

FALCON

GSM



**INSTALLATION &
OPERATION MANUAL**

INDEX

1. INTRODUCTION	5
2. FEATURES AND FUNCTIONS	6
2.1 Reporting Options	6
2.2 Interfaces	6
2.3 Programming	6
2.4 Indicators and Controls	6
3. INSTALLATION	7
3.1 Falcon GSM Wiring	8
3.1.1 Power Supply	8
3.1.2 Check AC	8
3.1.3 Dry Contact Inputs	8
3.1.4 Contact ID Inputs	9
3.1.5 Serial Port	9
3.1.6 Relay Outputs	10
3.2 Falcon GSM Installation	10
3.3 GSM Connection and Signal Strength	10
3.4 Changing the Default SIM Card	12
3.5 Selecting the Alarm Panel Serial Port Format	13
3.6 Indicators and Controls	14

4. PROGRAMMING	18
4.1 On-Board Push Button	18
4.2 PC based Programmer	18
4.3 SMS Programming	19
APPENDIX A SMS Commands.....	20
APPENDIX B Serial Interface	21
APPENDIX C Programming Cable and Software...	29

1. INTRODUCTION

The FSK Falcon GSM is a highly featured GSM based unit which is used for the transmission of Security and Telemetry messages over the GSM network.

The Falcon can communicate via GPRS messages to a Control Room and includes the universal Contact ID interface to Alarm Control Panels as well as serial interfacing into some leading panels. It also has seven dry contact input triggers

In addition, the Falcon has two outputs which can be used to command Alarm Panels and other devices.

2. FEATURES & FUNCTIONS

2.1 Reporting Options

- Option of Single or Dual SIM card operation for enhanced network reliability
- GPRS reporting to a control room

2.2 Interfaces

- 7 Hardwired inputs with positive trip, negative trip or both
- Dedicated AC Supply monitoring input
- 2 on-board relay outputs which can be controlled by SMS and / or GPRS
- Contact ID TIP and RING telephone interface to all leading control panels
- Serial alarm interface to leading control panels
- Over-the-air Panel Uploading and Downloading on the Rhino and Texecom Premier control panels through the serial interface

2.3 Programming

- Full programming and software updating via a computer serial port
- Programming over-the-air via GPRS
- User function programming via SMS

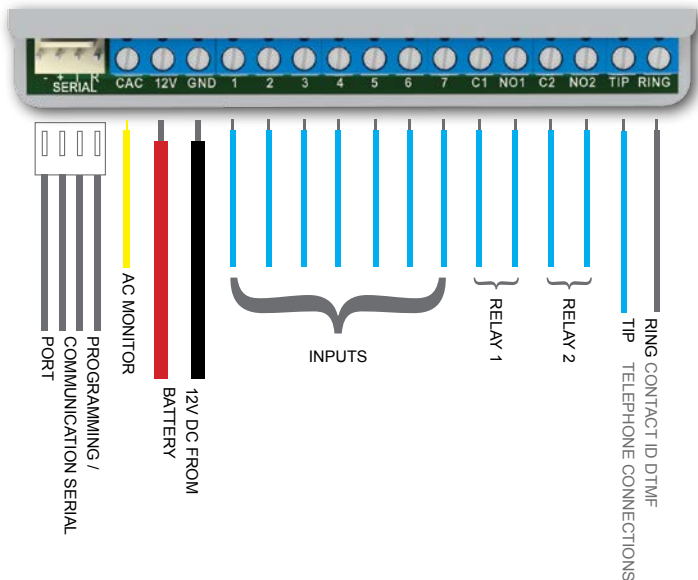
2.4 Indicators and Controls

- Status and error indication via a seven segment display
- Serial port selection and SIM Card swapping (only available on dual SIM unit) via the on-board push-button

3. INSTALLATION

3.1 Falcon GSM Wiring

Connections to the Falcon are shown below:



3.1.1 Power Supply

The Falcon must be connected to a stable 12V DC (nominal 13.2V) power supply. If a battery is available in the alarm panel, it must preferably be powered directly from the battery.

3.1.2 Check AC

The Check AC (CAC) input detects the presence of the AC supply and is used to check for power failure. The CAC line should be connected to one of the transformer's **SECONDARY** terminals. Do **NOT** connect this line to the mains.

