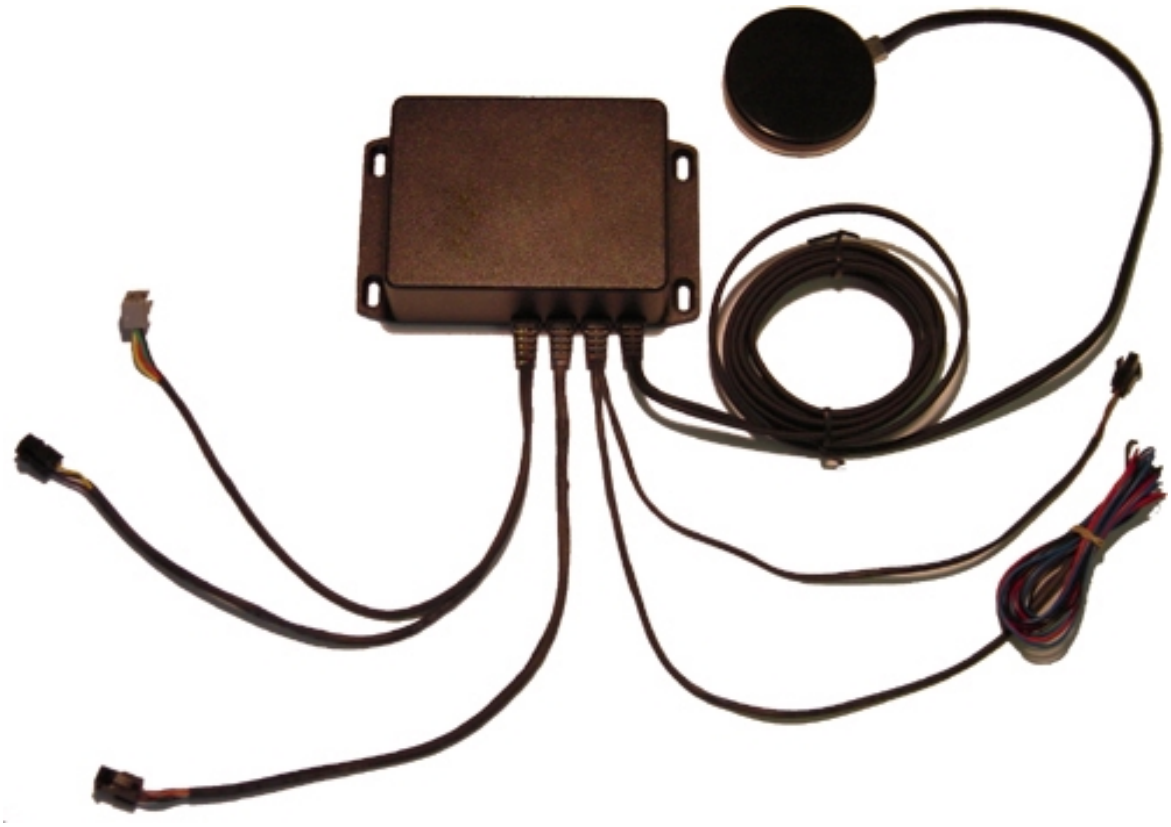
Installation & Commissioning Notes

For Cars, Car Derived Vans,
Light Commercial Vehicles
And Heavy Goods Vehicles



1 Table of Contents

2 Preface

Failure to comply with the following warnings and safety information may invalidate warranty, certification or type approval of this product.

1. Never operate the **T2002-GPRS** Platform without the correct antennas, or suitable artificial loads, connected.
2. Unauthorised modification to this equipment or associated accessories is forbidden without the express permission and agreement from the product manufacturer.
3. This equipment should not be operated in hazardous environments i.e. areas that contain explosive materials or flammable vapours.
4. This equipment should not be operated in aircraft or in close proximity to medical equipment.
5. Internal components containing beryllium oxide may be used in this equipment. Dust from this material is a health hazard if inhaled or allowed to come into contact with the skin. Great care must be taken when handling these components.

Safety Information

Please adhere to the following Safety and Installation information at all times.

Supply Voltage:	+6V minimum to +32V maximum
Current consumption at:	12V <= 500mA – fit a 2A inline fuse.
	24V <= 250mA – fit a 2A inline fuse.

Note: Fuses should be placed in all power lines as close as possible to the vehicle supply source.

THE RATINGS OF THESE FUSES SHOULD NOT BE EXCEEDED AT ANY TIME

WARNING!

This equipment may only be located in a position where it cannot interfere with the normal operation of the vehicle or present a hazard to the driver or passengers. Care must also be taken in the routing of all cables so that the insulation does not become worn or damaged.

Installation Information

All installation and service work must be carried out in accordance with MPT 1362, MPT 1372, RQAS, VSIB, 95/54/EC, ISO 21609 and / or any other statutory guidelines or Directives currently in force.

Therefore it is strongly recommended that the **T2002-GPRS** platform is installed and commissioned by suitably trained and qualified Installation Personnel i.e. in the UK those who are accredited and registered by the Vehicle Systems Installation Board (www.vsib.co.uk). This is essential in order to maximise any Insurance discounts that may apply.

Important Notes!

1. Unauthorised changes or alterations to the equipment or the installation will invalidate certification issued by the Approved Accreditation Body and may also affect the vehicle manufacturers warranty.
2. Under no circumstances may any part of the **T2002-GPRS** system be installed inside the engine compartment area.
3. The **T2002-GPRS** platform contains devices which are susceptible to static damage. It is necessary to use a proprietary anti-static (ESD) workstation prior to, and whenever the cover is removed from the unit for service & commissioning purposes.

3 Installation

Before you begin installing and commissioning the system please ensure that you have read this manual thoroughly referring to any supplementary information provided for **T2002-GPRS** as required.

This document covers the **T2002-GPRS** platform Control Unit and its connections:

1. Combined GPS / GSM Antenna
2. Power, Ignition Sense & Immobiliser
3. Expansion / Serial Interface
    i. RFID Reader
    ii. RS-232 Serial Connection
4. Push Button Switch, Indicator LED & Telephone Handset

Some of the items above are optional and you may ignore sections describing features that your **T2002-GPRS** does not have.

Important Notes!

When using the **T2002-GPRS** platform you should remember the following:

1. In order for GPS to function correctly, the GPS antenna must have a clear view of the sky in order to receive data from the satellites. Should this view be obscured, e.g. the vehicle is parked in a metal-clad building then the performance of the **T2002-GPRS** platform may be impeded. Wherever possible it is preferable to park the vehicle in a location where the antenna will have a clear all round view of the sky.
2. Whenever you disconnect the **T2002-GPRS** platform from the power supply it may lose its stored data and so may take up to 30 minutes to obtain a GPS fix when you plug it back in. The **T2002-GPRS** platform may also lose certain other information from its memory. Please ensure that you take this into consideration when having the vehicle serviced, as the vehicle battery connections are often removed during some service procedures. Tell the service technician that you have a **T2002-GPRS** fitted and request that if possible they use a "vehicle memory saver" plugged into the cigarette lighter socket – this device supports the **T2002-GPRS** and your vehicle radio etc whilst the vehicle battery is removed.
3. It is important that any unused cable entry holes into the main control unit enclosure are sealed with a blanking plug.

