

## PRODUCT INSTALLATION GUIDE



**MODEL:** 12COMM

**PRODUCT CODE:** 12COMMMSFK

Commercial Heavy Duty System 12/24V Input, Twelve Capacitive Couplers

## KIT CONTENTS

ITEM	QTY	ITEM	QTY
Couplertec Module	1	Blade Fuse (2Amp)	1
Capacitive Coupler	12	Heat-Shrink Ring Terminal	3
Capacitive Coupler Cover	12	Crimp Heat-Shrink Connector	25
Alcohol Cleaning Pad	12	Hex Head Self Tapping Screw	28
Fuse Holder with Ring Terminal	1		

When installing the Couplertec Electronic Rustproofing System, you will need:

## PRODUCT REQUIRED

- Double Insulated Tinned Wire
- Neutral Cure Silicone
- Cable Ties
- Split Loom

## TOOLS REQUIRED

- Wire Stripper
- Side Cutter
- Crimping Tool
- 8mm Socket
- Heat Gun or Gas Torch
- Multimeter

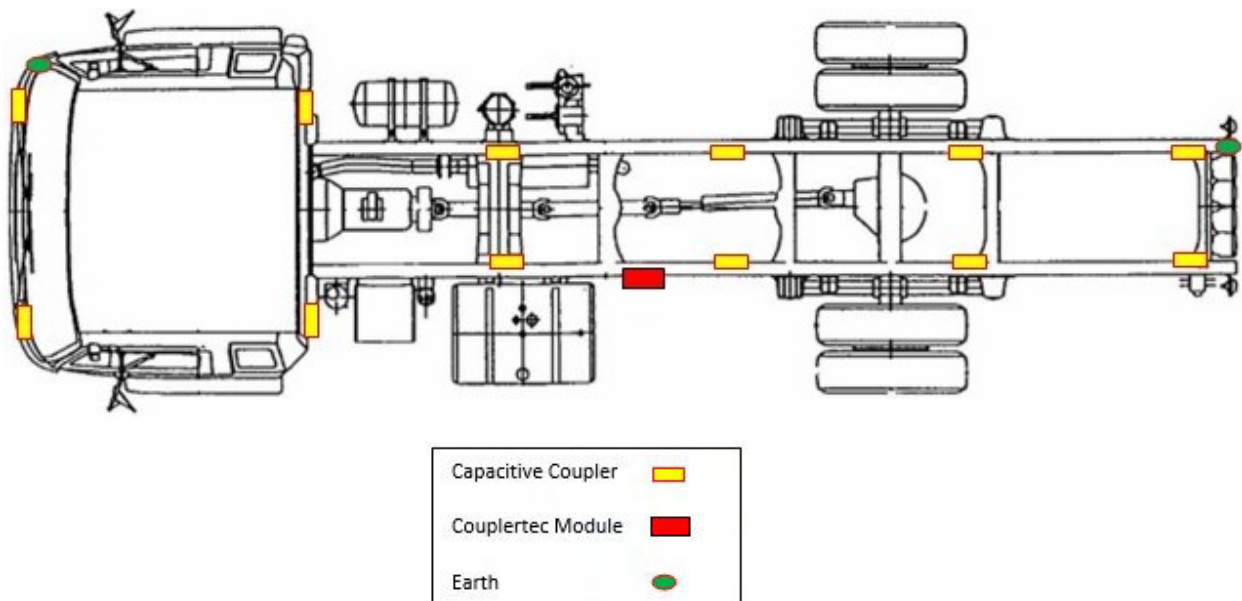
**PLEASE READ THE FOLLOWING FITTING INSTRUCTIONS CAREFULLY BEFORE PROCEEDING TO INSTALL THE COUPLERTEC ELECTRONIC RUSTPROOFING SYSTEM.**

For technical support please contact one of our Couplertec Technical Service Representatives during the following times: Monday – Friday 8.00am – 4.00pm EST. Australia

Calling From Within Australia: 1800 66 78 78 | International Calls: +61 7 5522 0200

**FIGURE: 1**

Example diagram of a truck installation



**STEP 1** Select a site to locate the Couplertec Module

- The Module should be mounted on the same side as the vehicles main/start battery. The Module can be mounted either horizontally or vertically. Try and locate the Module in a site that will not interfere with normal vehicle repair or maintenance, and preferably a site where the two LED indicators will be visible.

