

Vehicle Security System GSM/SMS Pager

TYTAN[®] ***DS 512 - CAN GSM GPS***



USER MANUAL

ver. 0.09

TYTAN DS512 CAN GPS GSM CAN-bus Vehicle Security System (VSS) and GSM-SMS Pager features

- GSM-SMS pager integrated with CAN-bus Vehicle Security System central unit,
- alarming state signalisation with SMS messages in GSM network,
- external GPS receiver (optional),
- remote (SMS) control of VSS and remote access to VSS trigger source memory,
- valet mode (service mode),
- operation mode as GSM-SMS Pager monitoring of OEM security system via CAN bus,
- operation mode as GSM-SMS Pager monitoring of any analogue security system already installed in the vehicle,
- operation mode as standalone Vehicle Security System with CAN-bus connection to vehicle electronic systems is armed/disarmed with OEM remotes or SMS commands,
- VSS: signalisation if door / trunk / bonnet is open during arming (door ajar),
- VSS: signalisation if the alarm was triggered during disarming,
- VSS: CAN-bus control of hazard lights, central door locking, power windows on some vehicle models,
- VSS: additional sensors input
 - vehicle interior protection with ultrasonic motion detector (optional),
 - vehicle towing and wheel theft protection with additional tilt sensor (optional),
- VSS: arming without additional sensors,
- VSS: state of the system is stored in non-volatile memory and is saved during power-off,

The DS512 is intended to work as a complete VSS integrated in a single unit with a GSM-SMS pager. The operation of DS512 as a VSS is described in chapter 1.

The issues concerning SMS paging and GPS localisation are described in chapter 2.

The control of DS512 with SMS commands sent from any phone and SMS-triggered anti-hijack function are described in chapter 3.

The DS512 can also operate as GSM-SMS Pager (with optional GPS) monitoring any Vehicle Security System already installed in the vehicle - either CAN based OEM VSS or aftermarket VSS. In such case - the 1st chapter is not valid. The Appendix A should be used instead.

The information about options that apply to the given installation in the given vehicle should be provided for the owner by the device installer.

1. DS512 operation as standalone Vehicle Security System

ARMING THE VSS AND LOCKING CENTRAL DOOR LOCKING SYSTEM

Press the LOCK button on the remote transmitter - direction indicators blink and single siren chirp (*) confirms the VSS is being armed and the central door locking system is locked. The LED will light constantly and after 10 seconds it will start to blink slowly.

ARMING WITH INTERIOR MOTION DETECTOR AND ADDITIONAL SENSOR DISABLED

If the VSS is armed with any person or animal is in the vehicle, their movement will trigger the alarm. To avoid such situation, the system can be armed without activating interior motion detector and additional sensors. To do so, before arming the system - press and hold the PA button until siren chirp. The LED will blink once per 2 seconds

Leave the vehicle, close all doors and press the remote transmitter LOCK button - two siren chirps confirms the system is armed and interior motion detector and additional sensor are disabled. Direction indicators blink confirms the vehicle security system is armed and the central door locking system is closed. The LED will light constantly and after 10 seconds it will start to blink slowly.

DISARMING THE VSS AND UNLOCKING THE CENTRAL DOOR LOCKING SYSTEM

Press the remote transmitter UNLOCK button - blink of the direction indicators and double siren chirp (*) confirms disarming of VSS and unlocking central door locking system. The status LED will start blinking until any door is opened and then will go off.

If the alarm was triggered during the driver's absence, the VSS signalises it during disarming with three siren chirps.

IMPORTANT!

If after disarming neither doors nor trunk is opened within 30 seconds the system rearms automatically.

TRUNK RELEASE BUTTON LOGIC

If OEM remote transmitter has a trunk release button – press of this button will open (or allow to open) the trunk / boot and turn off the protection of trunk switch, interior motion detector, additional sensors, and the sliding doors (in Van vehicles - rear left and rear right).