3.1 Recommended Installation Sequence

The following installation sequence is recommended. Please refer to the detailed instructions elsewhere in this document for further details.

1. Plan the whole installation and determine suitable locations, mounting arrangements and cable routes for all hardware items.
2. Temporarily mount the main **T2002-GPRS** unit and wire the Power and Ignition Sense feeds leaving the in-line fuses out.
3. Mount the **T2002-GPRS Immobiliser Unit** and plug into the Control Unit (if applicable), wire to vehicle systems as appropriate.
4. Mount the **T2002-GPRS RFID Reader** and plug into the Control Unit (if applicable).
5. Install the Push Button Switch & Indicator LED and plug into the Control Unit.
6. Fit SIM card (if not supplied pre-installed[1]).
7. Install GSM / GPS Antenna.
8. Connect internal back-up battery (see diagrams in **Appendix A –T2002-GPRS Wiring Diagrams**).

[1] Where a SIM card is supplied pre-installed, it is possible that the **T2002-GPRS** system will have been supplied in "Shipping Mode", with the back-up battery pre-connected. In these circumstances the system will automatically exit Shipping Mode ready for use when power is first applied to the Ignition Sense line.

9. Permanently mount the main **T2002-GPRS Control Unit**.
10. Fit fuses for the **T2002-GPRS Control Unit**.
11. Commission the system.

3.2 SIM Card

3.2.1 Before fitting the SIM card

1. If you have not already registered your SIM card with the mobile network, you should do this before proceeding. Please refer to the appropriate mobile network operator instructions on how you do this.
2. Make a note of the number on the SIM card (ESN) as well as a note of your Voice & Data telephone numbers. There is a convenient space in **Appendix B - T2002-GPRS Records** where you can record this information.
3. Ensure that the SIM card is not protected by a PIN number. If this is the case, it must be removed before inserting it into the **T2002-GPRS** platform – this can be done by inserting the SIM into a suitable mobile telephone and then following your mobile telephone instruction booklet.

3.2.2 Fitting the SIM card

Important Note!

When inserting or removing the SIM card from the **T2002-GPRS** it is necessary to take the necessary anti-static (ESD) precautions in order to prevent damage to the unit, these precautions should also be employed prior to removing the cover from the unit at any time for service and commissioning purposes.

1. Using a Philips screwdriver, remove the lid of the **T2002-GPRS** platform Control Unit. Please refer to the Control Unit Diagram in Appendix A.
2. Note that the **T2002-GPRS** platform must not be powered when fitting or removing the SIM card. Therefore, first disconnect the main vehicle supply and then the battery back up supply by carefully sliding out the 5 pin connector (Red, Black, Blue, Brown, Black) and then the 2 pin connector (Red, Black) and from the Printed Circuit Board (PCB) Assembly PA1005.
3. If necessary, carefully slide the PCB Assembly PA1005 out of the plastic guide slots. With great care this can be done without removing any of the other cables connected to the PCB.
4. Carefully slide the cover of the SIM holder in the “Open” direction and hinge open the plastic holder.
5. Insert the SIM card, so that the gold contacts on the card are down towards the PCB. Ensure that the orientation guide of the SIM card (“missing corner”) aligns correctly with the holder.
6. Carefully hinge closed the SIM holder cover and slide the cover in the “Lock” direction.
7. Reverse steps 1 to 3 above ensuring that no cables will be trapped under the lid as it is replaced.

3.3 Mounting the T2002-GPRS Platform

The **T2002-GPRS** platform Control Unit has a LED indicator visible through a clear panel in the label. It is preferable to install the unit so as this indicator is visible, at least whilst testing and commissioning the system. You may choose to mount the Control Unit somewhere covertly e.g. in the boot, under the parcel-shelf or under the dashboard. Suitable mechanical fixings must be used (not supplied).

WARNINGS:

1. Your T2002-GPRS Platform must be securely mounted in a location where it cannot interfere with the normal operation of the vehicle. It must not be

located in a position where the cables or the Control Unit may become a hazard to the driver or any passengers.

2. Under no circumstances may any part of the T2002-GPRS system be installed inside the engine compartment area.

3.4 T2002-GPRS Wiring and Connections

Important Notes!

1. Unauthorised changes or alterations to the equipment or the installation will invalidate certification issued by the Approved Accreditation Body and could also affect the vehicle manufacturer's warranty.
2. The notes below should be read in conjunction with **Appendix A –T2002-GPRS Wiring Diagrams.**
3. All wiring should be safely secured to avoid damage from, or chaffing by, any hot or moving parts.
4. Position wiring carefully to avoid the possibility of snagging or impact damage during the normal use of the vehicle.
5. Before any holes are drilled, check that no parts, wires, pipes or tanks could be damaged at the other side of the hole. Suitable grommets must be used where wires are routed through body panels to prevent short circuits to the chassis.
6. Leave in-line fuses out of holders until the installation is complete.

Cable Assemblies

The **T2002-GPRS** platform has 4 cable assemblies that enter the Control Unit:

1. Combined GSM / GPS Antenna
2. Power, Ignition Sense & Immobiliser connection
3. Expansion / Serial Interface
4. Push Button Switch, Indicator LED & Telephone Handset / Hands-free

3.4.1 Combined GSM / GPS Antenna Installation

The **T2002-GPRS** platform is supplied with a combined GSM / GPS antenna cable assembly fitted to the main control unit. [Order numbers: CA1003 (EGSM models) or CA1010 (GSM models)]

The antenna should be positioned horizontally and located in a position where it will have an unobstructed view of the sky. The ideal location in most cars is in the centre top of the dashboard, it may also be possible to locate the antenna on the underside of the dashboard, however, it is important to ascertain that there are no conductive materials present in the construction of the dashboard prior to fitting the antenna.

Important Note!

The performance of the equipment may be impeded if the antenna is mounted beneath or in very close proximity to electrically conductive materials, such as metal, certain types of plastic, metalised film or laminate windscreens. If this applies to your vehicle please install the antenna elsewhere.