The CAC line will detect AC voltages between 10 and 24V.

If the CAC line is not connected, the Falcon should not be programmed to send AC Failure or Restoral Signals.

The AC Failure and AC Restore signals have a programmable delay (default set at 10 minutes) in order to prevent false triggers.

3.1.3 Dry Contact Inputs

The dry contact inputs can be used to detect alarms generated from the outputs of the Alarm Panel or from other sources.

If the external device generates the alarm by pulling the input to ground (negative trigger), the pull-up jumper should be inserted on the input of the Falcon.

3.1.4 Contact ID Inputs

The Falcon can 'intercept' signals sent by the alarm panel on its telephone line (Contact ID) interface.

If the Contact ID interface is to be used, the Alarm Panel's TIP and RING lines should be connected to the TIP and RING lines on the Falcon.

The alarm panel must be programmed to use its dialer, and the option for reporting must be set to Contact ID. Refer to the programming manual of the applicable Alarm Panel.

The Falcon can be programmed to use its own account code or the account code of the alarm panel when sending alarms received via the Contact ID interface.

3.1.5 Serial Port

The Falcon can receive alarms from the following alarm panels on its serial port:

- Rhino 8 zone and 16 Zone alarm panels
- Texecom premier range (panel uploads and downloads can also be done)
- Paradox E65, SP6000 and MG5050
- Pima
- IDS

3.1.6 Relay Outputs

Two dry-contact relay outputs are available on the Falcon. These outputs can be commanded to turn on and off via the GSM network.

The outputs are rated to 24V AC or DC, up to a maximum of 5A.

Do not connect the relay outputs to the mains supply.

3.2 Falcon GSM Installation

Software Version

Connect the Falcon to the 12V supply, observing polarity. On start-up, the Falcon will display its software and hardware versions, e.g.

Example:



For the Software Version 3.03 and hardware version A

3.3 GSM Connection and Signal Strength

The performance of the Falcon depends on the quality of its connection to the GSM network.

The Falcon will send alarms quicker and more reliably if it has a strong connection to the GSM service provider.

When the Falcon has powered up, it will start connecting to the network, displaying its status as it initialises and connects (see section 3 – Indicators and Controls)

When the Falcon has connected to the GSM network, it will display the SIM Card Number which it is using and the signal strength of the connection.

Example:



Connected on SIM Card 1 – Signal Strength 6

The minimum signal strength required is 5.

If an adequate signal strength is not obtained

- Move the Falcon to a more suitable location
- Fit the Falcon with a higher gain antenna (available from FSK)
- If the Falcon is a dual SIM unit, the default SIM card can be changed (see section 3.4)

3.4 Changing the Default SIM Card

The Falcon units which have been fitted with two SIM cards (Dual SIM unit) have the option of changing the default SIM card to be used.

The default SIM card should be changed to the one with the highest signal strength.

- Briefly press the push button until the Falcon swaps SIM cards and restarts using the new SIM card (section 3 describes what is displayed).
- Wait until the Falcon has re-connected to the GSM network on the new SIM card and displays the signal strength.
- If the Falcon displays an error message (E1 or E4), the selected SIM card is not working and the other one should be selected.
- If you change the SIM card to one which is not available, the Falcon will automatically swap back to the available SIM card.
- The minimum signal strength required is '5'. Lower than this signal strength will make it difficult to access the Falcon remotely.

3.5 Selecting the Alarm Panel Serial Port Format

The alarm panel serial port can be selected via the on-board push button (as well as the PC based programming software).






The following serial port formats are available:

- Texecom Premier (programming required)
- Paradox (MG5050, SP6000, SP65)
- Pima
- RhinoBus (FSK)
- IDS

Refer to Appendix B

To change the serial port format:







- Remove the power from the Falcon
- Hold down the push-button and re-apply the power
- Push the button to cycle through the panel serial port settings until the correct serial port is displayed.
- Leave the button for 15 seconds. The Falcon will reset and remember the new serial port format

DISPLAY		SERIAL FORMAT
	F	Pima Hunter Pro and FSK 6 Zone Panel
	t	Texecom Premier
	P	Paradox
	r	Rhino Bus
	l	IDS