**STEP 2** Selecting sites to locate the Capacitive Couplers

- The Capacitive Coupler sites should be evenly located over the vehicle/machine with a minimum distance of 1.5m between Capacitive Coupler Sites. Locate Capacitive Couplers as high as possible on the body of the vehicle/machine in positions where they will not interfere with normal vehicle repair or maintenance, and will not be subjected to any possible damaged.

**IMPORTANT INFORMATION** The Capacitive Coupler site must be:

- A painted metal surface which is part of the vehicles main Body (preferred) or Chassis.
- Relatively Flat (no contoured surfaces or indentations).
- Large enough to accommodate the entire surface area of the Capacitive Coupler.
- Free of holes.
- Free of joins in the metal work.
- Free of spot welds, welding slag/spikes.
- Well painted with no scratches (if in doubt, lightly sand and apply two coats of quick dry enamel paint to the area.

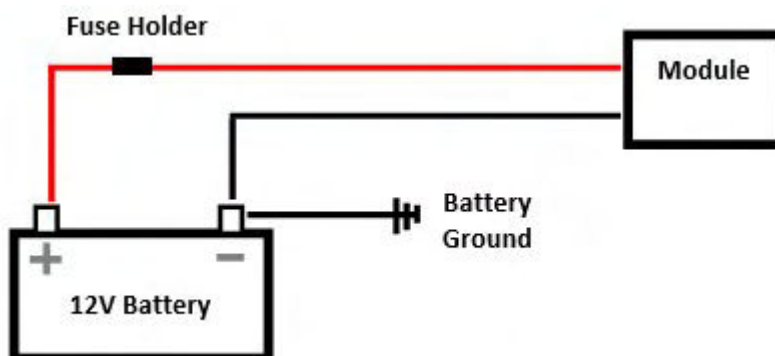
**STEP 3** Fitting the Module

- Affix the Module to the vehicle/machine by screwing 4 x Hex Head Self Tapping Screws into the slots on the base wings of the Module. (Before affixing, ensure that there is nothing behind the location that can be damaged by these tapping screws).

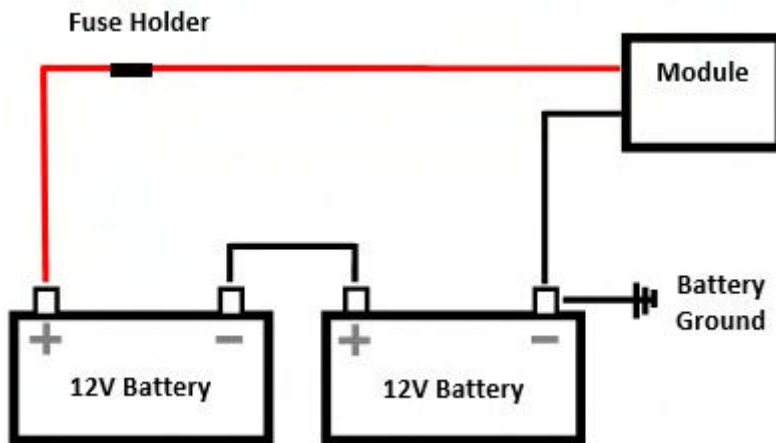


**STEP 4** Connecting the Module to the battery/batteries

FIGURE 2: 12V BATTERY SET-UP



**FIGURE 3: 24V BATTERY SET-UP**



- Connect the pre-wired half of the fuse holder (the ring terminal) to the positive (+) battery terminal. For 24V set-up refer to FIGURE 3 to determine the correct (+) Battery Terminal.
- Route the RED wire from the Module to the fuse holder, cut to length and crimp to the other half of the fuse holder using a Crimp Heat-Shrink Connector. Use a Heat Gun to heat-shrink the connector.

