Track-As-You-Go

User Manual

CONTENTS

Device Specifications

1.1 Electrical Overview

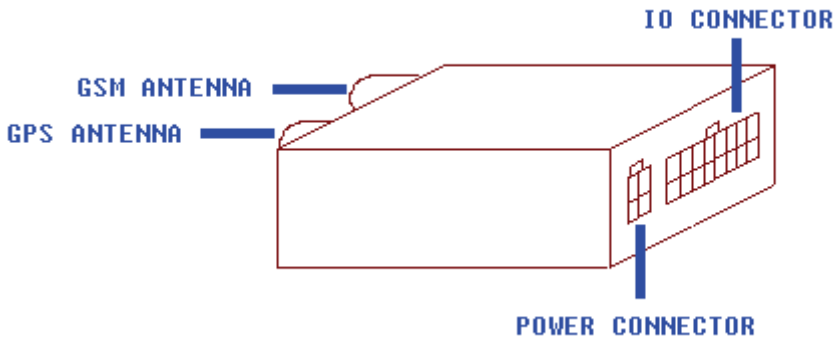
	Typical	Max
Supply Voltage	12v	40v
Current	15mA (Standby)	200mA(Peak)
	70µA (Static Mode)	

1.2 Hardware Overview

Box size

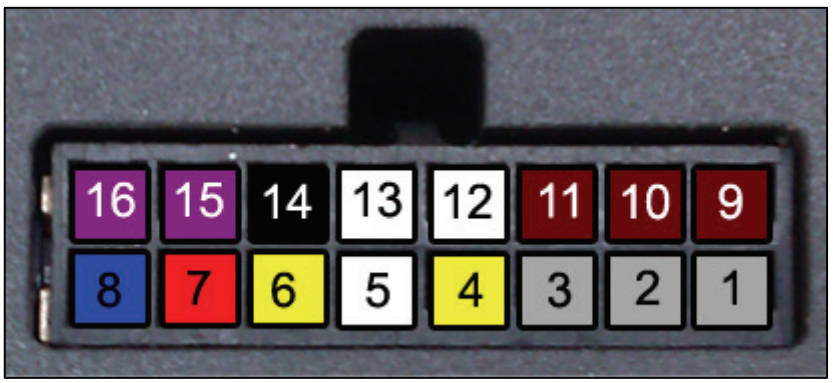
86mm long
55mm wide
26mm height

Material – Aluminium / Plastic



1.3 Wiring Overview

POWER CONNECTOR



16 WAY IO CONNECTOR

2 - Electrical Connections

2.1 Electrical Connections List

Power Connector

Pin	Colour	Description	Use
1	YELLOW	Ignition	Ignition Monitoring
2	RED	+V	Positive
3	GREY	Unused	Unused
4	BLACK	GND	Ground