3.6 Indicators and Controls





The Falcon has a seven segment display which indicates the current operating status

Falcon Status:



CHARACTER FLASHED		STATUS	DESCRIPTION
	i	Initialising	The Falcon is starting the GSM modem
	r	Restarting	The Falcon is re-starting the GSM modem
	c (lower case)	Connecting	The Falcon is connecting to the GSM network
	C (upper case)	Connected	The Falcon is connected to the GSM network and is ready to send alarms
	C S	Connecting to server	Sending GPRS alarms
	d S	Disconnecting from server	All alarms sent, disconnecting from the server

Falcon Errors

If the Falcon detects an error, it will flash the error code on the seven segment display.

CHARACTER FLASHED		STATUS	DESCRIPTION
	E1	SIM card not found	The Falcon has not detected a SIM card which it has been programmed to use
	E2	Reserved	Reserved for future use
	E3	SMS Sending has failed	The Falcon cannot send the message via SMS
	E4	Connection to Server has failed	The Falcon cannot connect to the server to send the alarms

Diagnostics of Error Codes:

ERROR STATE	CAUSE	CORRECTIVE ACTION
<p>No SIM card</p> 	<p>There is no SIM card inserted in a SIM holder and the Falcon has been programmed to use that SIM card</p> <p style="text-align: center;">Or</p> <p>The SIM card is damaged</p>	<p>Make sure that a SIM card is correctly inserted in the holder</p> <p>If there is only one SIM card installed, make sure that the Falcon is not programmed to use the open SIM holder (no SMS or GPRS capabilities on the SIM card)</p>
<p>Server Connection Fail</p> 	<p>The Falcon cannot connect to the FSK server to route the GPRS message to the control room</p>	<p>Make sure that the SIM card is capable of connecting to the GPRS network</p> <p>Make sure that the programming of the Server GPRS settings are correct</p> <p>If it is a pay as you go SIM card, make sure that it has available funds loaded onto the SIM card</p> <p>The GSM network may be experiencing technical problems. Contact the GSM provider</p>

4. PROGRAMMING

4.1 On-Board Push Button

The on-board push-button can be used to:

- Change the operation of the serial port (select the alarm panel). Refer to section 3.5
- Change the default SIM card to be used (available on dual SIM units only). Refer to section 3.4
- Select Programming Mode

4.2 PC based Programmer

The FSK Falcon configuration software utility is a Windows® based programmer which is used as the primary means of programming the Falcon.

The Falcon programmer requires a PC running Windows XP or Windows 7 with an available COM Port (a USB to Serial Adapter can also be used). The FSK USB programming cable is required to program the Falcon (see Appendix C)

To program the unit:

- Push and hold down the push button for more than 7 seconds.
- The display will now show **Pr** to indicate that it is in programming mode



- The unit will stay in this mode for 20 seconds to allow programming
- If the unit exits programming mode, repeat the process

4.3 SMS Programming

Many of the settings on the Falcon can be changed by sending a SMS to the unit. The SMS commands are shown in Appendix A.

APPENDIX A - SMS COMMANDS

Activate the outputs on the Falcon

The default Keywords are shown.

KEYWORD	DESCRIPTION	NOTES
1On	Turn output 1 on (Relay 1)	Not case sensitive
1Off	Turn output 1 off (Relay 1)	Not case sensitive
2On	Turn output 2 on (Relay 2)	Not case sensitive
2Off	Turn output 2 off (Relay 2)	Not case sensitive

Change the default SIM card to be used

Only available on Falcon units fitted with two SIM cards.

Use this command with care as it will stop the Falcon from functioning if a SIM card is selected which is not installed or activated.

KEYWORD	DESCRIPTION
SELECT SIM 1	Select the first SIM card as the default
SELECT SIM 2	Select the second SIM card as the default

APPENDIX B - SERIAL INTERFACE

The Falcon uses a standard interface cable along with an adapter to connect to various alarm panels.