That state is confirmed by fast blinking of the LED. Depending on the vehicle, closing the boot / van doors or press of the LOCK button on the OEM remote brings the security system again into armed state, signalled by slow LED pulses.

IMPORTANT!

This feature is car dependent.

DOOR OPEN WARNING WHEN ARMING - DOOR AJAR

If any doors, bonnet or trunk is not closed during arming, the VSS signals it with three siren chirps. The system will be armed, but the opened door / bonnet / trunk will not be monitored (alarm will not be triggered after violating this input).

ALARMING / DISARMING THE VSS DURING THE ALARM

If the VSS is armed and any door, trunk or bonnet switch, additional sensor, ultrasonic motion detector or ignition is violated, the VSS starts a 30-second alarming cycle - the direction indicator lights starts to blink and electronic siren starts audible signal. In triggered state until disarming the LED blinks quickly, 2 times faster than in armed mode. After 30 seconds, the system stops the alarm cycle. Further triggering of sensors starts another alarm cycle. Every input can cause up to 4 alarm cycles and then it is blocked. During alarm cycle, press of the LOCK button ends the alarm cycle, but the vehicle remains locked and the VSS remains armed. During alarm cycle, press of the UNLOCK button stops the alarm cycle, disarms the VSS and opens the vehicle.

IMPORTANT!

Emergency disarming procedure, valet (service) mode and anti-hijack function are described in chapter 3.

2. SMS paging

SIGNALISATION OF ALARMING WITH SMS TEXT MESSAGES.

When the alarm is triggered, the DS512 sends the SMS information up to 3 phone numbers stored in the device.

Content of the SMS with specification of alarm source, for example:

WARNING! ALARM has been triggered:
additional sensor

If the DS512 is equipped with GPS receiver, an extra information will be included in SMS:

Localisation will be sent within 90s.

Next, the DS512 enables the GPS receiver. In regular operation, the GPS receiver is disabled and the vehicle GPS position is not known. When the GPS signal is fixed, the SMS will be sent:

```
Position LAT={latitude} LON={longitude}  
Speed={vehicle speed}  
Map {link}
```

Use the link to open the online map with the current position of the vehicle. If the phone cannot display the online map or does not have internet access, the link can be used in any internet browser or coordinates can be used in dedicated tracking software or online map portals.

If the GPS position cannot be fixed, the SMS will be sent:

```
Unable to fix vehicle position.
```

3. SMS commands

GENERAL PRINCIPLES OF DS512 SMS COMMAND LANGUAGE

The DS512 can execute several SMS commands, sent from any GSM mobile to the mobile number of the SIM card installed in the DS512. If the command is correct and accepted, the response SMS is sent to the origin mobile. Every command requires 4 or 5 digit long PIN code, which prevents the DS512 from being controlled by unauthorised person (IMPORTANT! do not mix up SMS commands PIN code with SIM card PIN code!).

Default SMS PIN code is 12345.

The commands can be written in uppercase/lowercase letters. The uppercase and lowercase letters cannot be mixed.

If the wrong PIN is used, the DS512 will not send a SMS response.

If the PIN code is correct, but the command is not recognized (e.g. command type error) the device sends a SMS answer:

```
Command not recognized.
```

SERVICE MODE (VALET MODE)

The DS512 can be set into the service mode (valet mode). In service mode the device is disabled. If the DS512 works in VSS mode - it cannot be armed, it does not protect the vehicle, it does not alarm nor send SMS, the engine is not immobilised. If the DS512 is in pager mode, it does not send SMS when external VSS is triggered.

The valet mode is enabled and disabled with SMS command. The valet mode can be enabled in any state of DS512 (armed, disarmed, alarming). The valet mode can be treated as emergency disarming procedure, for example in case of OEM remote control malfunction. Valet mode is signalled by 2 fast blinks of LED every 1,5 seconds.

Entering and leaving valet mode is signalled by 5 chirps of siren.

