

## Application Note: Vehicle Immobilisation

### Overview

The AT100 can be used to switch external electrical devices remotely, using the two internal FET load switches. These are useful for various applications. One of the most frequently requested is vehicle immobilisation. This application note provides guidance on the use of the AT100 to immobilise a vehicle, but the principles involved can easily be utilised for other applications involving the switching on/off of an external device.

### Caution

Vehicle immobilisation applications carry a risk that the vehicle could be disabled inadvertently or as a result of an equipment fault of some kind. These risks can and should be minimised by proper use of fail-safe techniques, however, a small risk will always remain. The information given in this document is supplied for guidance only. Installers should take full responsibility for the safety and integrity of the complete installation.

### AT100 Load Switching Features

The AT100 device has 2 built in load switches, which can be used to switch external loads of up to 30V, 0.5A absolute maximums.

The default states of the two load switches (i.e. on power up) can be set by use of the LSOD parameter, as follows:

LSOD value	switch 1 default	switch 2 default
0	OFF	OFF
1	ON	OFF
2	OFF	ON
3	ON	ON

After power up, the state of each load switch can be set using the OUT1 and OUT2 commands. A value of 1 will switch the load ON and zero will switch the load off. In addition, the IMOB command can be used to switch both external loads immediately after speed falls to zero.

## Connections

Each load switch uses 2 pins of the 36 way data connector, with a further 2 pins each for the return path to GND. The pin numbers are as follows:

Signal	Pin Numbers
Load Switch 1, +VE side	21, 22
Load Switch 2, +VE side	23,24
GND	1,8,9,25,26,28,29,30

The source pin of the FET must be at ground potential, hence the GND connection must be tied directly to the return current path (usually the vehicle chassis) and the actual load (i.e. device being switched on) must be connected to the Load Switch +ve side.

It is advisable that both pins are used on each side of the load switch to minimize the risk of damage to the AT100 by excessive current drawn by the load. There is no protection or current limit implemented on the load switches, so it is important to design the solution carefully to minimize the risk of an over-current fault. In any case, the use of a 0.5A fuse in the load switch cabling is highly recommended. In most cases, it will be necessary to use a relay to switch the intended load, using the AT100 to switch the low current / low voltage side of the relay.

Cable CB003 is available as an accessory to suit load switching applications.