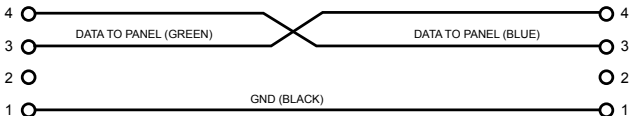
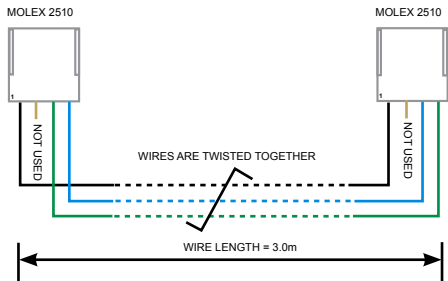
The cable ends are interchangeable.

The following adapter boards are available:

ALARM PANEL	ADAPTER
Rhino	No adapter
Texecom premier	Texecom/IDS (5 pin)
IDS	Texecom/IDS (5 pin)
Paradox	Paradox (4 pin)
Pima	Pima (4 pin)

VERY IMPORTANT: Plug the adaptor board into the Alarm Panel and **NOT** the Falcon Unit

Falcon Serial Interface Cable



TEXECOM SERIAL INTERFACE

Falcon to Texecom Premier Serial Interface Cable

Use the serial interface cable along with the adapter board marked TEXECOM/IDS

Programming of the Texecom Premier two COM Port Alarm Panel

Program the Falcon to use the Texecom Serial Alarm Interface (Input / Output)

The Falcon is connected to COM1 on the Alarm Panel

The following programming is required on the Texecom panel:

MENU 71	0 - TEL NO 22 (YES)
	1 - ACC CODE 3456 (YES)
	2 - PROTOCOL TYPE = 4 (CONTACT ID)
	3 - DIALER ATTEMPTS = 1
	4 - PARTITION (SELECT PARTITIONS 1 AND 2)
	5 - SELECT REPORTING OPTIONS
MENU 70	1,2,5,8 ON (ENABLE COMMUNICATOR)
MENU 76	OPTION 5 – COM 1 DEVICE TYPE ENTER '3' – ComIP PROTOCOL
	OPTION 6 – COM IP ADDRESS/PORT ENTER '192 168 001 254 10000' (spaces for readability)
	OPTION 8 – COM IP SUBNET MASK ENTER '8'

Uploading and Downloading the Texecom Premier Alarm Panel

The Texecom premier alarm panel can be uploaded and downloaded using the Texecom WinTex software (available at www.texe.com). Please contact the local Texecom agent for more details.

Additional Software is available from FSK Electronics which will be needed to connect to the Alarm Panel (via the Falcon). Please refer the **FSK APN USER GUIDE**.

PARADOX SERIAL INTERFACE

The Falcon can send alarms received from the serial port of the Paradox E65, MG5050 and SP6000 alarm panels.

Plug the adapter marked PARADOX into the serial port on the Paradox alarm panel. Plug the other end into the Falcon serial port.

Events Sent By the Paradox Alarm Panel

The table below shows the Contact ID codes which will be sent in response to the messages received from the Paradox E65/MG5050 and SP6000 alarm panel serial ports.

PARADOX		CONTACT ID		
EVENT GROUP NO	SUB-GROUP NO	CONTACT ID CODE	EVENT (1) RESTORE (3)	ZONE/ USER
06 = Non Reportable Event	00 = Telephone Line Trouble	350	1	0
29 = Arming with User	01 - 32 = User Number	400	3	USER
30 = Special Arming	03 = Partial Arming	456	3	0
	05 = Arm Keyswitch	409	3	99
	06 = Arm Keyswitch	456	3	0
31 = Disarming with User	01-32 = User Number	401	1	USER
32 = Disarming after Alarm with user	01-32 = User Number	401	1	USER
34 = Special Disarming	N/A	401	1	USER
	05 = Disarming with Keyswitch	401	1	USER
36 = Zone In Alarm	01 to 32 = Zone Number	130	1	ZONE
37 = Fire Alarm	01 to 32 = Zone Number	110	1	ZONE
38 = Zone Alarm Restore	01 to 32 = Zone Number	130	3	ZONE
40 = Special Alarm	00 = Panic non-medical emergency	120		0
	01 = Panic medical	100	1	0
	02 = Panic Fire	110	1	0
	05 = Duress Alarm	120	1	0
42 = Zone Tampered	01-32 = Zone Number	380	1	ZONE