Entering valet mode:

```
{VSS PIN} valetmodeon
```

Leaving valet mode:

```
{VSS PIN} valetmodeoff
```

REMOTE VEHICLE immobilisation (ANTI-HIJACK Function)

IMPORTANT! Anti-hijack function can be used only in countries where the Reg.97 ECE does not apply. In opposite case, the homologation of DS512 VSS becomes invalid.

If anti-hijack function was enabled in the DS512 configuration, there is a possibility to stop the vehicle by sending SMS command:

```
{VSS PIN} antihijackon
```

When the SMS is received, the DS512 starts anti-hijack procedure: the LED lights up, the acoustic (siren) and optical (hazard indicators) signalisation is enabled.

25 seconds after start of signalisation, the engine is being immobilised by breaking a circuit with a immobilisation relay. The anti-hijack procedure has no time limit. Both engine immobilisation and signalisation lasts until the SMS disabling the anti-hijack is received.

```
{VSS PIN} antihijackoff
```

Both *antihijackon* and *antihijackoff* commands are confirmed by SMS with vehicle status sent to the mobile phone. The anti-hijack is terminated by entering the service mode.

PROGRAMMING VSS PIN AND MOBILE NUMBERS FOR PAGING ALARM

The user can change VSS PIN, set number of mobile phones, which receive SMS with information when the alarm is triggered in the vehicle and set the phone numbers for these mobiles. Up to 3 mobile phone numbers can be programmed.

The command is:

```
{current VSS PIN} setgsm {new VSS PIN} {new VSS PIN} {number of mobile phones} {first phone number} {second phone number} {third phone number}
```

where:

<i>current VSS PIN</i>	current (old) VSS PIN or default VSS PIN (12345) in the device
<i>new VSS PIN</i>	VSS PIN which will be set as the new one
<i>number of mobile phones</i>	number of mobile phones, which receive SMS with information when the alarm is triggered in the vehicle 0-3
<i>first phone number, second phone number, third phone number</i>	mobile phone numbers which are informed about triggering the alarm in the vehicle in international format with '+' at the beginning, for example: +44xxxxxxxxx

The confirmation of the command is the SMS with information:

```
VSS PIN set: {new VSS PIN} number of mobile phones: {number of mobile phones} {first phone number} {second phone number} {third phone number}
```

Example:

```
12345 setgsm 54321 54321 3 +44501123456 +44502123456 +44503123456
```

sets new VSS PIN 54321, and sets 3 mobile phone numbers which will be notified if the alarm is triggered. The unit responds with SMS confirmation:

```
VSS PIN set: 54321 number of mobile phones: 3 +44501123456 +44502123456 +44503123456
```

REMOTE CHECK OF VEHICLE STATUS

The DS512 allows to check status of vehicle and security system with a command:

```
{VSS PIN} status
```

The DS512 sends back the SMS with information on vehicle and security system status. The information about status is sent in a full or simplified form, depending on settings configured in the device during installation. The full version of system status is:

```
device status: {OK / ALARM was triggered!}
system:        {disarmed / armed / armed w/o sensors / armed w/o
                trunk and sensors / ALARM in progress! / disarmed
                (rearming) / valet mode / ANTI-HIJACK in progress! /
                ANTI-HIJACK vehicle stopped}
```

The simplified version of system status is:

```
device status: {OK / ALARM was triggered!}
system:        {ready / ALARM in progress! / valet mode /
                ANTI-HIJACK in progress / ANTI-HIJACK vehicle stopped}
```

The optional information in vehicle status SMS are:

```
door/trunk/bonnet: {closed / opened}
ignition: {on / off}
```

The information on door/trunk/bonnet being opened or on the ignition switch status allows to validate the theft risk when the vehicle status is sent. The detailed information about status configuration should be provided by the installer after installation.

