



Mota-Bars

TOWBAR SPECIALISTS



Basic Towing Electrics

What is a 12N connector on a car?

The Normal power required by the caravan/trailer for indicators, brake, fog and sidelights are provided via the 12N connector. This is a socket on the vehicle and a plug on the caravan/trailer.

What does it look like?

The socket cover is usually coloured black and houses 7 pins which are numbered 1 to 7. The plug is also black and has a slot that locates opposite the cover hinge of the socket. The central contact (number 7) is female in the plug.

How are the 7 pins connected?

The 12N connector needs to be connected using the correct wiring according to DIN/ISO 1724, pin connections as in the following table and picture:

Pin	Cable Colour	Function
1	Yellow	Left turn signal
2	Blue	Fog lights
3	White	Earth
4	Green	Right turn signal
5	Brown	Right hand side light
6	Red	Brake lights
7	Black	Left hand side light



What cable should I use?

12N seven core cable has a black outer sheath. Each of the seven wires within should be around 0.65mm² and sometimes a larger earth wire at 1.0mm². They are usually colour coded as in the previous illustrations.

Are the cables always the same colour?

No, some dedicated and original equipment kits use the wire colours specific to the vehicle manufacturer.

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What is a 12S connector on a car?

The Supplementary power required by the caravan reversing lights, interior lights, battery charger and fridge are provided via the 12S connector. This is a socket on the vehicle and a plug on the caravan/trailer.

What does it look like?

The socket cover is usually coloured grey or white and houses 7 pins which are numbered 1 to 7. The plug is also usually grey or white and has a slot that locates opposite the cover hinge of the socket. The central contact (number 7) is male in the plug.

How are the 7 pins connected?

The 12S connector needs to be connected using the correct wiring according to ISO 3732, pin connections as in the following table and picture. Please note; Make sure that when you wire the 12S socket you independently earth wires 3, 5 & 7 to the car. If the split charge relay in the car allows it, connecting the blue wire from pin 2 to the second switched output terminal will ensure compatibility with pre and post 1998 caravans.

Pin	Cable Colour	Function
1	Yellow	Reverse lights
2	Blue	Charge ->'98/Additional fridge
3	White	Earth for pin 4
4	Green	Interior lights/Charge post '98
5	Brown	Unused/Additional earth
6	Red	Fridge
7	Black	Earth for pin 6



What cable should I use?

12S seven core cable has a grey outer sheath. Each of the seven wires within should be around 1.5mm² and a larger white earth wire at 2.5mm². They are usually colour coded as in the previous illustrations.

What is a split charge relay?

The relay splits the power supply from the vehicle to the 12S connector.

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Why is the relay needed?

To avoid a flat battery on your vehicle the relay isolates the caravan from the vehicle when the engine is off apart from a permanent supply to the caravan interior lights through pin 4.

What happens to the split charge relay when I start my engine?

When the engine is running the relay will provide power to pin 4 and also pin 6 for the fridge and if wired for pre 1998 caravans pin 2 for the charge circuit, this can also be used as an extra power feed for larger fridges in post 1998 caravans.

What happens to the power from pin 4?

Modern caravans have a built in relay that switches this power when the engine is running from the caravan interior lights to the charge system for the caravan's own battery.

How can I tell if my caravan has this facility?

All caravans built from September 1998 should have this facility. Most caravans built before then use pin 2 as a battery charge supply.

What is a 13 pin connector?

Some vehicles or caravans may come equipped with one single connector that incorporates both 12N and 12S functions, this is known as a 13pin or continental type connector.

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What does it look like?

The socket is usually coloured black and houses 13 pins which are numbered 1 to 13. It also incorporates a twist lock mechanism that secures the plug to the socket.

How are the 13 pins connected?

The 13 pin connector needs to be connected using the correct wiring sequence according to UK and European specifications as in the following table and picture. Pins 1 to 8 usually use 1.5mm² wire and pins 9 to 13 usually use 2.5mm² wires.

Pin	UK Cable Colour ISO 1724/3732	European Cable Colour DIN/ISO11446 using 13 core cable 1.5mm ²	Function
1	Yellow	Yellow	Left turn signal
2	Blue	Blue	Fog lights
3	White	White 2.5mm ²	Earth
4	Green	Green	Right turn signal
5	Brown	Brown	Right hand side light
6	Red	Red	Brake Lights
7	Black	Black	Left hand side light
8	Yellow	Pink	Reverse lights
9	Green	Orange 2.5mm ²	Permanent live 30+
10	Red	Grey 2.5mm ²	Switched live 15+
11	Black	White/Black 2.5mm ²	Earth for pin 10
12	Brown	Unused	Unused/additional earth
13	White	White/Red 2.5mm ²	Earth for pin 9



Can you use 12N or 12S sockets/plug with 13 pin?
12N and 12S is not compatible with 13 pin, however adaptors are commercially available to interchange between both systems.

Is there a system that uses both 12N and 12S functions in one socket?

The West 13 pin socket looks like a standard 12N 7 pin socket but includes extra pins between the standard 7 pin configuration so either a standard 7 pin 12N plug can be used for a trailers and light boards or the specific West 13 pin plug for caravanning.

How can I tell if the towing electrics are operating correctly whilst driving?
The electrical kit for your vehicle will have a tell tale supplied which will inform the driver of an indicator failure.

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What is a tell tale?

This is a device that tells the driver that the indicators on the trailer are operating correctly. It can be an audible beeper or a dash mounted warning light that operates in time with the indicators and stops if an indicator fails. Some will only operate if an indicator fails on the trailer others notify the driver of indicator failure by making the vehicles own indicators flash at a faster rate.

How often should I check my caravan/trailer lights?

A full light function check should be performed every time you connect.

What happens if a brake bulb fails on the trailer?

Ordinary electric kits will not register this however with some dedicated kits a message will appear on the dash (model dependent) to warn you of the failure.

What is a fog lamp 'cut out'?

This disables the vehicle's fog lamp when towing to reduce reflective glare from the caravan/trailer.

Do all cars have a fog cut function?

Some wiring kits have this function as standard otherwise you may have to request this at installation.

Can I fit the electric kit to my own car?

Modern electric kits come complete with instructions, if you have any doubts you

should always employ an approved stockist to install your electrics.

What happens if a bulb fails on the car?

In most cases the lights on the caravan/trailer will still operate, the bulb should be replaced as soon as convenient. If the vehicle has bulb failure monitoring, multiplex or CAN bus wiring, you may be notified of a bulb failure, this is model dependant.

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