When you commission the **T2002-GPRS** you will be able to carry out tests to determine whether suitable GSM and GPS signals are being received. If in doubt about the suitability of your planned location for the combined antenna, it is recommended that you only temporarily install the antenna until you are able to carry out the appropriate commissioning tests. (See Section 4 – Commissioning)

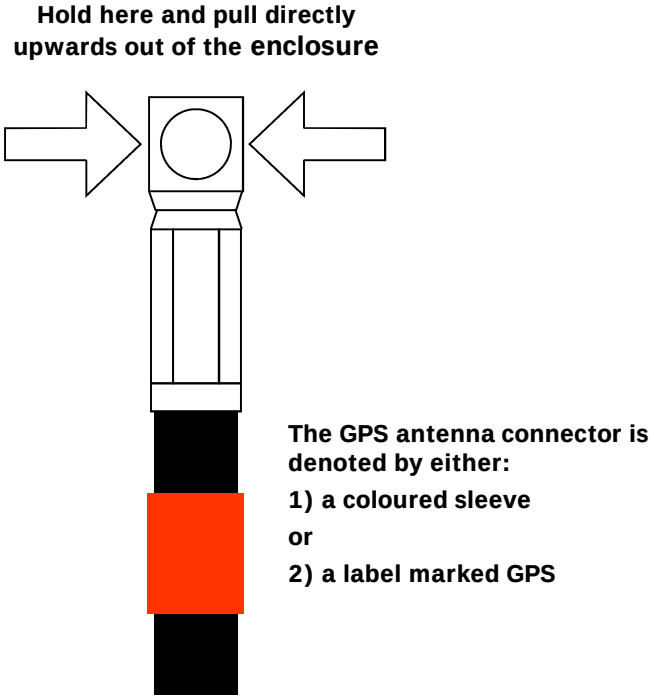
The antenna can be disconnected from the Control Unit by unscrewing the two in-line FME connectors fitted between the Control Unit and the antenna itself. The GPS connectors and GSM connectors are reversed to prevent in-correct connections being made.

Warning!

Please do not disconnect the antenna connections from the PCB inside the Control Unit **unless absolutely essential**. The connections are small and very delicate so please take great care – no liability will be accepted for any damage caused to the system by Installation or Service personnel who aren't suitably qualified, or by the use of incorrect or in-appropriate tools or by the reversed connection of the cables.

If it is absolutely essential to undertake this task then you must follow these steps very carefully:

1. Using a Philips screwdriver, remove the lid of the **T2002-GPRS** platform Control Unit.
2. The antenna cables enter the enclosure through the cable entry furthest away from the PCB.
3. First remove the GPS antenna cable connection. This cable is marked with either a coloured sleeve near the connector or a label marked GPS. It is the connector nearest the end wall of the enclosure.
4. Using a suitable pair of long nosed pliers, gently hold the sides of the MMCX connector as shown on the diagram below, and gently pull the connector directly upwards out of the enclosure, taking great care not to twist the connector in the process. In the diagram shown the connector would be pulled directly out of the page (at right angles to the page).



5. Next, using the same technique as above, remove the other antenna connector. This is the GSM antenna connector. This cable is either unmarked or labelled GSM.
6. Carefully remove the antenna cable entry grommet by sliding it up out of the slot in the enclosure.
7. Refit the cables, connectors and lid of the box by reversing steps 1 to 6 above.

   As the antenna connectors within the Control Unit are the same it is essential that you re-connect the cables the correct way around otherwise damage will

result. The GPS connector is identified by a coloured sleeve on the cable near the connector or a label marked GPS.

3.4.2 Power, Ignition Sense & Immobiliser connection Installation

The second cable assembly is the Power, Ignition Sense & Immobiliser connection loom. This cable assembly consists of 3 flying leads and wires to a 2 way Molex connector. [Order number: CA1000]

Wire Colour	Description	Notes
Red	Vehicle Supply Positive (+ve)	Connect to a permanent Positive supply (6 to 32V) via a 2 amp in-line fuse.
Black	Vehicle Supply Negative (-ve)	Connect to permanent Negative supply via a 5 amp in-line fuse.
Blue	Ignition Sense Positive (+ve) switched (active high)	Connect to switched ignition line via a 1 amp in-line fuse.
(1) Black	Signal ground for Immobiliser	2 way Molex connector - plug optional T2002-GPRS Immobiliser into this connector.
(2) Brown	Data control lines for Immobiliser	

With the exception of the Immobiliser connection, all of the above wires must be connected for the **T2002-GPRS** platform to function correctly.

Please refer to Immobiliser section for wiring details relating to the Immobiliser itself.

3.4.3 Expansion / Serial Interface & RFID Reader Installation

The third cable assembly is the Expansion / Serial Interface loom. This cable assembly consists of 6 wires to a 6 way Molex connector. [Order number: CA1001]

Wire Colour	Description	Notes
(1) Green	RS-232 Transmit Data (TX)	Serial data line (output)
(2) Blue	RS-232 Ready to Send (RTS)	Serial data control line (input)
(3) Pink	RS-232 Receive Data (RX)	Serial data line (input)
(4) Grey	RS-232 Clear to Send (CTS)	Serial data control line (output)
(5) Orange	Auxiliary Power Supply Positive (+ve)	+4 volts at 100mA max to power Expansion modules
(6) Black	Auxiliary Power Supply Negative (-ve)	0 volts to power Expansion modules

This connector allows for:

1. The attachment of a 9 Way D-Type Socket for connection to the serial port on a PC or PDA etc. [Order number: T2002-GPRS-RS232]
2. The attachment of the RFID Reader for use in Driver ID and Asset ID applications. [Order number: T2002-GPRS-RFID-RDR]
3. The attachment of other future Expansion Modules for the **T2002-GPRS**.

Where the system includes an RFID Reader, the reader should be plugged into the 6 way Molex connector and the small module on the end of the cable should be mounted with double sided tape or cable ties (not included) preferably within the proximity of the vehicles ignition switch, under the plastic of the dashboard with the label on the module facing into the area in which the RFID tag needs to be read. Note – Do not mount in a location where the RFID tag will be placed in very close proximity to the RFID Reader. The RFID Reader is a radio receiver and it is sensitive

to mounting behind metallic objects etc. If problems are experienced with the RFID features please try re-locating the reader to a different location.

3.4.4 Push Button Switch, Indicator LED & Telephone Handset / Hands-free Installation

The fourth cable assembly is the Push Button Switch, Indicator LED & Telephone Handset Interface loom. This cable assembly consists of 4 wires to a 4 way Molex connector and 4 wires to a RJ9 Socket. [Order number: CA1002]

Wire Colour	Description	Notes
(1) Black	Microphone Positive (+ve)	Terminated on a standard RJ9 socket into which a standard household telephone handset or a suitably matched hands-free kit can be plugged. *(Note: not a phone instrument itself)*
(2) Red	Earpiece Positive (+ve)	
(3) Green	Earpiece Negative (-ve)	
(4) Yellow	Microphone Negative (-ve)	
(1) Yellow	Digital Input	General purpose close to ground Digital Input.
(2) Black	Ground for Digital Input	0 volts to pair with Digital Input
(3) White	Digital Output	General purpose open collector Digital Output (100mA max at 13.5 volts)
(4) Purple	LED Power	Current limited LED power output for use with Digital Output

Push Button Switch & Indicator LED

The 4 way Molex connector brings out a general purpose Digital Input & Output. Although they are general purpose, they have been optimised to work with a Push Button Switch & Indicator LED. [Order number: T2002-GPRS-BUTTON-LED]

It is recommended that the Push Button Switch & Indicator LED, where fitted, is located within easy reach and visibility of the vehicle driver, or where required in a covert location. Typically it will be fitted into a blank switch position.