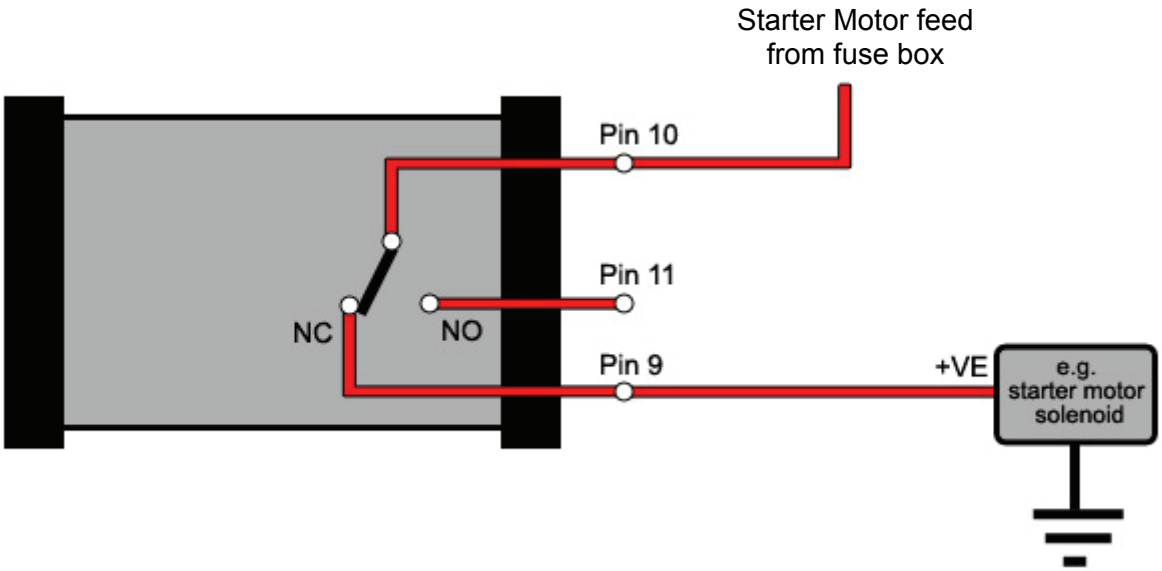
16 Way IO Connector

Pin	Colour	Description	Use
1	GREY	Spare IO1	Can be connected to external IO
2	GREY	Spare IO2	Can be connected to external IO
3	GREY	Spare IO3	Can be connected to external IO
4	YELLOW	Set Alarm Zero	Please see Tiso Alarm section
5	WHITE	Normally Closed External Switch	Please see Tiso Alarm section
6	YELLOW	Normally Open External Switch	Please see Tiso Alarm section
7	RED	Auxiliary supply (+ve) / Solar Panel input (+ve)	Auxiliary supply out / Solar Panel or external battery pack Input (+ve)
8	BLUE	Auxiliary Ground	Additional Ground / Solar Panel or external battery pack ground
9	BROWN	X.Relay NC	Normally Closed Relay, use with pin 10, Can be used for disabling vehicle
10	BROWN	X.Relay Com	Used in conjunction with pin 9 or 11
11	BROWN	X.Relay NO	Normally Open Relay, use with pin 10
12	WHITE	Tiso Alarm Relay NO	Normally Open Tiso Alarm Relay
13	WHITE	Tiso Alarm Relay Com	Tiso Alarm Relay Common
14	BLACK	Tiso Alarm Relay NC	Normally Closed Tiso Alarm Relay
15	PURPLE	RS232 TX	RS232 Data Out
16	PURPLE	RS232 RX	RS232 Data In

2.2 “X” Relay

This is controlled via SMS or GPRS messages

:W,X,1	or	**HALT**	Selects NO
:W,X,0	or	**GO**	Selects NC (default)

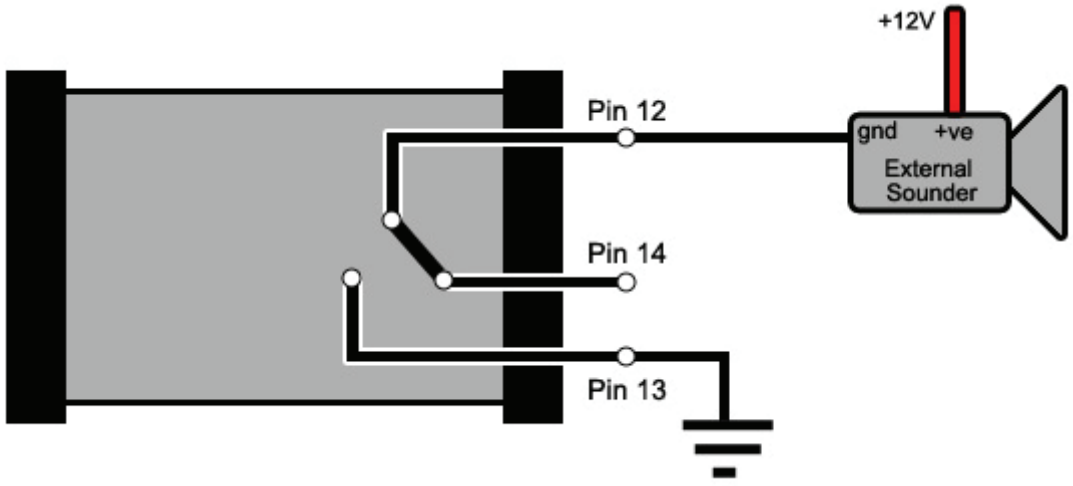


(Max load on relay contacts = 1AMP resistive)

It is possible to use this relay to disable a vehicle.
To interrupt the starter motor, disconnect the supply to the motor solenoid and connect it to the unit on Pin 10. Then connect Pin 9 of the unit to the positive on the starter motor solenoid.