VEHICLE GPS LOCALISATION

In order to localise the vehicle geographical position, the following SMS should be sent:

```
{VSS PIN} position
```

After the SMS is received by the DS512, the GPS receiver is being started. In regular operation, the GPS receiver is disabled and the vehicle GPS position is not known. The GPS receiver is started when the alarm is triggered or after this SMS command. The reply for the command is:

```
Localisation will be sent within 90s.
```

After the GPS position is set the following SMS is sent:

```
Position LAT={latitude} LON={longitude}  
Speed={vehicle speed}  
Map {link}
```

Use the link to open the online map with the current position of the vehicle. If the phone cannot display the online map or does not have internet access, the link can be used in any internet browser or coordinates can be used in dedicated tracking software or online map portals.

If the GPS position cannot be fixed, the SMS info will be sent:

```
Unable to fix vehicle position.
```

If the system is not equipped with GPS receiver, the following information will be sent:

```
GPS not installed.
```

LOCKING / UNLOCKING OF THE VEHICLE via SMS

On some vehicles, there is possibility to control power door locks with DS512. In such case, the power door locks can be locked or unlocked with SMS command. Locking and unlocking does not enable or disable VSS. The commands are:

```
{VSS PIN} lock
```

```
{VSS PIN} unlock
```

The DS512 responds with a status SMS.

If the command cannot be executed, the following information is being sent:

```
The command cannot be executed.
```

ARMING / DISARMING OF THE VSS via SMS (only when DS512 is set to VSS mode)

If the DS512 is set to the VSS mode, SMS commands can arm or disarm VSS.

```
{VSS PIN} arm
```

```
{VSS PIN} disarm
```

DS512 responds with a status SMS. **Important!** after disarming, the VSS waits for door opening or switching on the ignition. If any door is not opened or ignition is not turned on, the VSS rearms after 30 seconds, in order to prevent accidental disarming.

If the power door locks are controlled by the DS512, arming and disarming via SMS locks and unlocks power door locks.

READING ALARM MEMORY / CLEARING ALARM MEMORY (only when DS512 set to VSS mode)

In order to read from DS512 memory sources of last 3 alarm cycles, the following SMS should be sent:

```
{VSS PIN} alarmlog
```

The DS512 responds with SMS:

```
Sources of last alarm cycles:  
{first source}  
{second source}  
{third source}
```

Alarm memory can be cleared by sending SMS:

```
{VSS PIN} clearlog
```

After receiving the SMS, DS512 clears alarm memory and sends the SMS with cleared reasons of previous alarm cycles. If the command cannot be executed (the DS12 does not work in VSS mode) the information is sent:

```
The command cannot be executed.
```

IMPORTANT!

After installation and verification of DS512 operation, please check the default VSS PIN (12345) with personal code and configure the mobile phone numbers to be notified about VSS or vehicle status.

Appendix A.

SMS Pager mode - monitoring other VSS

The DS512 can work in pager mode – sending SMS status information about alarm being triggered in third party VSS. The DS512 can work as a pager for OEM CAN-bus VSS or as a pager for any analogue (OEM or aftermarket) VSS that provides analogue alarm signal (positive or negative).

Third party VSS arming / disarming is done according to the third party VSS documentation and is out of DS512 scope. If the DS512 detects that the alarm is triggered, it pages with SMS as described in chapter 2.

If the DS512 monitors OEM CAN-bus VSS, the information concerning door status, ignition status and armed/disarmed status of the vehicle is present.

If the DS512 monitors third party analogue VSS, the armed/disarmed status, door status and ignition status depends on the installation details of third party VSS in a given vehicle. In such case, the information about functionality of DS512 should be provided by the installer.

Appendix B.

LED signals

LED	Status
off	VSS disarmed, vehicle not protected
constant on (no acoustic or visible signalisation)	VSS is arming, vehicle will be protected in few seconds
blinks slowly (1x/sec.)	VSS armed, vehicle protected
blinks fast (2x/sec.)	VSS armed and alarming
blinks very fast (5x/sec.)	rearming: - if any door will be opened within 30 seconds VSS will disarm, vehicle will be not protected, - if any door will NOT be opened within 30 seconds VSS will arm again
constant on (acoustic and visible signalisation)	Anti-hijack active (remote vehicle immobilisation)