The functionality of this switch and LED varies depending upon the specific version of the product purchased. Please refer to the **User Manual** for details.

Telephone Handset / Hands-free

The RJ9 socket will accept a standard household telephone, or equivalent, handset. This will allow a voice call on the **T2002-GPRS**, where the application makes use of this capability. Note that the **T2002-GPRS** does not support a telephone keypad.

It is recommended that the Telephone Handset is located in a suitable position for easy use, but where the cable cannot get in the way of the drivers normal operation of the vehicle.

As an alternative a suitably matched Hands-free kit (amplified loud speaker and microphone) can be plugged into the RJ9 connector.

Important Note!

The vehicle driver must not use any voice facilities unless the vehicle is stopped in a safe location first.

3.5 T2002-GPRS Immobiliser Installation

Important Notes!

1. Unless local law permits the **T2002-GPRS Immobiliser MUST NOT** be connected in such a way such that it would be possible to disable the vehicle whilst it is under way.

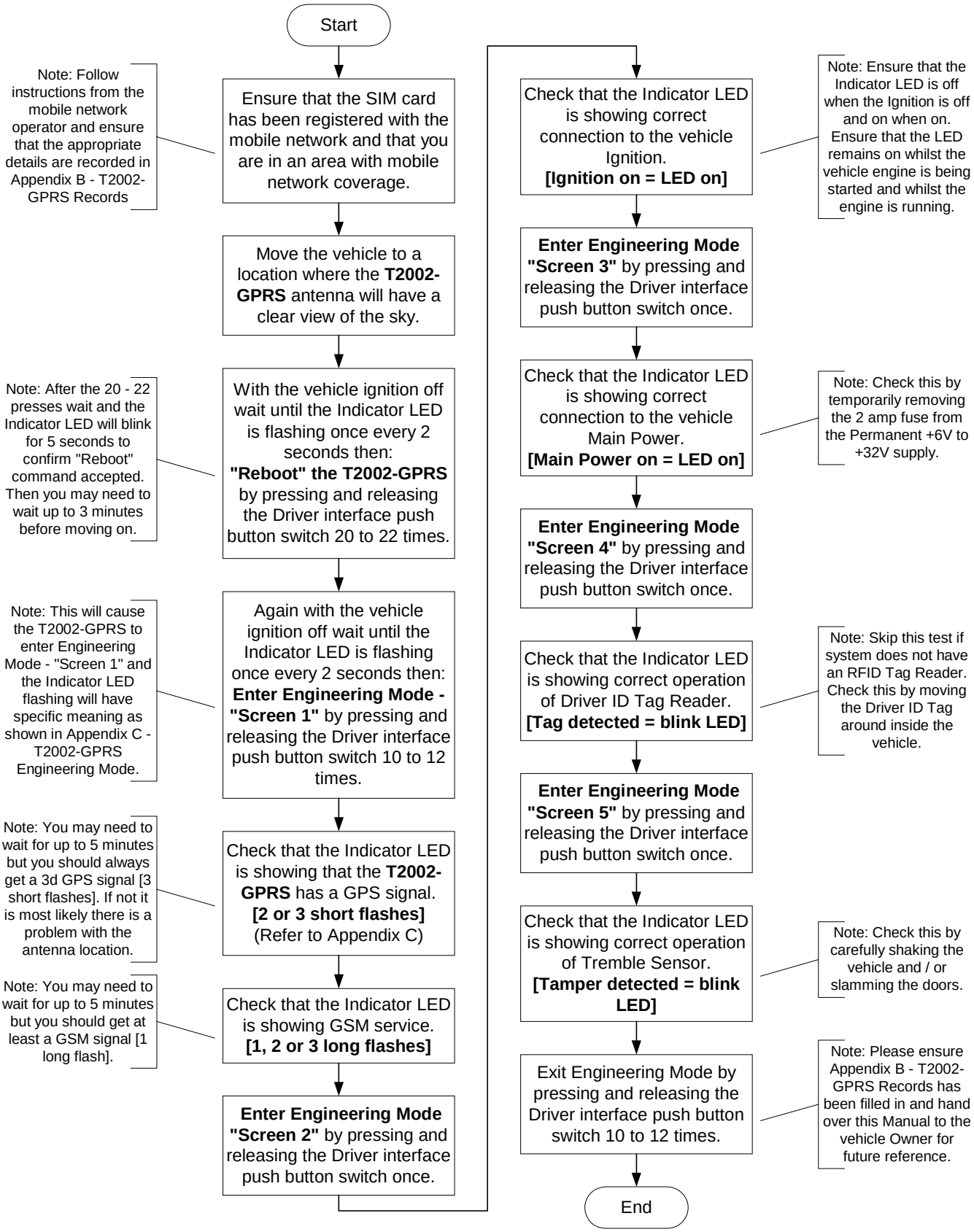
2. Should all power (main power and battery back up if fitted) be removed from the **T2002-GPRS** then the **T2002-GPRS Immobiliser** will default secure so as to render the vehicle immobilised.

There are two versions of the **T2002-GPRS Immobiliser** available, one for 12 volt vehicles and the other for 24 volt vehicles. [Order number: T2002-GPRS-IMMOB-12 or T2002-GPRS-IMMOB-24]. For added security, all wiring to the Immobiliser is black in colour. The individual wires are labelled with a number that corresponds to the table below. Please take care not to remove the labelling before completion of the installation, testing and commissioning. The Immobiliser is normally mounted within the passenger compartment behind the dashboard. The exact functionality of the Immobiliser is dependant upon the configuration of the specific application running on the **T2002-GPRS** platform Control Unit; please refer to the **User Manual** for details.