To disable the vehicle, send either the **HALT** or **:W,X,1** command to change the relay to the Normally Open (NO) position.

2.3 External Sounder

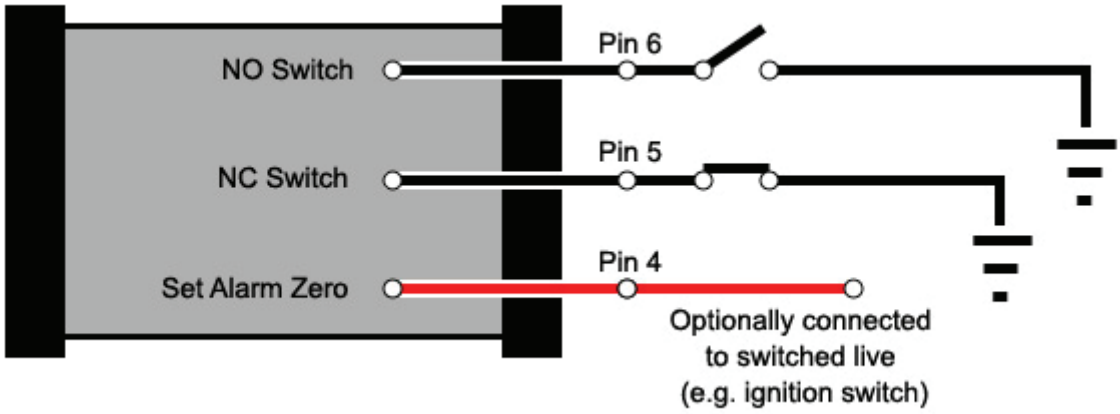


(Max load on relay contacts = 1AMP resistive)

This can be wired in using the “Tiso Alarm” relay.
The external sounder pin is used to connect devices to ground.
The external device has to be connected to positive.

2.4 Tiso Alarm

The Tiso Alarm is designed as a simple multi function alarm monitor.



N.B. For correct Static Alarm functionality the Normally closed Switch must be connected to ground, otherwise the unit will always be in a ***alarm condition***.
The unit is supplied with Pin 5 already connected to Pin 8 (additional ground), you can disconnect it from this if you wish and connect to ground through a normally closed switch

In the above example both the Normally Closed (NC) and the normally open (NO) switches are connected to ground, this is the simplest configuration.

On most vehicle alarms there is an external alarm output. Connect this to Pin 5. If the vehicle alarm is triggered the owner is notified via text message and the information is also sent to the control server to indicate an alarm event.

2.4.2 Alarm Notifications

The device monitors alarm events via the normally open and normally closed switches.
If there is an event then the authorised numbers are sent an Alarm SMS and the website or server updated with the event.

2.4.3 Set Alarm Zero

This is used to bypass the Tiso Alarm circuitry. By default there is a 12 second delay in the Tiso alarm trigger, in that time if the set alarm zero pin is held at +ve then the static condition will be bypassed.

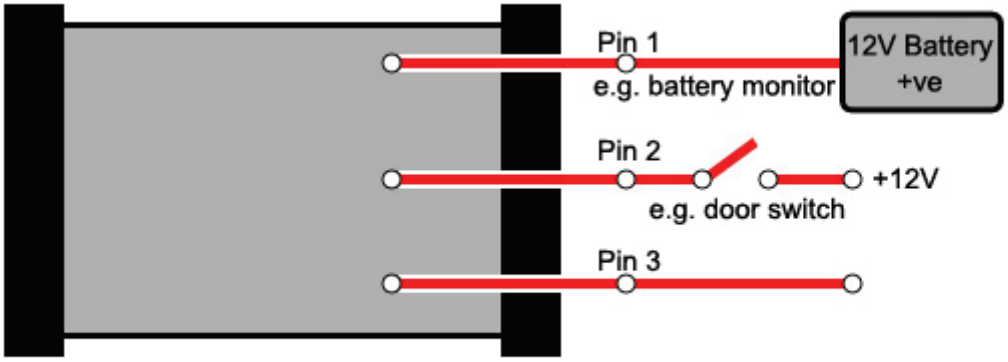
This is useful if the owner of the vehicle gets into their car and turns the Ignition on within 12 seconds.