**DO NOT INSERT THE FUSE AT THIS STAGE**

- Route the BLACK wire from the Module to the Negative (-) Battery terminal and cut to length, crimp on a Ring Terminal. Use a Heat Gun to seal the Heat-Shrink on the Ring Terminal Connection.
- Connect the Ring Terminal to the Negative (-) Battery Terminal. For 24V set-up refer to FIGURE 3 to determine the correct (+) Battery Terminal.

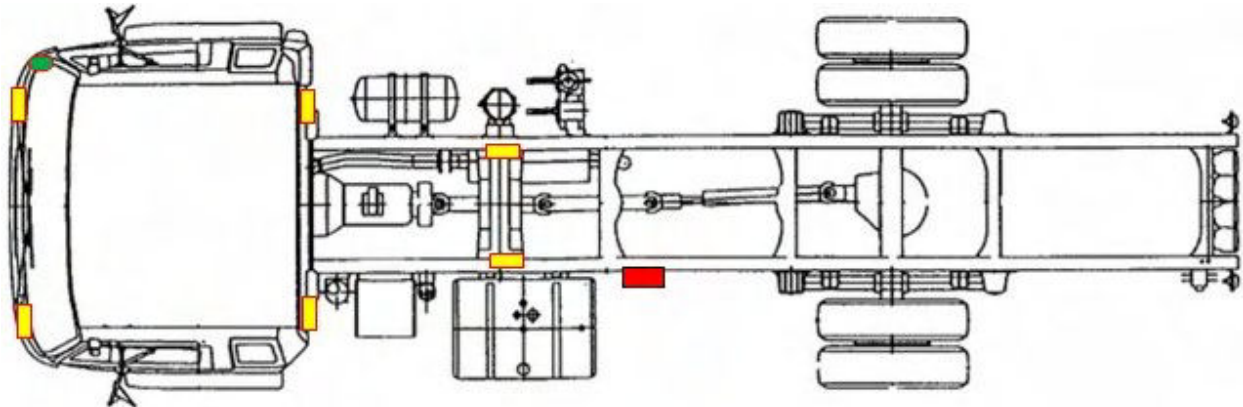
***IMPORTANT INFORMATION: Be sure avoid positioning wires too close to hot or moving parts that may melt or pinch the wires. Protect all wiring with split loom. Ensure that all wiring cannot be damaged or torn off in normal working environments. Secure all wiring firmly with cable ties or equivalent alternative.***

**STEP 5 Routing the BLUE Capacitive Coupler Wires (Connecting/Fitting Capacitive Couplers)**

- The BLUE Capacitive Coupler Wires should be routed towards the Capacitive Coupler sites at the Front of the vehicle/machine. Refer to FIGURE 4.
- Route each BLUE wire from the Module towards the selected Capacitive Coupler site and cut to length , or extend if necessary, using Double Insulated Tinned Cable.
- Conect the BLUE wire (or extended wire) to a Capacitive Coupler using the supplied Crimp Heat-Shrink Connector. After crimping the connection, use a Heat-Gun to seal the Heat-Shrink connection.
- Fit Capacitive Coupler (Refer to Page 8 for fitting instructions).

**IMPORTANT INFORMATION: Leave one BLUE Wire disconnected from a Capacitive Coupler, as this will be required later to conduct a Voltage Output Test to confirm correct installation.**

**FIGURE 4:** Example diagram for a Truck Installation  
 BLUE Coupler Wires to be routed to the FRONT Capacitive Couplere Locations.



