

# Fitting Guide for 4 pin connector reversing cameras



The 4 pin connector, sometimes referred to as the "aviation" connector, is our favourite type of connector. We have used this connector ourselves since 2007. It's main advantages are :

- The one cable/connector carries power, earth, video signal, and audio (if a microphone is fitted, which is rare).
- It is a very durable, and waterproof connector.
- It screws together and locks. This avoids unintended disconnections.
- It has became the reversing camera industries most commonly used connector, which means replacement parts easy to come by, and there is a wide selection available

The 4 pin aviation connector is almost entirely "pinned out" the same way between the hundreds of factories that sell them. The couple of times we have seen them pinned out differently, the

gender of the connectors were the opposite way around too.

For reference, we have included a photo of the commonly used pin-outs for the 4 pin connectors.

Sometimes there is confusion between which connector is labelled male, and which connector is labelled female.



The male connector has 4 pins, and a screw thread. The female connector has 4 sockets, and a spin locking collar. The confusion exists because the female connector inserts inside the male connector.

## Warnings

DO NOT cut the cable between the camera and the 4 pin connector. When this cable is cut, atmospheric moisture WILL get inside eventually, causing the camera to fail prematurely. We see this even with internal connections that have had heat shrink, or amalgamating tape placed over the join. It will void any warranty, and is a bad idea. Please always use the many adaptors/patch leads we stock, if you wish to connect the new camera on to something with an unusual connection.

Ensure that the positive supply to the camera is +12V (+/-10%). If you are using a 4 pin monitor, these usually have voltage droppers to regulate the voltage at around 12V, even when the monitor is using a 24V supply e.g. HGV.

If you need to cut any vehicle electrical cables, then we recommend disconnecting the earth terminal from the vehicle battery. Be aware, on some vehicles this can cause radios to require a code to unlock.

NEVER attach a power supply/earth directly to a battery.

Attach the earth wire to chassis wherever possible.

#### Attaching a 4 pin camera to a 4 pin monitor

This is the most common use of 4 pin cameras, and the simplest.

Unless your camera is located at a very short distance to the monitor, you will require a suitable length 4 pin extension lead.

- 1. Ensure there is no power to the cable/monitor.
- 2. Line up the arrow markings on both the camera connector and the extension lead connector, then insert the cameras female connector in to the male connector, then screw the spin locking collar to secure.
- 3. Run the extension lead to the monitor wiring harness, and insert the connector in to your desired channel input.
- 4. If you would like the monitor to automatically display the camera, when a trigger event occurs e.g. when you select reverse. Attach the trigger wire for the corresponding channel to the desired trigger source e.g. reverse light feed.

See the images to the right, for an example of what a typical 4 pin monitor/4 pin camera wiring layout will look like. As you can see, it is one of the easiest ways to install a reversing camera kit.



### Attaching a 4 pin camera on to an aftermarket headunit/stereo e.g. Kenwood/Sony/Pioneer

It is very common to fit a reversing camera in to a car/van/motorhome, using an aftermarket head unit to display the image.

99%+ of all aftermarket stereos will have a phono/RCA reversing camera inputusually coloured yellow.

There are two wiring options. You can choose to either run a 4 pin extension cable to adapt to phono/RCA + power at the front of the vehicle - next to the stereo. Or you can choose to adapt at the back of the vehicle, which means using an RCA/ Phono extension cable, and providing power from the reversing light. Be aware, that if you choose to power from the reversing light, if your vehicle has sensitive CANBUS, you may have to install a relay.



An example of the rear of an aftermarket stereo. These vary a lot between manufacturers and models. It is worth checking your stereo handbook, if the sockets/wires aren't labelled.

#### Method 1 - Powering the camera from the ignition

This is the most common way to wire in a 4 pin camera, especially if your vehicle has sensitive CANBUS on the rear lights. CANBUS can cut power to the reverse light if it detects an unusual power consumption. Providing power from the ignition will mean you don't experience this issue.



You will need a 4 pin extension cable, and an adaptor cable set to convert to RCA/ Phono.

If you wish to trigger the camera ON/OFF with the reverse light, then you will need some extra spare wire to carry a trigger power supply - between the reverse light

power and the reverse trigger wire on the headunit.

- 1. Line up the arrow markings on both the camera connector and the extension lead connector, then insert the cameras female connector in to the male connector. Screw up the spin locking collar to secure.
- 2. Run the extension lead through the vehicle, so that it is situated close to the stereo/headunit. If you intend to pick up the reverse light power supply from the rear light, run a piece of single core cable at the same time (attach this to the reverse light power supply to the lights). Remember to follow the warnings on Page 2.
- 3. Attach the RCA/Phono adaptor set on to the end of the 4 pin extension cable.
- Insert the yellow RCA/Phono plug from the adaptor, in to the yellow RCA/ Phono socket on the back of the stereo/headunit - usually these have a label saying "reverse camera" or similar.
- 5. Attach the red wire from the adaptor set to a +12V DC switched/ignition power source.
- 6. Attach the black wire from the adaptor set to earth ideally a chassis bolt.
- 7. The stereo/headunit needs to be told when you are in reverse, so that it knows when to display the camera. If you would like it to come on automatically with reverse, then you must supply a +12V reverse light power supply to the reverse trigger wire of the stereo. This wire is usually located in a big bundle of wires, and is often labelled "reversing light" or similar. If you ran a piece of single core cable (as mentioned in step 2) then connect this to the trigger.

Another way you can sometimes find a reverse light feed at the front is by identifying the colour coding of the reverse light wire, then attempting to find it at the front.

The alternative is running a thin wire back to the reverse light, and take it directly from there instead.

6

# Method 2 - Powering the camera from the reversing light (see picture below)

This method turns your 4 pin reverse camera, in to a phono/RCA camera., which you then follow the conventional installation method for such cameras. See the image below for the wiring layout for method 2. This method differs to method 1, in that you will be taking the power supply to the camera from the reverse light at the rear of the vehicle.



This method requires you to use a 4 pin to RCA/Phono adaptor set, plus a phono/ RCA extension cable - ideally one with a trigger wire built in to it (most of our phono cables).

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- 1. Line up the arrow markings on both the camera 4 pin connector and the adaptor 4 pin connector. Insert the cameras female connector in to the adaptors male connector, and screw up the spin locking collar to secure.
- 2. Attach the phono/RCA extension cable to the yellow socket of the adaptor set (this may require a phono coupler).
- 3. You will notice that this extension cable has a red tail on both sides, this is a spare wire to use when sending a reverse light trigger to the stereo so that it is told when to display the image. Remembering the warnings from page 2, attach this to the reverse light power supply. At the same time, also connect the red power supply wire (that is present on the 2.1mm DC plug wire) to the 12V reverse light power supply.
- 4. On the 2.1mm DC plug wire, connect the black wire to a chassis earth point.
- 5. Run the phono/RCA extension cable to the RCA socket on the back of the stereo/headunit usually these have a label saying "reverse camera" or similar.
- 6. The stereo/headunit needs to be told when you are in reverse, so that it knows when to display the camera. If you would like it to come on automatically with reverse, then you must attach a +12V reverse light supply to the trigger wire of the stereo. This wire is usually located in a big bundle of wires that attach to the rear of the stereo, and is often labelled "reversing light", or similar. Locate the other end of the red tail that you have previously connected to the reverse light, and attach this to the stereos trigger wire.
- 7. Restore power and select reverse, this is to test that the camera comes on automatically when you select reverse.

If you experience power issues, you may need to fit a CANBUS bypass relay.