2.5 Spare IO's

Pins 1, 2 and 3 on the unit can be used for monitoring the status of external devices such as switches or sensors. These devices have to operate at 12V.
The status of each connection is displayed on either the Tiso viewer software, or on the website.

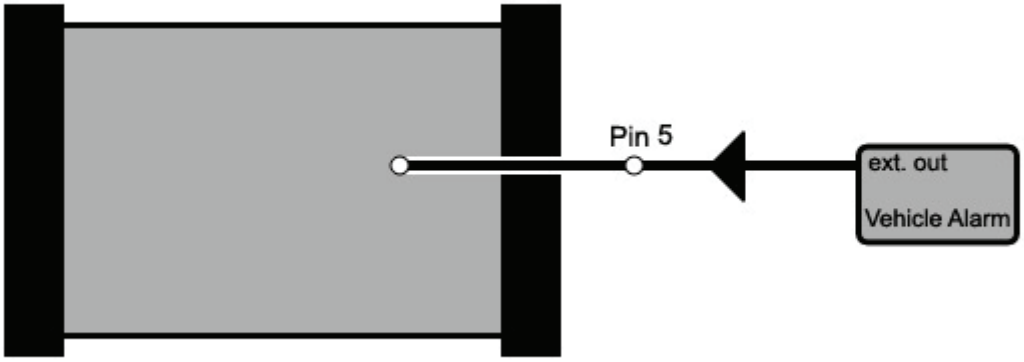
For example:
Vehicle battery monitoring, or a door switch.

These device only work in **ACTIVE** mode, they will not wake the unit in STANDBY or STATIC modes, only responding once the unit is woken up by the Tiso Alarm or Accelerometer. Internet transmission must also be enabled for them to update the website or server, to do this you must have sent the **TRACK** command.



2.6 External Alarm In

On most vehicle alarms there is an external alarm output. Connect this to Pin 5.
If the vehicle alarm is triggered the unit will send a “Tiso Alarm” message to the nominated mobile numbers, and also to the website (or tracking server, if using Tiso Viewer software)



2.7 Power Supply

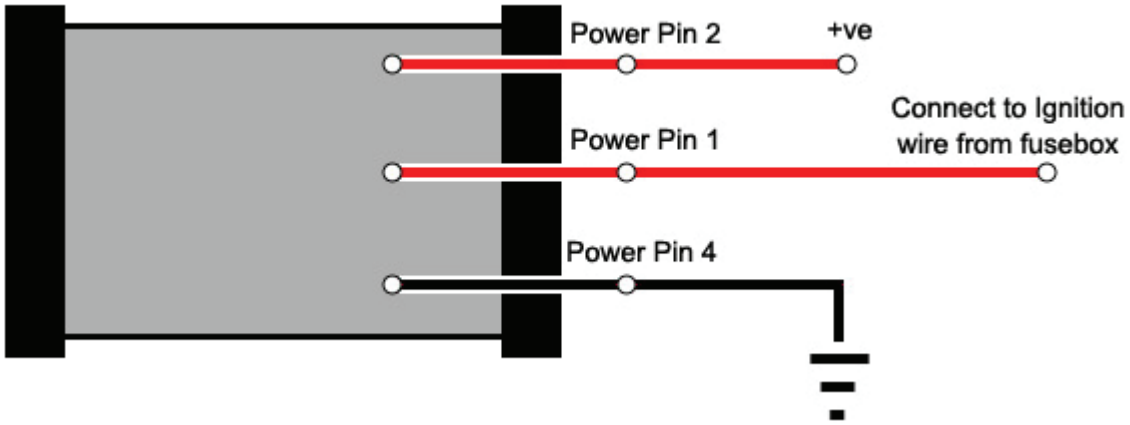
For correct operation the tracker needs to be connected to the vehicles battery supply (either directly or through existing wiring e.g. back of stereo)

It is recommended that the +ve supply of the ignition is wired through a 3Amp fuse to protect the vehicle wiring.