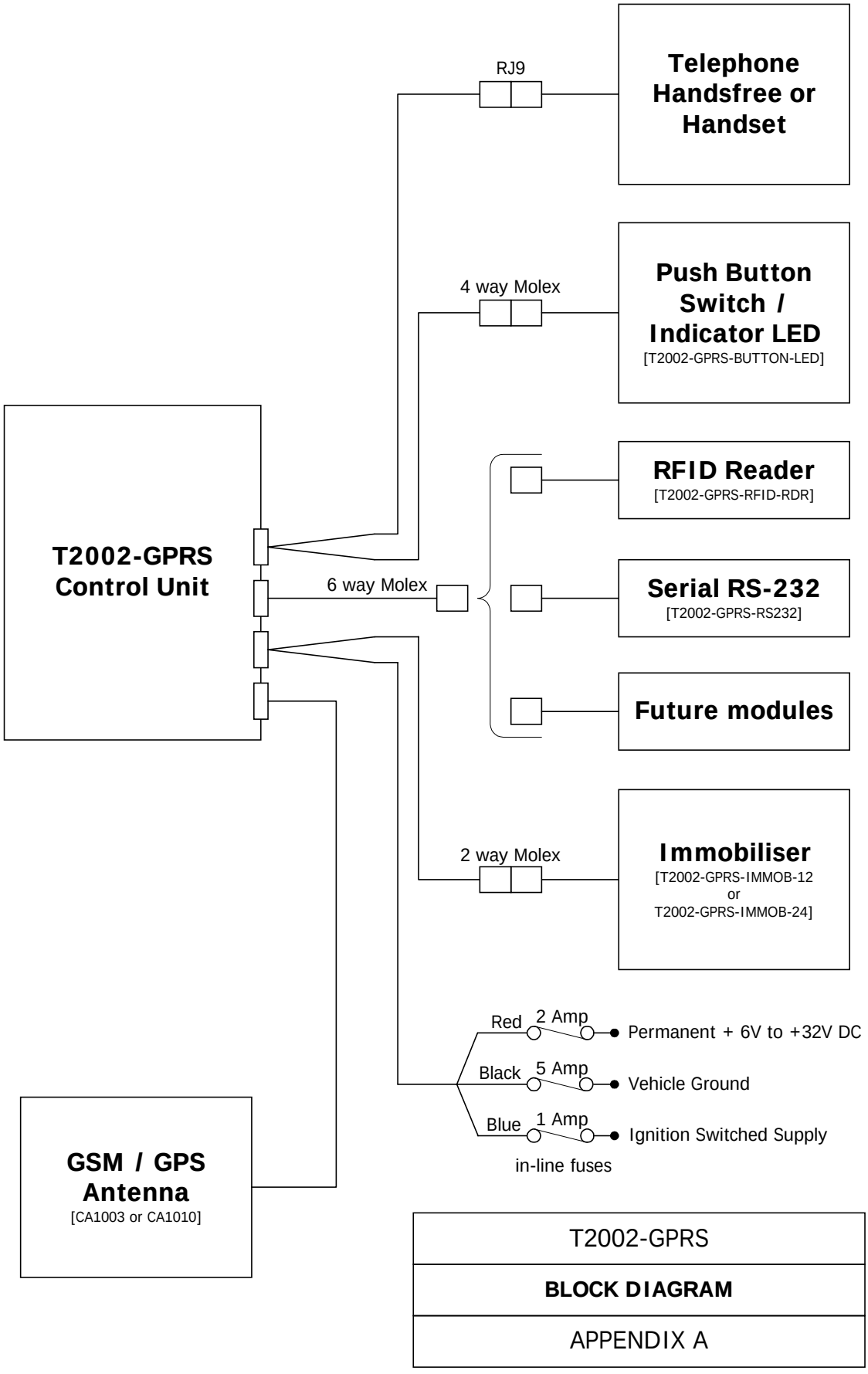
Wire Colour	**Description**	**Notes**
(9) Black	Data control lines for Immobiliser	2 way Molex connector - plug into main **T2002-GPRS** platform Control Unit.
(10) Black	Signal ground for Immobiliser	
(2) Black	Relay 2 - Normally Closed Contact (rated 20 Amps)	This relay is normally utilised for the vehicles starter (crank) circuit. See wiring diagrams below for details.
(1) Black	Relay 2 - Normally Open Contact (rated 20 Amps)	
(5) Black	Relay 2 - Common Contact (rated 20 Amps)	
(8) Black	Relay 1 - Normally Closed Contact (rated 12 Amps)	This relay is normally utilised for the switching of auxiliary devices. See wiring diagrams below for details.
(4) Black	Relay 1 - Normally Open Contact (rated 12 Amps)	
(3) Black	Relay 1 - Common Contact (rated 12 Amps)	
(7) Black	Vehicle Supply Positive (+ve) (Primary connection)	Connect to a permanent Positive supply (12 volts for IMMOB-12 version or 24 volts for IMMOB-24 version).
(6) Black	Vehicle Supply Negative (-ve) (Primary connection)	Connect to a permanent Negative supply.
(11) Black	Vehicle Supply Positive (+ve) (Secondary connection)	Connect to a second permanent Positive supply (12 volts for IMMOB-12 version or 24 volts for IMMOB-24 version).
(12) Black	Vehicle Supply Negative (-ve) (Secondary connection)	Connect to a second permanent Negative supply.

