

GSM/GPRS Modem Updated Installation Guide

Introduction - This document relates to the Fastrack Xtend modems supplied either with KMS keep alive firmware Version 3.2 or later, or GPRS firmware V 1.13 or later. The Xtend modems supplied by KMS will have been pre-configured to work with the Simplekey door controller, and can't be used with any other type of access control or security product.

This document outlines the basic installation requirement for systems employing both GSM & GPRS communications and it should be noted that both environmental and network provider conditions can change during the life time of the installation and even after following the installation guidelines below and initially achieving a good communication connection, in exceptional circumstances it may be necessary to revisit the site to reset or alter the component configuration.

Modem Installation and Set-up – Normally the Xtend modem will be supplied already mounted within a KMS metal cabinet or mounted upon a KMS chassis and/or within an OEM cabinet. The modem is normally fixed by two securing screws.

There are three standard cable connections used to power and for communications

1. Power lead – black outer insulation with red (+V)/black (-V) power connection leads, fitted with a 10 –pin Micro-Fit connector for connection to the modem. Supplied with the modem.
2. Serial Lead – Grey outer insulation with red (Grd) Yellow (Rx) Green (Tx) RS232 connection leads, fitted with a 9 pin D connector for connection to the modem. Supplied with the modem.



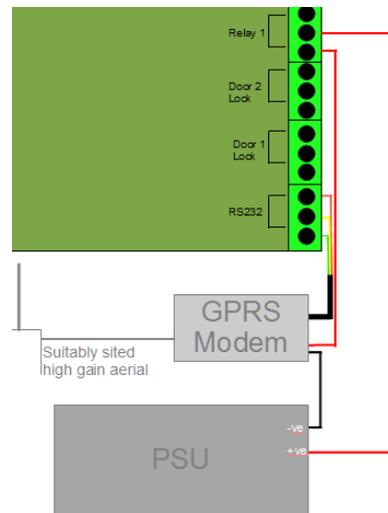
3. Signal lead – Black Co-ax cable with SMA type connector for connection to the antenna. Not supplied with the modem as site and location specific, to be ordered separately)



For Simplekey units supplied within a KMS metal cabinet or mounted upon a KMS chassis and/or within an OEM cabinet, the power lead and serial lead will already be connected to the Simplekey door controller and only the antenna connection will need to be made.

Should the power and serial leads not be connected to the Simplekey door controller, then we recommend the following wiring connections

Modem power and serial lead connection to Simplekey2 door controller FW Version 2.85 and above



By powering the modem through relay 1, in locations with intermittent or variable signal strength, it is possible for to fully power cycle the modem to ensure it is re-introduced onto the network. To achieve this, the time profile for Relay 1 needs to be set at the door controller. The time periods for this time profile can then either be set locally or remotely using the SimpleKey2 software. Wired to the common and normally closed connectors, we suggest the time period is set to activate for 1 minute in the morning and mid-afternoon. Please refer to the KMS Simplekey manual to set the time profiles/period locally or in Time Periods within the SimpleKey2 software.

The connection for the serial cable is as follows

Red	Grd
Yellow	Rx
Green	Tx

NB in extreme cases where an acceptable GSM/GPRS signal is difficult to obtain, the modem can be moved up to 15M away from the door controller location. However the modem must be housed in a suitable enclosure and may require a separate power supply.

All cabling should be kept neat and tidy, with a minimum cable rating of 16/0.2mm or similar.

Aerial connection

KMS provide a range of external aerials to be used with the modem, including stubby, cabinet mounted and wall mounted. The wall mounted variety are available with a variety of cable lengths from 3.5M to 15M. Due to losses within the cable the shortest cable length should always be selected, to obtain an adequate reliable network signal. The co-ax cable should be well managed

with no sharp bends or loops, although tuned for each aerial type, in exceptional circumstances the cable can be shortened providing the correct new connector is used, crimped in line with the manufacturer's guidelines. The wall mounted type should be mounted vertically and in a location to minimise vandal damage. Normally the best results are achieved when the aerial is mounted high-up on the outside of a building, with which side it is located being critical for some installations. It can be hidden within any none metallic housing, i.e. a plastic down pipe to disguise and protect it.