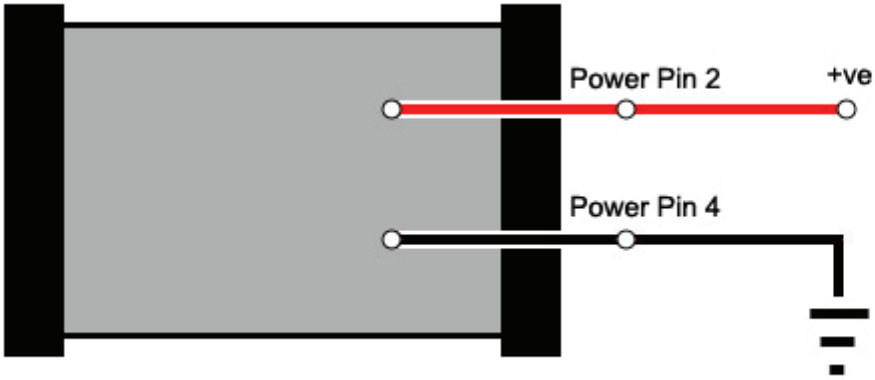
If you want to run the unit from its battery, you can charge the unit using a Regulated AC Power Adapter. This should be 12v and a minimum of 300mA.

In addition to this wiring, if you want to use the alarm functionality, please make sure that the IO connector is in the unit pin 6 in the IO connector is either connected to pin 8 (as standard in the wiring loom), or to ground.

2.7.1 Minimum wiring with ignition monitoring



2.7.2 Minimum wiring without ignition monitoring

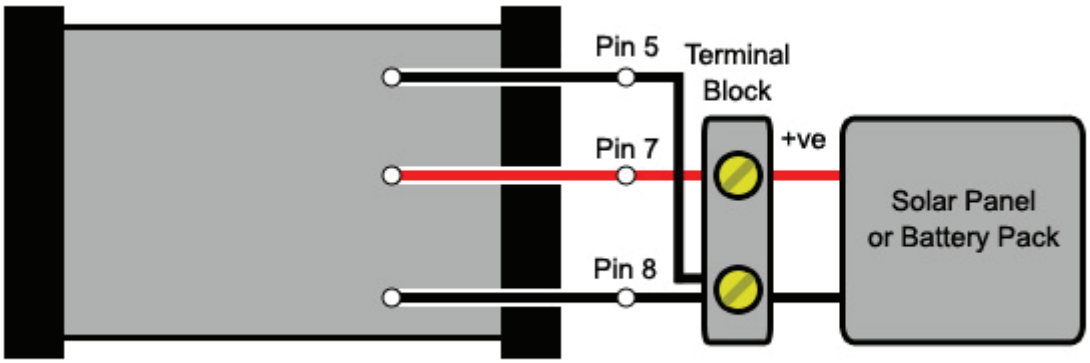


2.8 *Solar Panel / Battery Pack input*

It is possible to provide additional charge to the unit from a solar panel or 5v battery pack (normally found with USB output).

When connected to pins 7 (positive) and to ground (or pin 8), the unit regulates the input to 4.7v to charge the internal battery.

If your external power device does have USB output, it should come with a lead that has two wires that come out of it going to a connector. Cut the connector off with a pair of scissors and expose the bare wire, then connect to the wires from the I/O lead using a terminal block (available from any hardware shop). You will need to cut the blue wire from pin 5 that is connected to the wire from pin 8, then connect both to along with the solar panel ground from the terminal block.



3. Operating Modes

3.1 ACTIVE Mode

This makes the unit constantly run at full power. This mode is required if using the 3 I/O connections or one of the optional expansion units. ACTIVE mode is selected by sending the word **ACTIVE** to the unit by SMS. This is the factory default mode.
If you are using this mode, it will automatically run a system check and send a SMS every eight weeks to the authorised numbers. This also works to stop the SIM cards being de-activated if unused for long periods.

3.2 STANDBY Mode

This sends the unit into a low power "sleep" mode if the unit is stationary and not processing any other commands.
The unit will wake up automatically if the accelerometer is triggered (if activated), an SMS command is received, or if one of the alarms are triggered. This mode uses about 10% of the power of ACTIVE mode when inactive and we suggest that you should use this if you are not using any of the I/O connections or expansion modules.
STANDBY mode is selected by sending the word **STANDBY** to the unit by SMS.
If you are using this mode, it will automatically run a system check and send a report SMS every eight weeks to the authorised numbers. This also works to stop the SIM cards being de-activated if unused for long periods.