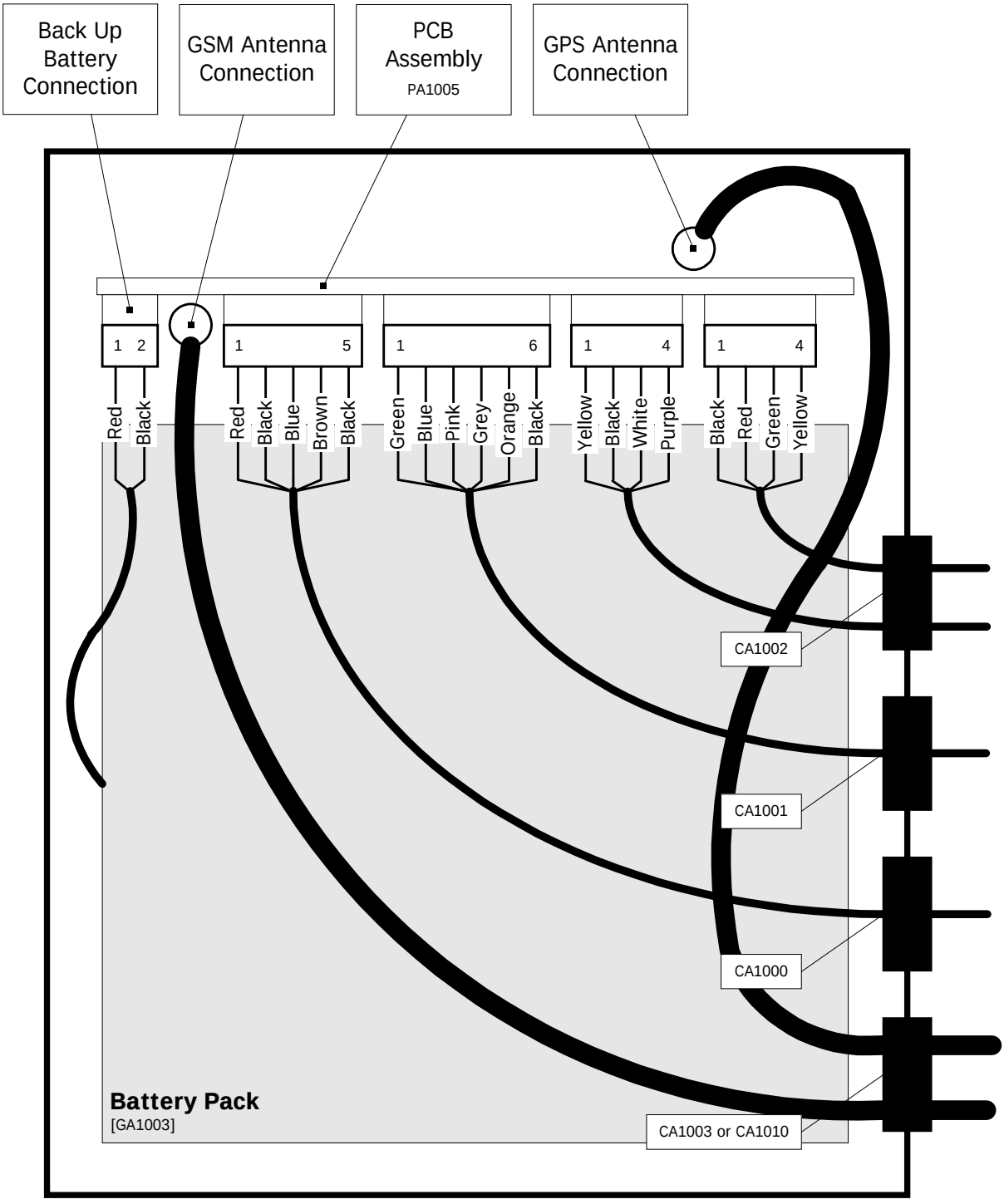
4 Commissioning

After completion of the Installation as described in Section 3, you are ready to commence commissioning of the **T2002-GPRS** system.



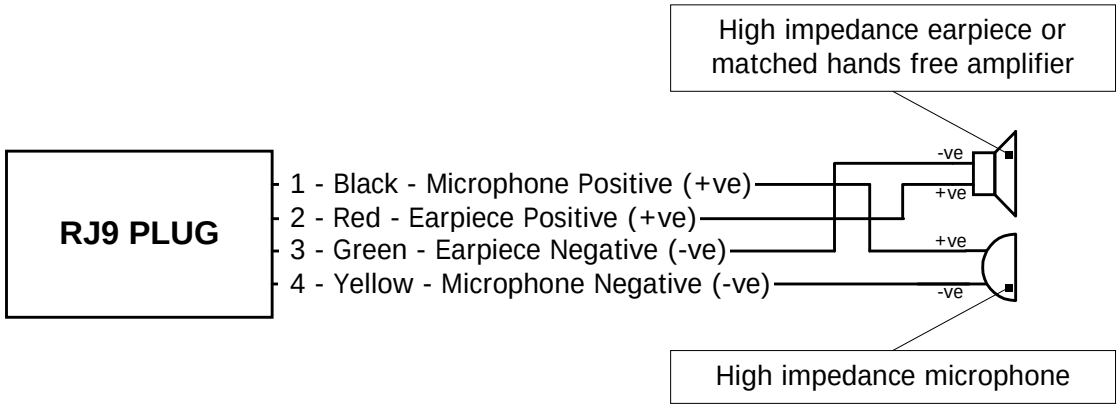
5 Appendix A –T2002-GPRS Wiring diagrams