**STEP 6** Routing the GREEN/YELLOW Earth Wire

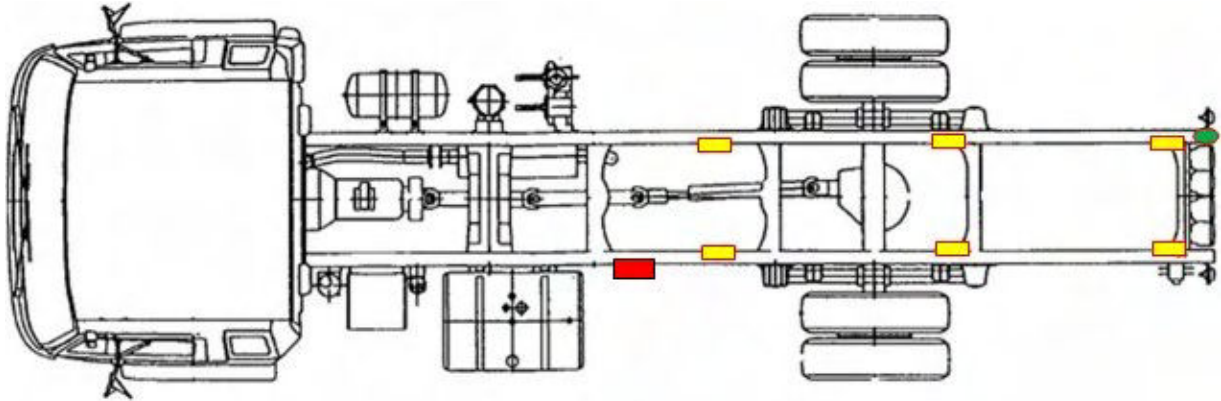
- The GREEN/YELLOW Wire must be routed in the same direction as the BLUE Coupler Wires. Find an existing screw/bolt at the very FRONT extremity of the vehicle/machine to earth the wire.
- Route the GREEN/YELLOW to the selected location, extend the if necessary, using using Double Insulated Tinned Cable.
- Crimp on a Heat-Shrink Ring Terminal and then use a Heat-Gun to seal the Heat-Shrink connection.
- Terminate the wire under the existing screw/bolt ensuring a good earth.
- Waterproof the connection using a silicone sealant.

**STEP 7** Routing the WHITE Capacitive Coupler Wires (Connecting/Fitting Capacitive Couplers)

- The WHITE Capacitive Coupler Wires should be routed towards the Capacitive Coupler sites at the REAR of the vehicle/machine. Refer to FIGURE 5.
- Route each WHITE wire from the Module towards the selected Capacitive Coupler site and cut to length , or extend if necessary, using Double Insulated Tinned Cable.
- Conect the WHITE wire (or extended wire) to a Capacitive Coupler using the supplied Crimp Heat-Shrink Connector. After crimping the connection, use a Heat-Gun to seal the Heat-Shrink connection.
- Fit Capacitive Coupler (Refer to Page 8 for fitting instructions).

**IMPORTANT INFORMATION:** Leave one WHITE Wire disconnected from a Capacitive Coupler, as this will be required later to conduct a Voltage Output Test to confirm correct installation.

**FIGURE 5:** Example diagram for a Truck Installation  
 WHITE Coupler Wires to be routed to the REAR Capacitive Coupler Locations.



**STEP 8** Routing the GREEN Earth Wire

- The GREEN Wire must be routed in the same direction as the WHITE Coupler Wires. Find an existing screw/bolt at the very REAR extremity of the vehicle/machine to earth the wire.
- Route the GREEN wire to the selected location, extend the if necessary, using using Double Insulated Tinned Cable.
- Crimp on a Heat-Shrink Ring Terminal and then use a Heat-Gun to seal the Heat-Shrink connection.
- Terminate the wire under the existing screw/bolt ensuring a good earth.
- Waterproof the connection using a silicone sealant.

**STEP 9** Voltage Output Test

- Temporarily insert the 2Amp blade fuse into the fuse holder to power up the Module. DO NOT allow the unconnected BLUE or WHITE wires to contact a bare metal surface.
- Set a Multimeter to 500 DCV or higher.
- Once the Modules Green LED is flashing. Take a reading from both unconnected BLUE and WHITE wires to earth locations (bare metal) near the Capacitive Coupler site. You should have a reading between 250 - 400 DCV from both wires. If so, remove the blade fuse from the fuse holder and proceed to step 12.
- If there is no output, check the corresponding earth to ensure correct grounding. For the BLUE wire, this is the Earth at the rear extremity of the vehicle/machine. For the WHITE wire, this is the Earth at the Front Extremity of the vehicle/machine.