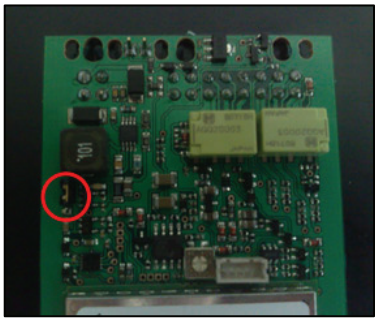
3.3 Static Mode

This is an ultra-low power consumption mode that consumes only 70µA current whilst asleep. This means it can work in this mode for over a year on the internal battery, with power left to track for many hours.
(Many pay-as-you-go SIM cards stop working if unused for six months, please take this into consideration. We will be releasing an external Static Awakening timer in Summer 2009 to address this network issue.)
When in static mode, the unit is unable to respond to commands, but will wake up if the Tiso Alarm (vehicle alarm and magnetic door contact monitoring) or Accelerometer alarms are triggered. The unit will then connect to the internet and automatically update its position to the website or tracking server. Once the alarm situation has finished (e.g. the vehicle has stopped moving), it will automatically revert back to Static mode and reset the alarms.

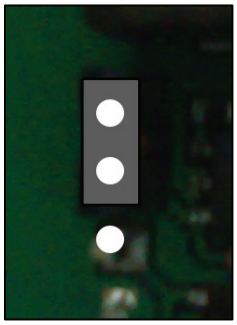
This mode takes the longest to respond and send alarm text messages. It should only be used if running on the internal battery, without connecting to an external power source. You should make sure that the battery is fully charged before using this mode, charge for at least 8 hours.
If you are charging from the mains, you will need a regulated 12V DC mains adapter, minimum 300mA.

Before you change to static mode, you must first set the unit to ACTIVE mode, and with TRACK on, and ARM the alarms.
So send an SMS with the command **ACTIVE** (if you have been using STANDBY mode previously) and then send another with the command **TRACK** and then another with the command **ARM**

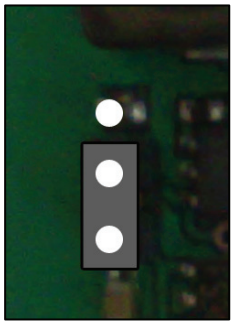
Static mode is selected by moving the static jumper on the bottom of the circuit board.
Please disconnect the battery before changing the jumper setting, and reconnect after you have moved it.



Static Jumper



STATIC MODE



ACTIVE / STANDBY MODE

4. Alarms

4.1 Geo-Fence Alarm

Geo-Fence alarm triggers if the unit moves out of a definable radius.
This can be useful to allow some movement (e.g. construction or farm machinery), but it will send a notification if it is moved too far. This can also be useful for boats, where the accelerometer alarm is unsuitable, due to the constant motion of the water.
The distance is measured in meters and the default setting is 0 meters (off)
To use geo-fence alarm, the accelerometer **must** be activated as well, but you can turn off the accelerometer alarm messages.
We recommend that this is set to a minimum of 100 meters if turned on to avoid false alarms, due to short inaccuracies caused when one of the tracked GPS satellites cannot be contacted for various reasons.

The command to change the geo-fence radius is **:W,W,[DISTANCE IN METERS]**

Boat Usage example (send each command in blue as a separate SMS)

:W,W,100	Turn geo-fence on and set 100m radius
:W,@,00	Deactivate Accelerometer alarm
:W,%,2	Set Accelerometer sensitivity to 2
ARM	Arm all activated alarms

If the geo-fence alarm is triggered, it can be reset to the old position by sending the command **GEO**
You can reset the centre of the radius to the current position of the unit by sending **ARM**

4.2 Accelerometer Alarm

This unit monitors movement and can trigger an alarm if the unit moves more than the definable threshold level. It also serves to wake the unit in standby mode.
There are 6 different levels of sensitivity, from 0 (off) to 5 (max sensitivity).
The default settings are sensitivity level 3 and activated for both SMS and website alarms.
We would only recommend using level 5 if the vehicle is stored indoors.