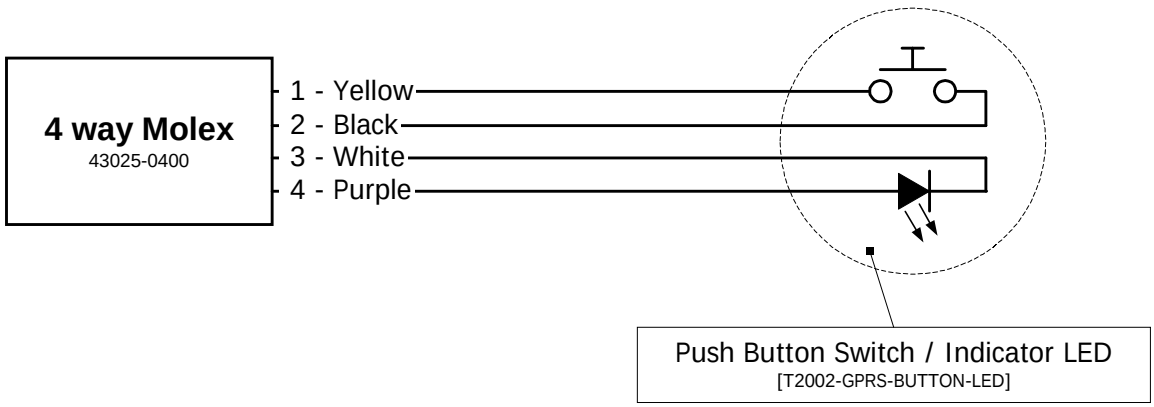




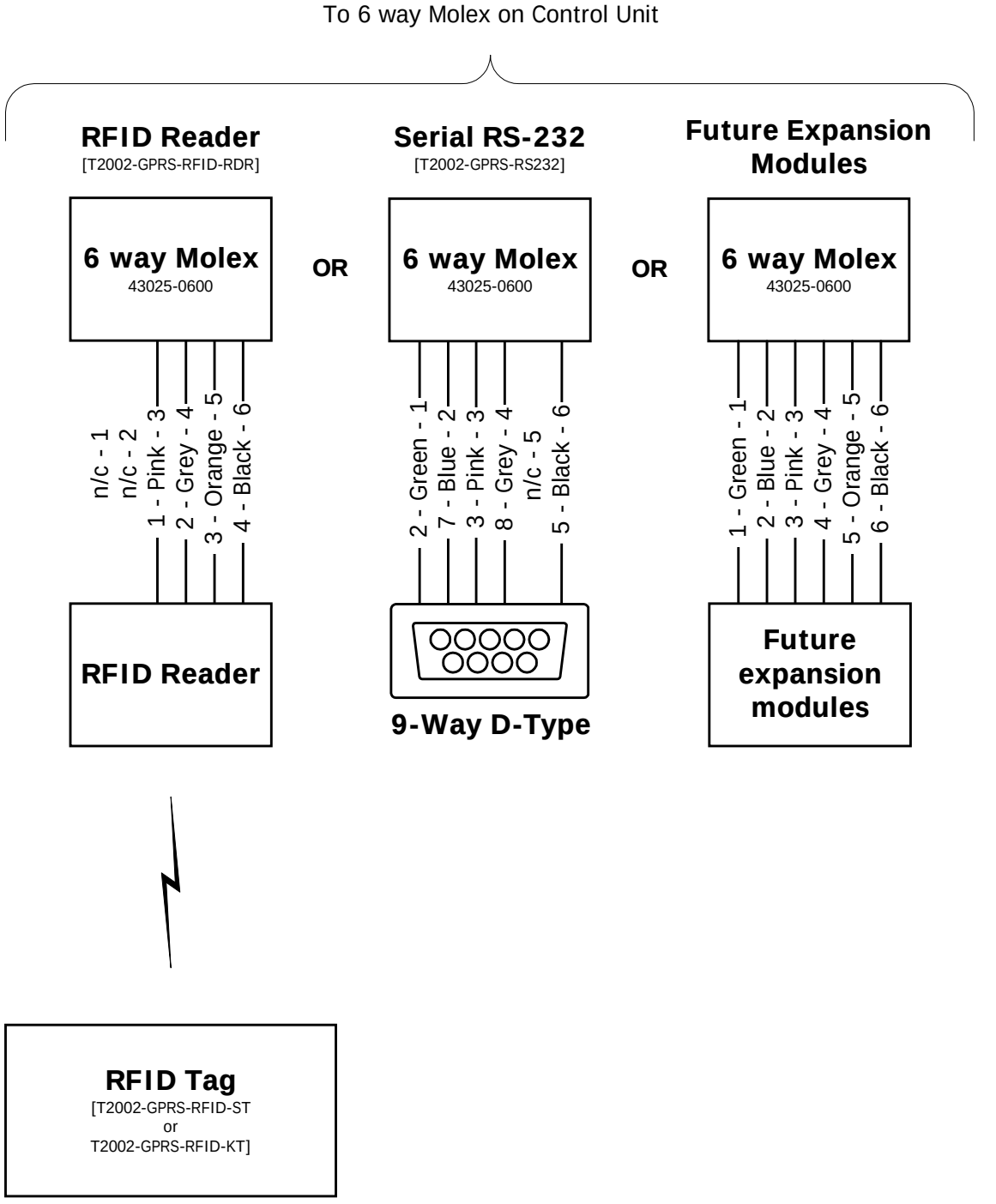
T2002-GPRS Control Unit

T2002-GPRS
CONTROL UNIT DIAGRAM
APPENDIX A

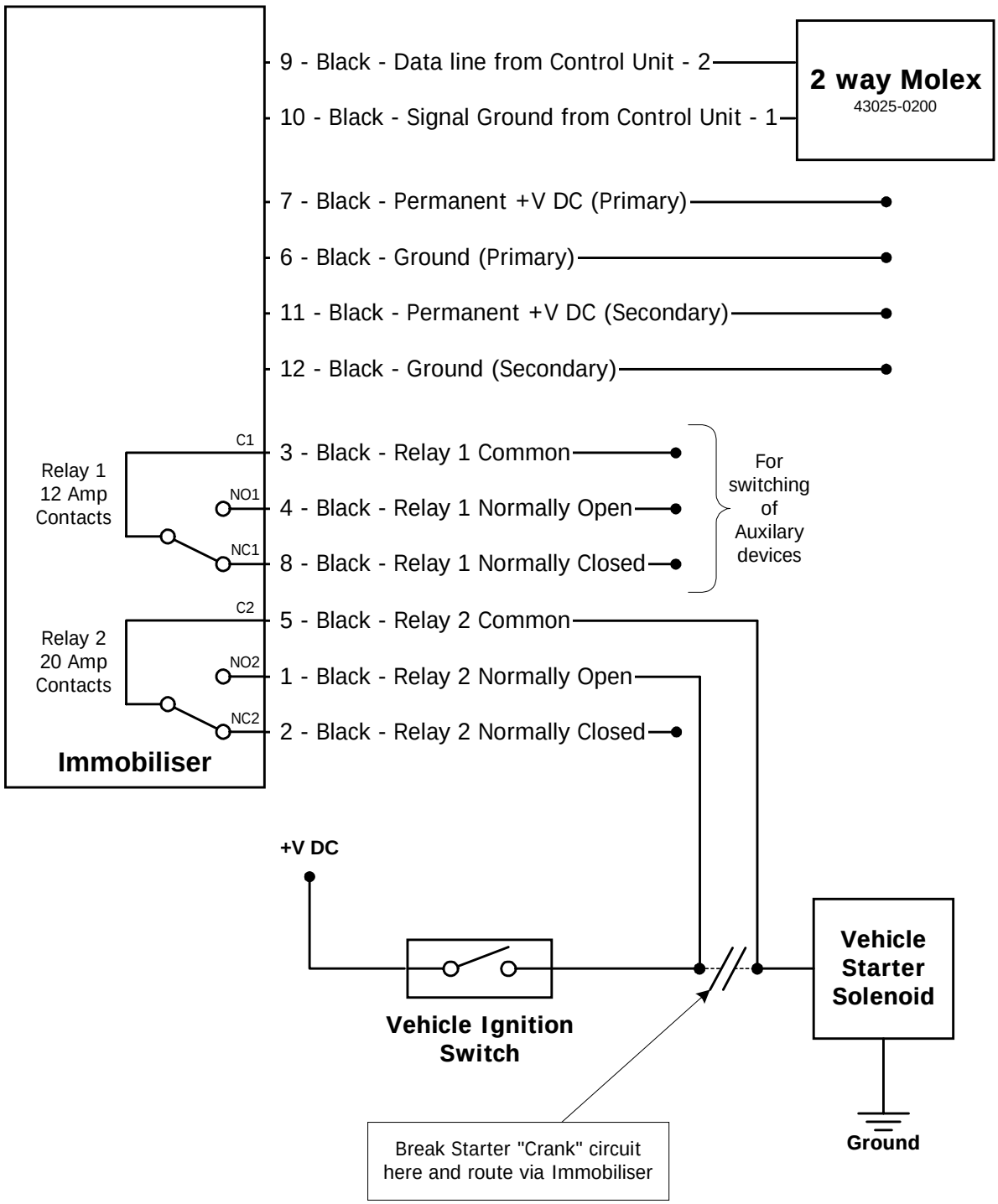




T2002-GPRS
VOICE, BUTTON & LED DIAGRAM
APPENDIX A



T2002-GPRS
RFID, SERIAL & EXPANSION DIAGRAM
APPENDIX A



T2002-GPRS
IMMOBILISER DIAGRAM
APPENDIX A

6 Appendix B –T2002-GPRS Records

Information	Source	Record details here
T2002-GPRS Activation Key	Issued by your T2002-GPRS platform supplier	
T2002-GPRS IMEI number	Label on bottom of Control Unit	
T2002-GPRS Mobile Network Name	SIM packaging	
T2002-GPRS Mobile number (Voice)	Obtained during SIM registration process	
T2002-GPRS Mobile number (Data) - optional	Obtained during SIM registration process	
SIM Card number (ESN)	Printed on SIM or on Control Unit packaging when supplied pre-installed	
Mobile network Customer Services telephone number	Obtained during SIM registration process	
T2002-GPRS password	Defaults to NOTACTIVE	

Notes:

Notes:

7 Appendix C –T2002-GPRS Engineering Mode

Overview

For diagnostics purposes the **T2002-GPRS** can be put into Engineering mode. Whilst in this mode the Indication LED displays the results of various tests or the status of the **T2002-GPRS**. Debug messages are also sent to the serial port whilst in Engineering mode.