PARADOX		CONTACT ID		
EVENT GROUP NO	SUB-GROUP NO	CONTACT ID CODE	EVENT (1) RESTORE (3)	ZONE/ USER
44 = New Trouble	01 = AC Failure	301	1	0
	02 = Batt Fail	302	1	0
	04 = Bell Current Overload	320	1	0
	05 = Bell disconnected	320	1	0
	08 = Fail To Communicate Tel 1	350	1	1
	09 = Fail to Communicate Tel 2	350	1	2
	10 = fail to Communicate Pager	350	3	3
	11 = fail to communicate voice	350	3	4
45= Trouble Restore	01 = AC Failure Restore	301	3	0
	02 = Batt Fail restore	302	3	0
	04 = Bell Current Overload Rest	320	3	0
46 = Bus/ wireless module new trouble	01 = tamper Trouble	137	1	0
48 = Special (Partition 1 only)	01 = Reporting Test	602	1	0
	04 = Installer Entered Prog Mode	627	3	0
	05 = Installer Exited Prog Mode	628	1	0
	07 = Maintenance Exited Prog Mode			

49 = Low Battery on Zone	01-32 = Zone Number	302	1	ZONE
50 = Low Battery on Zone Restore	01-32 = Zone Number	302	3	ZONE
51 = Zone supervision trouble	01-32 = Zone Number	147	1	ZONE
52 = Zone Supervision restore	01 to 32 = Zone Number	147	3	ZONE
53 = Wireless Module Sup Trbl		147	1	ZONE
54 = Wireless Module Sup Rest		147	3	ZONE
55 = Wireless Module Tamper Trbl		144	1	ZONE
56 = Wireless Module Tamper Rest		144	3	ZONE

PIMA SERIAL INTERFACE

Plug the adapter marked PIMA into the serial port on the Pima alarm panel. Plug the other end into the Falcon serial port.

The Pima serial interface will send the standard FSK Contact ID alarm codes.

APPENDIX C - PROGRAMMING CABLE AND SOFTWARE

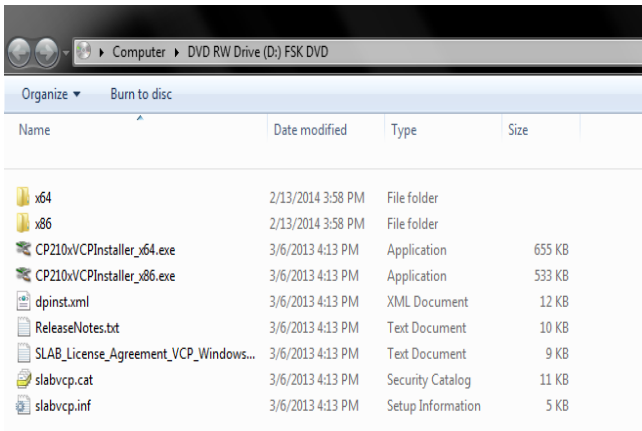
The Falcon is programmed using the FSK USB Programming Cable and FSK DVD kit which contains the programming software (FSK Item Code 40027) .



Installing the Drivers for the FSK USB to UART Programmer

Install the drivers before plugging the USB Programmer into the computer's USB port

In the FSK DVD, navigate to the following directory:
\\FUSA FSK USB Serial Adapter Drivers



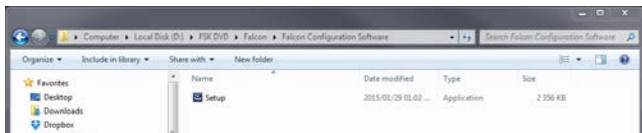
For 64 bit operating systems, double click on
CP210xVCPInstaller_x64.exe

Otherwise, double click on
CP210xVCPInstaller_x86.exe

Follow the instructions on **DRIVER** software to install

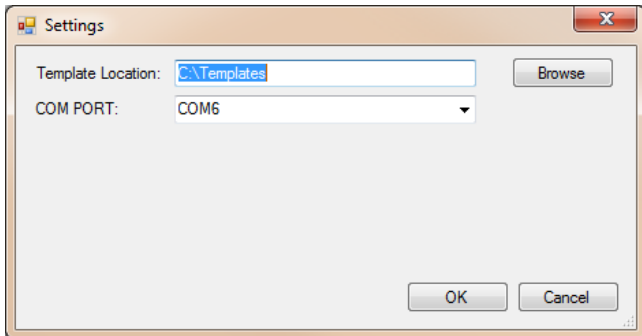
Installing the Falcon Configuration Software

On the FSK DVD, navigate to the following directory:
\\Falcon\Falcon Configuration Software



Double click on the **setup.exe** application and follow the instructions.