**STEP 10** Connecting/Fitting Capacitive Couplers to wires used in Output Testing.

- Touch the BLUE wire (or Extended Wire) to earth (bare metal) to neutralise any charge that maybe present in the Coupler wire from Testing.
- Connect the BLUE wire (or extended wire) to a Capacitive Coupler using the supplied Crimp Heat-Shrink Connector. After crimping the connection, use a Heat-Gun to seal the Heat-Shrink connection.
- Fit the Capacitive Coupler (Refer to Page 8 for instructions).
- Touch the WHITE wire (or Extended Wire) to earth (bare metal) to neutralise any charge that maybe present in the Coupler wire from Testing.
- Connect the WHITE wire (or extended wire) to a Capacitive Coupler using the supplied Crimp Heat-Shrink Connector. After crimping the connection, use a Heat-Gun to seal the Heat-Shrink connection.
- Fit the Capacitive Coupler (Refer to Page 8 for instructions).

**STEP 11** Check Installation.

- Check all wiring connections to ensure that they are secure and sealed correctly.
- Ensure that the Capacitive Couplers are all affixed to the body/chassis of the vehicle/machine.

**STEP 12** Fit Capacitive Coupler Covers / Waterproof Capacitive Couplers

- Refer to Page 9 for Fitting Instructions.

**STEP 13** Insert the fuse

Insert the blade fuse into the fuse holder and observe the modules LED's to confirm Normal Operation Mode. (refer to Modes of Operation below)



## MODES OF OPERATION

The Module has three Modes of, which are:

### 1. Start-up Mode:

When the system is started using a 12V Power Supply: The modules Green LED will illuminate for 30 seconds whilst the system configures itself.

When the system is started using a 24V Power Supply: The Green LED on the module will illuminate for 10 seconds, this will be followed by the Red LED illuminating for 30 seconds whilst the system configures itself.

### 2. Normal Operation Mode:

The modules Green LED will flash continuously confirming that the system is functioning correctly.

### 3. Fault Mode:

The modules Red LED will flash upon the detection of a fault. The fault indicators are:

**Red LED flashing continuously:** This indicates that the module has detected a **Dead Short** on Channel A - White Capacitive Coupler wiring. In this instance Channel A will be shut down, but Channel B will continue to function.

**Red LED flashing continuously with the Green LED constantly illuminated:** This indicates that the module has detected a Dead Short on Channel B - Blue Capacitive Coupler wiring. In this instance Channel B will be shut down, but Channel A will continue to function.

**Red & Green LEDs flashing together 10 times every 30 seconds:** This indicates Low Battery, meaning that the vehicles battery level has dropped below the minimum input requirement and that the module has shut itself down to protect the battery.

## FITTING THE CAPACITIVE COUPLER

- Thoroughly clean the site where the Capacitive Coupler is to be located using the alcohol cleaning pad.
- Remove any oil, wax or dirt. For extremely dirty sites, use white spirits or similar with a rag to clean the site, followed by the use of the alcohol cleaning pad.
- Before affixing the Capacitive Coupler, ensure that all joins between the module and Capacitive Coupler have been completed.
- Once the site is clean and dry, peel off the backing paper from the back of the Capacitive Coupler ready to secure (don't touch the adhesive surface). The Capacitive Coupler must be affixed in an upright position with the wire facing downwards (refer figure 6), firmly press the Capacitive Coupler onto the prepared site making sure that there are no bubbles under the Capacitive Coupler. The Capacitive Coupler must be 100% in contact with the painted metal surface.

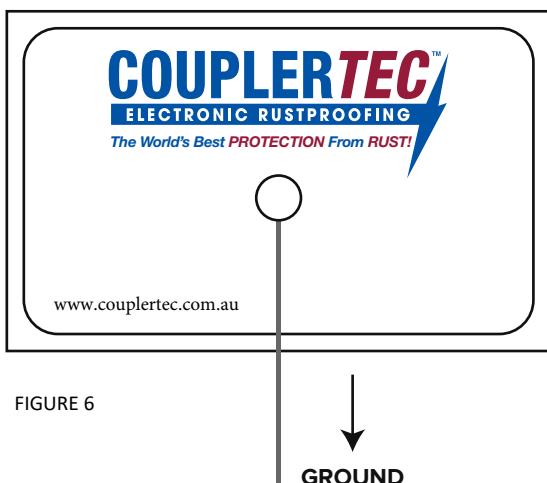


FIGURE 6

### IMPORTANT INFORMATION:

DO NOT install the Capacitive Coupler in an upside down position. Always install the Capacitive Coupler with the wire facing towards the ground.