Engineering mode has 5 different "screens", each of which, via the Indication LED conveys information / allows diagnostic tests to be performed on the **T2002-GPRS**.

Activating Engineering Mode

With the vehicle ignition off wait until the Indicator LED is flashing once every 2 seconds. Press the Driver interface button 10 times or more (but less than 20 times and with each press being for less than 2 seconds). Wait, and the LED will come on solid for 10 seconds to confirm entry into Engineering mode, the LED will then blink once to show that it is in "screen" 1.

Note: Please ensure that you do not keep the button pressed for more than 2 seconds on any of the button presses; otherwise a Panic Alert will be activated.

Whilst in Engineering Mode

The 5 "screens" can be cycled through by briefly pressing and releasing the Driver interface button. It is possible to skip more than one "screen" at a time by repeatedly pressing the button.

When a new “Screen” is entered the LED will “blink” between 1 and 5 times to confirm the “screen” number. See the tables below for suggested usage of each “screen” and the full meaning of the LED whilst in that “screen”.

Additionally, the **T2002-GPRS** platform Control Unit RS-232 Serial Port will start transmitting coded Debug data. Where a problem is being experienced it is extremely useful if this Debug data can be captured to a file whilst the problem is being experienced for subsequent analysis by support staff. Microsoft®'s HyperTerminal is ideally suited for this purpose.

Suggested Usage of Engineering Mode “Screens”

“**Screen”**	**Function**	**Suggested Usage**
1	GSM / GPS Status	• Ensuring that the combined antenna is mounted in a suitable / optimal location within the vehicle. • Ensuring that the vehicle is in a good coverage area for GPS, GSM and GPRS. • Ensuring that the **T2002-GPRS** is correctly connecting to the configured Instant Messaging server. (Only applicable to some versions).
2	Ignition Status	• Ensuring that the **T2002-GPRS** has been connected to a suitable Ignition feed and that the fuse has not blown.
3	External Voltage Detect	• Ensuring that the **T2002-GPRS** has been connected to a suitable Main Power feed and that the fuse has not blown.
4	Driver ID Tag Detect	• Ensuring that the Driver ID Tag reader is installed in a suitable location within the vehicle to detect ID Tags. (Only applicable to some versions). • Assisting with the setting of the RFID Tag sensitivity using the SETRSSI command.
5	Tamper (Trembler) Detect	• Ensuring that the Tamper sensor is working. • Assisting with the setting of the Tamper sensitivity using the TREMBLELEVEL command.

Engineering Mode "Screen" Operation

"**Screen"**	**Function**	**Entry Confirmation**	**Operation**
1	GSM / GPS Status	1 blink of LED	LED will flash GPS status (short flashes) followed by GSM status (long flashes) No short flashes - No GPS signal 2 short flashes - 2d GPS signal 3 short flashes - 3d GPS signal No long flashes - No GSM signal 1 long flash - GSM connected 2 long flashes - GSM & GPRS connected 3 long flashes - GSM, GPRS & Instant Messaging client connected to server
2	Ignition Status	2 blinks of LED	LED shows status of Ignition feed to **T2002-GPRS** LED on solid - Ignition detected LED off - Ignition not detected
3	External Voltage Detect	3 blinks of LED	LED shows status of main power feed to **T2002-GPRS** LED on solid - Voltage detected LED off - Voltage not detected
4	Driver ID Tag Detect	4 blinks of LED	LED will blink briefly whenever a Driver ID Tag transmission is detected
5	Tamper (Trembler) Detect	5 blinks of LED	LED will blink briefly whenever a Tamper (Tremble) is detected

De-activating Engineering Mode

To exit Engineering mode, press the Driver interface button 10 times or more (but less than 20 times and with each press being for less than 2 seconds). Wait, and the LED will come on solid for 10 seconds to confirm exit from the Engineering mode. The LED will then resume its normal operation and Debug data will be turned off.

Manually "Rebooting" the T2002-GPRS

If the **T2002-GPRS** has been behaving in an unpredictable or unexpected manner, it is possible to force the system to "reboot" itself.

To activate this reboot, press the Driver interface button 20 times or more (with each press being for less than 2 seconds). Wait, and the LED will blink for 5 seconds to confirm that the instruction has been received. The **T2002-GPRS** will then reboot itself. It can take up to a few minutes for the **T2002-GPRS** to start functioning normally again following the reboot.

8 Appendix D –T2002-GPRS Spare Parts & Order Numbers

Order Number	Description
T2002-GPRS-RS232	Serial RS-232 cable.
T2002-GPRS-IMMOB-12	2 circuit Immobiliser for the **T2002-GPRS** for 12V Vehicles.
T2002-GPRS-IMMOB-24	2 circuit Immobiliser for the **T2002-GPRS** for 24V Vehicles.
T2002-GPRS-BUTTON-LED	Replacement Push Button Switch / Indicator LED with wiring loom.
T2002-GPRS-RFID-RDR	Replacement RFID Reader for the **T2002-GPRS**.
T2002-GPRS-RFID-ST	Replacement / additional 'credit card' style RFID tag for use with the **T2002-GPRS**. Used for Driver Identification.
T2002-GPRS-RFID-KT	Key fob style RFID tag for use with the **T2002-GPRS**. Used for Driver Identification.
CA1000	Replacement Power, Ignition Sense & Immobiliser connection wiring loom. (Requires additional external items)
CA1001	Replacement Expansion / Serial Interface & RFID Reader connection wiring loom. (Requires additional external items)
CA1002	Replacement Push Button Switch, Indicator LED & Telephone Handset / Hands-free connection wiring loom. (Requires additional external items)
CA1003	Replacement GSM / GPS Antenna for EGSM version of the **T2002-GPRS**. (GSM frequencies 900 / 1800 MHz)
GA1003	Replacement **T2002-GPRS** Back-Up Battery Pack.

As we constantly strive to improve our products, all specifications are subject to change without notice. The information provided herein is believed to be correct at time of going to press.