incompatible with the SmartCAN module

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The LED will flash once per second if CAN is found and the module is working.

What fuses do I need for the power inputs, terminals 1,2 and 3?

Terminal	Function	Fuse value(amps) *Power line must be fused close to its source*
Terminal 1	Road lights	15
Terminal 2	12S common with 3	20
Terminal 3	12S common with 2	20

Q. Why are there two power terminals for the 12S auxiliary function?

A. Mainly to reduce voltage drop across the terminals; also to provide an unswitched output for caravan interior lights and caravan battery charging.

Q. Where do I take power from for the unswitched 12S auxiliary circuit (Pin 4 on 7-pin installations and Pin 9 on 13-pin)?

A. From Pin 3. Insert both a power in and an output wire into this terminal.

Trouble shooting

Q. The LED does not give three flashes when power is applied

A. You have no power to the relay or you have no earth connection.

Q. The relay flashes three time when power is connected but does not flash when CAN is connected and the car is "awake".

A. The module does not recognise CAN on the vehicle. Check your connections to CAN are properly made: check (1) at the CAN wires (2) at the screw terminals on the SuperSplice plug (3) at any butt connectors between the CAN cable and the plug-in short loom (4) check that the pins in the plug that plugs into the module are not dislodged.

Q. The LED stays on without flashing.

A. There is CAN but SmartCAN is not compatible with this vehicle.

Q. The LED flashes once a second but the trailer lights do not work properly.

A. The LED flashing means that the module is compatible working properly: the failure of the trailer lights to work must, therefore be caused by something other than the CAN function (unless the connection to CAN is intermittent. Check that the CAN connections between the vehicle and the module are robust)

Possible other causes:

- Faulty tester
- No effective earth connection in the trailer socket
- Poor power connection not giving enough power to drive the relays or light the trailer lights – check all connections in this line
- Fault in the module's plug-in loom – e.g. loose crimp(s) in the white plug
- Poor connection of the trailer wires, broken wires inside the sheathing
- Check the whole installation for poor connections, breaks, etc.

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Q. Customer reports that SmartCAN is keeping the car's CAN "awake" – typical symptom is car battery going flat.

A. Check that the SmartCAN is going to sleep: you have to reveal it so you can see it when the car is locked. Then you watch to see whether the module's LED stops flashing.

- If it stops, the SmartCAN is not causing the problem, since it is asleep.
- If it doesn't stop, check:
    - All your power, earth and CAN connections to the relay to make sure there isn't a "make-break" intermittent fault.
    - Your power source (go to fusebox if possible to an unshared connection or a tab on one of the power buses behind the box)
    - Your earth connection – to chassis
    - Your CAN connection – that you have not gone to somewhere in the system that doesn't like an additional module

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Appendix 1. TF1011 to switch a negative-switched lam

TF1011: Single bulb-failure bypass relay

This device incorporates a single relay.
It is typically used to switch a single lamp, usually the fog lamp.

On most vehicles the switching function is controlled by the application of a current to the coil input wire but increasing numbers of vehicles have earth-switched fog lamps and in these vehicles this relay can also be earth-switched. (See relevant diagram below)

Diagram 1: Normal installation

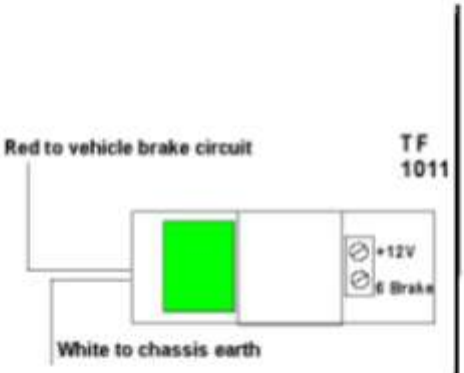
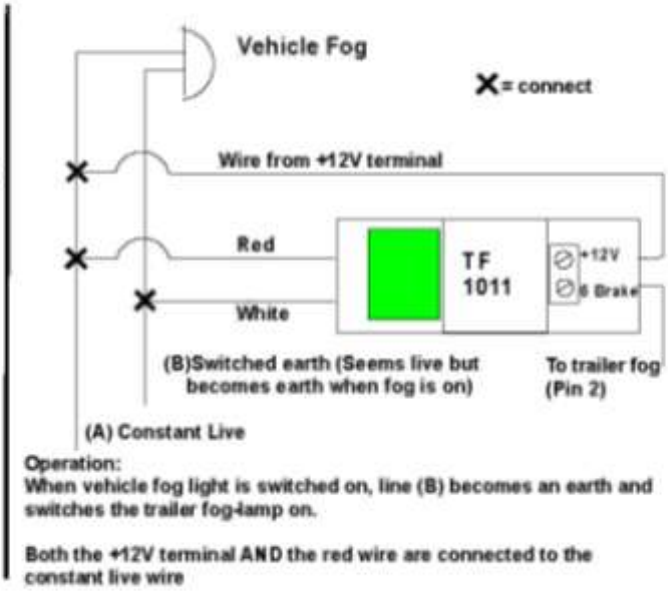


Diagram 2: Installation for a negative-switched fog light



Fuse 5 amps

Fitting the TF1011 (Standard application)

Refer to the general instructions in Appendix 3 at the back of this manual.
Connect the appropriate wire of the 7-core cable to the terminal of the relay marked "6 Brake". (You will have selected which circuit you wish the relay to control.)
Connect the thin red signal wire to the vehicle's circuit that you have selected.
Connect white to a good chassis earth.
Bring a reliable power line (1.0mm^2) from the vehicle battery to the +12V terminal. Fuse this cable close to the battery using a 5amp fuse.
Do not connect to the battery or insert the fuses until the rest of the installation is complete.
Connect the remaining 7-core wires to the loom as follows but use the TF1011 relay on the single circuit you have selected.
Connect the brown wire of the 7-core to the vehicle RH Tail light circuit*.
Connect the black wire of the 7-core to the vehicle LH Tail light circuit*.
Connect the red wire of the 7-core to the vehicle brake light circuit*.
Connect the blue wire of the 7-core to the vehicle fog lamp circuit*.
Connect the flasher circuits following the instructions with the flasher relay you are fitting*.

* It is important that you check whether or not to fit bypass relays to these circuits. These instructions assume that you have made this check correctly.
When the installation is complete, make the battery connection, insert the power fuse and test the operation.