If you are locating Capacitive Couplers on the underside of the vehicles body or chassis rails, or other areas that may potentially be exposed to water, then you must:

Completely dome over the entire Capacitive Coupler including the wire with a Neutral Cure Silicone Sealant ensuring that the edges of the Capacitive Coupler are sealed to the paintwork.



## FITTING CAPACITIVE COUPLER COVERS

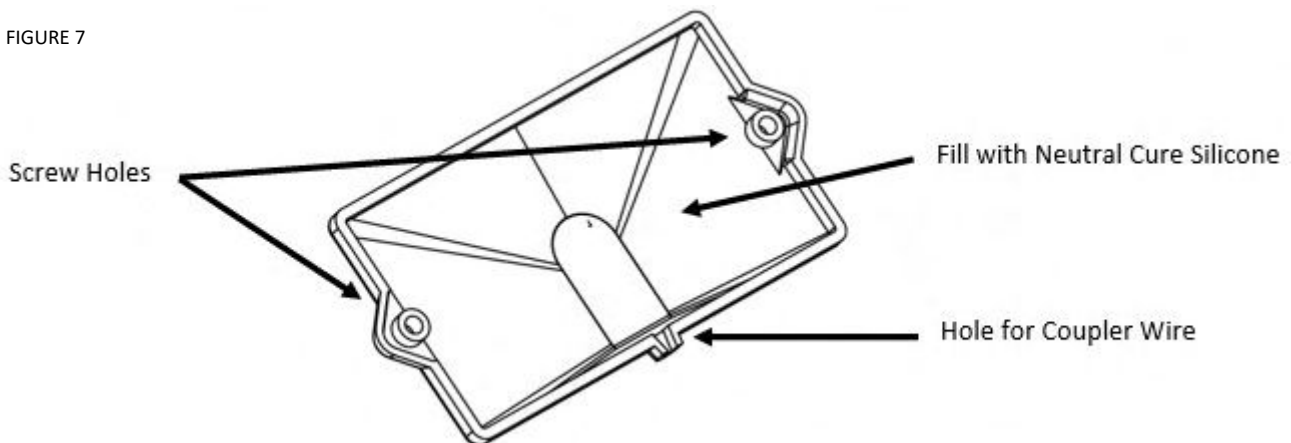
The Capacitive Coupler Covers can be used in areas where the Capacitive Couplers may be subjected to possible damage.

**IMPORTANT INFORMATION:** Do NOT use the Capacitive Coupler Covers on Chassis Rails or in areas where the screws will penetrate to the outside of the vehicle/machine. Ensure that there is nothing behind the location that can be damaged by the self-tapping screws which will be used to secure the cover to the vehicle/machine. If it is not possible to use the Capacitive Coupler Cover, protect the Capacitive Couplers by Doming over the entire Capacitive Coupler with a Neutral Cure Silicone. Capacitive Couplers that are located in areas that will be subjected to water, must be completely domed over with a Neutral Cure Silicone.

- **Fitting Instructions**

Turn the Capacitive Coupler Cover upside down (see Figure: 7). Completely fill the Capacitive Coupler Cover with a Neutral Cure Silicone (or Sikaflex).

FIGURE 7



- Turn the Capacitive Coupler Cover upright and push the cover over the Capacitive Coupler ensuring that the wire runs through the hole in the cover. Press down firmly until the Cover is flush with the painted surface.
- Use the Hex Head Self Tapping Screws to secure the Capacitive Coupler Cover to the body of the vehicle/machine.
- Run a bead of silicon around the border of the Capacitive Coupler Cover to completely waterproof.