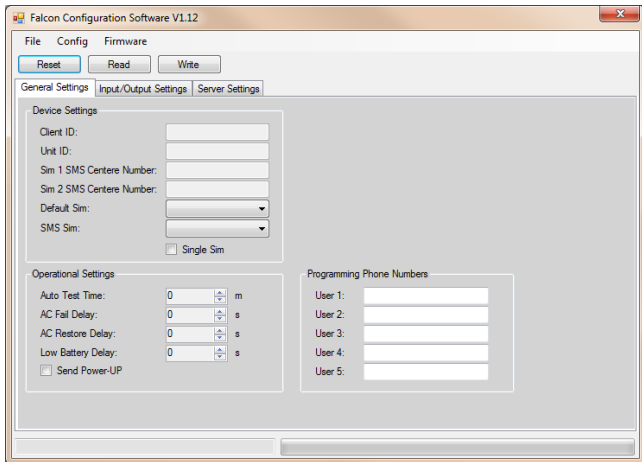
Upon opening the software for the first time it will require an initial setup. The following window will pop up.



Select the folder where the templates will be saved for Falcon devices.

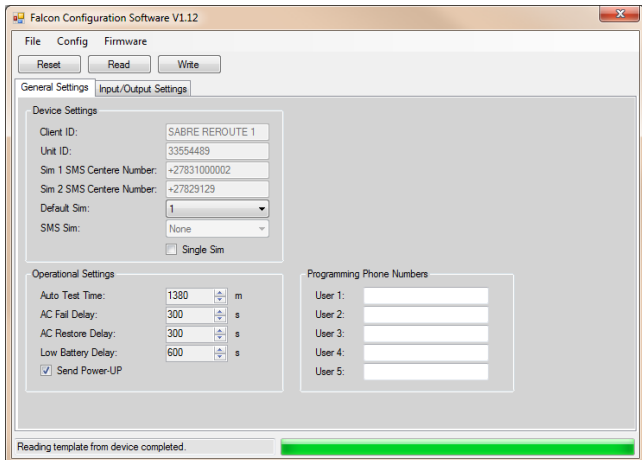
Select the COM port that will be used to communicate with the device.

From there the following window will appear.

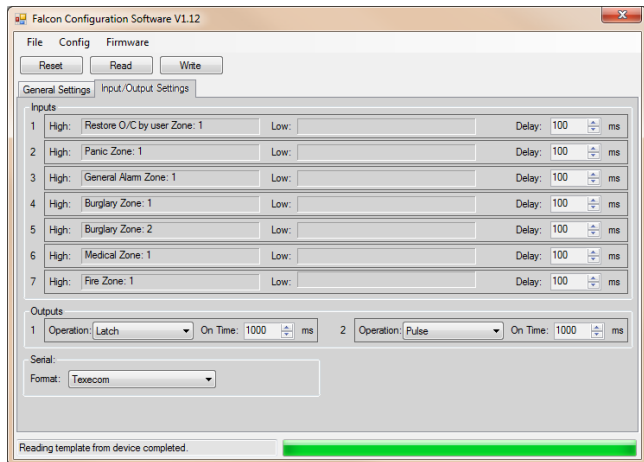


Connect the Falcon to the correct COM port and click on the read button.

Upon completion the window will look like this. All the settings that are greyed out cannot be changed.



All the Input and Output settings can be changed by the clicking on the Input / Output Settings Tab.



TROUBLESHOOTING

www.fsk.co.za

14 Richard Road, Industria North, Johannesburg, South Africa

T: +27 (0) 11 477 2600

E: sales@fsk.co.za

CALL CENTER: 0861 105 962

www.fsk.co.za

14 Richard Road, Industria North
Johannesburg, South Africa

T: +27 (0)11 477 2600
E: sales@fsk.co.za



*Innovative technology
by FSK Electronics*

CALL CENTER: 0861 105 962