Network Signal Strength – It is vital that whatever aerial is fitted, that an adequate reliable network signal is received by the modem. There is obviously a degree of trial and error involved in finding a suitable location for the aerial and on site factors including the type of construction of the building, where the equipment is located and protection from vandalism. The simplest and quickest way to survey the site for a suitable aerial location is to use a GPRS Radio Test Set, KMS recommend the CSL DualCom CS2366 unit shown below.



The external aerial can be connected via the aerial connector and positioned in various locations in order to select the most suitable. If no SIM card is fitted the unit will search for all network providers. You may well find that one a particular network provider has a strong signal in one location but a poor signal in another and if a suitable aerial location can't be found for your preferred provider, then an alternative may need to be used.

The lowest signal strength the modem will work with is 40%, but obviously the higher the signal strength the better. However for reliability reason you may not choose the highest signal strength provider if an alternative show a number of cells with an acceptable signal strength, providing additional resilience, should one cell be closed for maintenance or repair.

If a signal strength tester isn't available, the signal strength can still be ascertained. This is achieved by connecting the aerial to the modem with a circuit switched data enabled SIM installed. Once the modem LED (next to the aerial connection) starts flashing, with the aerial in the position to be tested, the word "SURVEY" can be texted to the SIM telephone number. A text message will then be received from the modem giving the signal strength and error bit rate in the following format

SURVEY 1 15 0 23415

Where – 15 is the signal strength (minimum strength for the modem to operate is 15)

- 0 is the error bit rate (any error bit rate above 0 will severely affect the connection and reliability)

- 23415 is the network provider code (in this case Vodafone)

You may need to carry out these signal strength tests several times before a suitable aerial position can be found.

SIM Cards – KMS provide both contract GSM circuit switched data enabled SIM cards and GPRS enabled SIM cards. In both cases due to the contractual restrictions of the network providers, KMS can only provide these direct to the end user. The SIM cards provided by KMS have had the voice connection “disabled” minimising the potential for misuse

The GSM circuit switch data enabled SIM cards provided by KMS are sent out with a four character identification number, printed on both the SIM card and on top of the modem, which also gives the GSM data and voice telephone numbers.

The GPRS SIMs will be issued on a site specific basis and will be configured via the KMS Cloud to the SimplekeyWeb software. SIM cards provided by KMS are sent out with a four character identification number, printed on both the SIM card and on top of the modem, which also gives the telephone numbers. Once the GPRS system has been installed and the aerial installed in a suitable position, KMS technical support (01494 531099) will need to be contacted whilst the installation engineer is on site to establish the ip connection.

Both GSM & GPRS SIM cards provided by others can be used with the Fastrack Xtend modem and Simplekey door controller. However the following criteria is required to ensure that these will work with the network and Simplekey system.

GSM – These can be provided by most network providers and are normally “contract SIMs”. They must be a circuit switched data enabled (which needs to be set up by the network provider) and both the data and telephone number need to be recorded. Vodafone currently will provide circuit switched data PAYG Sim cards, these will need to be maintained in line with the current Vodafone PAYG contract, details of which can be found at the Vodafone web site www.vodafone.co.uk. The Sim card will need to be “tied” to the modem it is to be used in. This is achieved by following the procedure outline in the KMS data sheet.

GPRS – These SIMs are readily available on a contract basis from most network providers. The data pack needed will depend on the type and size of the system to be managed and can be provided with a circuit switch data number, please contact KMS technical support for further details. Once installed KMS will require the IMEI number of the modem the SIM is installed in (located on the bottom of the modem) together with the name of the network provider, the telephone number and data number if available.