The command to change the sensitivity is **:W,%,[SENSITIVITY LEVEL]**

The command to activate accelerometer alarms is **:W,@,[2 DIGIT BINARY]**

These can be disabled, either just for SMS, Website, or both.
The first digit is SMS and second is Website / Internet (00,01,10,11)

Messages are only sent to the website when **TRACK** is activated

Example usage
For a vehicle stored inside a garage (send each command in blue as a separate SMS)

:W,%,5	Set Accelerometer sensitivity to 5
:W,@,11	Activate Accelerometer alarm
ARM	Arm activated alarms

When you return to the vehicle and want to use it again, text **DISARM** to disable.

The accelerometer alarm works in ACTIVE, STANDBY or STATIC modes

4.3 Tiso Alarm

Tiso Alarm monitors pin 6 (Normally Open switch for the Vehicle alarm) and pin 5 (Normally Closed switch for a magnetic door contact)

If triggered, the message "[DEVICE NAME],Triggered,,Tiso Alarm" is sent to the authorised mobile numbers.

Tiso alarm works in ACTIVE, STANDBY or STATIC modes

Messages are only sent to the website when **TRACK** is activated

WRITE SETTING COMMAND: **:W,S,[TISO ALARM WARNING MESSAGE STATUS]**

WRITE EXAMPLE: **:W,S,00** Disable all messages

These can be disabled, either just for SMS, Website, or both.
The first digit is SMS and second is Website (00,01,10,11)

4.3 Internal Battery Warning Alarm

This alarm triggers if the internal battery drops below the definable threshold level.
default level = 360 (3.6 Volts)

NOTE: This works in ACTIVE mode only

By Default, a warning is sent to all authorised numbers when the battery level drops below the Internal Battery Warning Level.
The message "[DEVICE NAME],Low Battery,#,Battery Alarm" is sent to the authorised mobile numbers.

These can be disabled, either just for SMS, Website, or both.
The first digit is SMS and second is Website (00,01,10,11)

Messages are only sent to the website when **TRACK** is activated

WRITE SETTING COMMAND: **:W,0,[TWO DIGIT BINARY DATA]**

WRITE EXAMPLE: **:W,0,00** Disable all messages

USING ANOTHER NETWORK'S SIM CARD IN THE TRACK-AS-YOU GO UNIT

To use any other network apart from Asda Mobile, You will need to send the tracker three commands by three separate text messages.

The unit will operate with any GSM sim (excluding "3" network)

You need to know the APN (access point name), username and password for your network.
We have provided you with a current list of UK networks and their settings on the next page.

The commands to change the network are

:W,O,[GPRS OPERATOR NAME] ***(Please note this is a capital letter O, NOT a Zero)***

:W,U,[USERNAME]

:W,P,[PASSWORD]

****The commands letters ARE case dependant, you must use capital letters for the W, O, U, P****

Eg. To change the unit to work on bt mobile you would send these commands (in separate text messages)

:W,O,btmobile.bt.com

:W,U,bt

:W,P,bt

Eg. To change to unit to work on Orange you would send these commands (in separate text messages)

:W,O,orangeinternet

:W,U,

:W,P,

Here is a list of settings that we have, the networks do change these from time to time, so if you have problems, please consult the network concerned.

Operator: - BT Mobile
GPRS APN: - btmobile.bt.com
Username: - bt
Password: - bt

Operator: - Jersey Telecom
GPRS APN: - pepper
Username: - {blank}
Password: - {blank}

Operator: - O2 UK (contract)
GPRS APN: - wap.o2.co.uk
Username: - o2wap
Password: - password

Operator: - O2 UK (pre-pay)
GPRS APN: - payandgo.o2.co.uk
Username: - payandgo
Password: - password

Operator: - Orange UK
GPRS APN: - orangeinternet
Username: - {blank}
Password: - {blank}

Operator: - T-Mobile
GPRS APN: - general.t-mobile.uk
Username: - user
Password: - wap

Operator: - Tesco Mobile
GPRS APN: - prepay.tesco-mobile.com
Username: - tescowap
Password: - password

Operator: - Virgin Mobile
GPRS APN: - goto.virginmobile.uk
Username: - user
Password: - {blank}

Operator: - Vodafone (Contract)
GPRS APN: - wap.vodafone.co.uk
Username: - wap
Password: - wap

Operator: - Vodafone (pre-pay)
GPRS APN: - pp.vodafone.co.uk
Username: - wap
Password: - wap

Operator: - Asda mobile
GPRS APN:- asdamobiles.co.uk

Username: - web
Password: - web