

Document Control

Date	Doc Version	Change
May 2009	1	1 st release of document

1. OVERVIEW

1.1 Product Features

- Supports dual-mode voice access (Mobile network GSM and Telecom PSTN).
- GSM Fax function
- GSM data function
- Supports traditional PBX access
- Dynamic echo cancellations to ensure the perfect voice quality
- Off-power bypass functions (when power is off, system switches to PSTN network automatically if PSTN connected)
- Modem mode (Access the Internet by GPRS through the PC serial port)
- Supports the phone book stored in the SIM card or in the terminal
- Intelligent routing (Able to set up dialing regulation to route voice or fax intelligently)
- Incoming caller display function
- Auto-dialing function
- Internal calling divert function
- Real time displaying of wireless network signal power
- Software upgrade
- Battery back-up (if supplied)

1.2 Safety

Guidelines for Safe Use of the CellFax Plus:

Please read this information before connecting the CellFax. The instructions are intended for your safety. Please follow these guidelines.

Recommendations for safe use of the product:

- Do not expose the product to liquid or moisture
- Do not expose the product to open flames
- Do not attempt to modify the product
- Do not use the product near medical equipment without requesting permission from your treating physician or authorised medical staff
- Do not use the product when in, or around aircraft, or areas showing the sign "turn off two way radio".
- Do not use the product in an area where the potential explosive atmosphere exists.

Power Supply:

Connect the AC power supply adapter only to designated power sources.

Radio Frequency (RF) exposure and Specific Absorption Rate (SAR)

The CellFax Plus is a low power radio transmitter and receiver. When turned on it emits low levels of radio frequency energy. Governments around the world have adopted international safety guidelines. ICNIRP (International Commission on Non-Ionizing Radiation Protection) and IEEE (The Institute of Electrical and Electronic Engineers) have developed guidelines to establish the permitted levels of radio wave exposure for the general population. Specific Absorption Rate (SAR) is the unit of measurement for the amount of radio frequency absorbed by the body when using a mobile phone. For GSM terminal equipment an MPE calculation is used to determine the safe working distance from the Terminal during normal use. The values stated are determined at the highest certified power levels in laboratory conditions. Actual radiated levels during normal use may be well below this value. This is because the RF transmitter is designed to work at minimum power where ever possible.

TelecomFM CellFax Plus meets the legal requirements of ICNIRP encompassed within the following standards:

The CellFax Plus complies with European standards EN50383:2003, EN 50392:2002 and EN50385:2002 and with Council Recommendation 1999/519/EC relating to human exposure to RF energy. In accordance with these standards and in order to maintain safe levels of exposure to RF Energy. The CellFax and its antenna, during use, must be placed at a distance greater than 13.5 CM from the human body.

1.3 Approvals Conformity

Declaration of Conformity

Applicant: TelecomFM Ltd.
Address: 895 Plymouth Road, Slough,
Berkshire, SL1 4LP, U.K.

Product: CellFax Plus

This equipment complies with the European R&TTE
Directive no. 1999/5/EC on radio and telecommunication
terminal equipment.

TelecomFM
May 2009

CE 1177

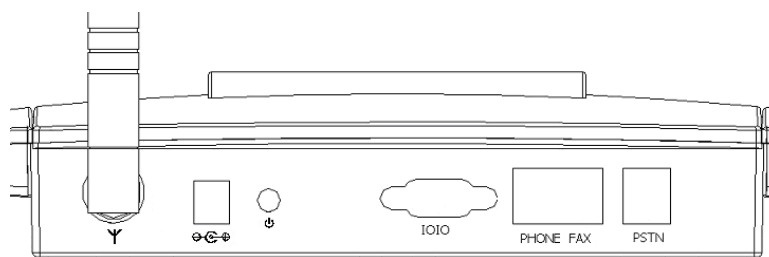


1.4 Battery operation (if supplied)

- 1 Do not connect anything onto the battery! This will invalidate any warranty and may cause malfunction or even injury.
- 2 Do not expose the battery to moisture, water, or fire. This will make the battery ineffective or unusable.
- 3 Please dispose of the battery in accordance with local rules and regulations.

2. INSTALLATION INSTRUCTION

2.1 Interface Description



Cellfax Plus Back panel

CELLFAX PLUS Back panel interface description:

Y Antenna port

⊖ ⊕ Power supply

⏻ Power button

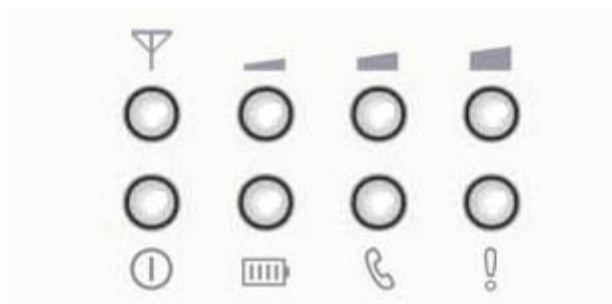
IOIO RS232 Serial Port

PHONE Phone port, connect to regular phone

FAX..... FAX port, connect to regular fax machine

PSTN..... External line port , connect to external phone line

2.2 Indicators (LEDs)



Indicators

There are 8 indicators on the front panel of the CellFax Plus, functioning as follows:

1.  **Power supply indicator**
 Power LED ON: DC12V power adapter connected
 Power LED Off: DC12V power adapter disconnected
2.  **Battery indicator**
 Battery LED ON: Battery is in use
 Battery LED Slow Flashing: Battery power is low
 Battery LED Off: Battery is not in use

3.  **Voice /Fax /Data indicator**
Voice/Fax/Data LED ON: Call in progress
Voice/Fax/Data LED Flashing: Inbound call in progress
Voice/Fax/Data LED Off: Not in use
4.  **Start up status indicator**
Start up LED ON: Cellfax Plus is initialised successfully
Start up LED Slow Flashing: Cellfax Plus is initialising
Start up LED Quick Flashing Indicates a start-up failure
5.  **GSM Signal Status Indicator**
GSM signal LEDs ON: identifies Signal Strength
GSM signal Flashing once per second: identifies GSM general errors
GSM signal Flashing 10 times per second: identifies GSM serious error

GSM general errors (indicated by the signal LEDs)

LED flashing slowly On/Off is defined as "1"

LED Off is defined as "0"

110: No SIM card

010: Network Registration failure

111: GSM/GPRS is in Modem mode

011: PIN code required

GSM serious errors (indicated by the signal LEDs)

LED flashing Quickly On/Off is defined as "1"

LED Off is defined as "0"

001: Lock Base Station

010: Lock the service provider

011: PIN code error

100: IMSI error

101: Require PUK

110: GSM/GPRS baud rate error

111: other errors

2.3 Hardware Installation Steps

1. Unscrew the screw from the SIM cover on the underside of the Cellfax Plus and remove the SIM cover.
2. Slide the SIM latch open and insert a SIM card making sure the gold contacts of the SIM touch the gold contacts of the SIM holder.
3. If your Cellfax Plus unit was supplied with a Battery, then push the 3 pin male connector found on the Battery into the female connector found in the housing of the SIM holder, making sure you line up the connectors correctly.
4. Place the Battery in the space allocated and then reattach the SIM cover. Replace the screw.
5. Connect a regular telephone into the socket marked 'Phone' indicated on Cellfax Plus back panel.
6. Connect a Fax machine into the socket marked 'Fax' indicated on Cellfax Plus back panel.
7. *(optional)* Connect a landline to the socket marked 'PSTN' on Cellfax Plus back panel.
Caution: Do NOT plug a landline into the "Phone socket" as this may cause damage.
8. Connect the antenna to the socket marked "Y" on Cellfax Plus back panel.
9. Plug one end of the power adapter into the power socket and the other end into the "12VDC" power interface indicated on the back panel.

To turn the CellFax Plus ON: Press the power button to turn on. The LEDs    , , , and  (if fitted) will come on for approximately 6 seconds then go out leaving the Status indicator  flashing while initialising. Once the Status indicator and GSM signal status LEDs are lit the device is ready to use.

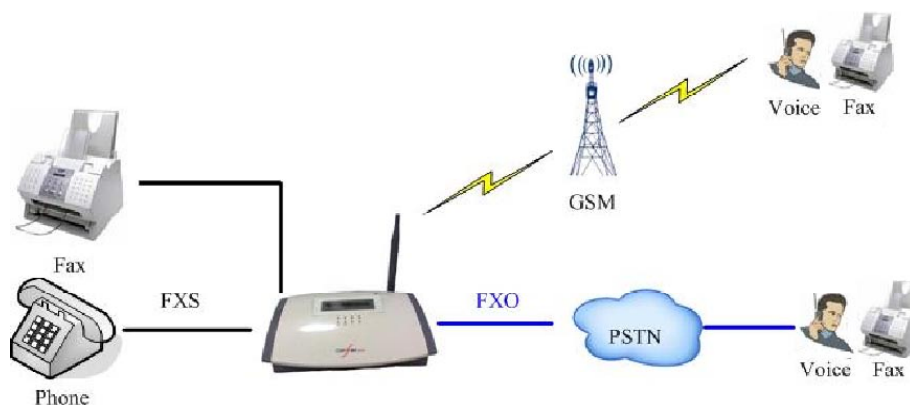
NOTE: If the GSM signal LEDs start to flash then refer to GSM errors above.

NOTE: If batteries are fitted then Charging Times are: 12 hours for the first time, 8 hours thereafter.

To turn the CellFax Plus OFF: Press and hold the power button for 3 seconds; release the power button, the Power and Network indicators turn off immediately.

3. APPLICATIONS

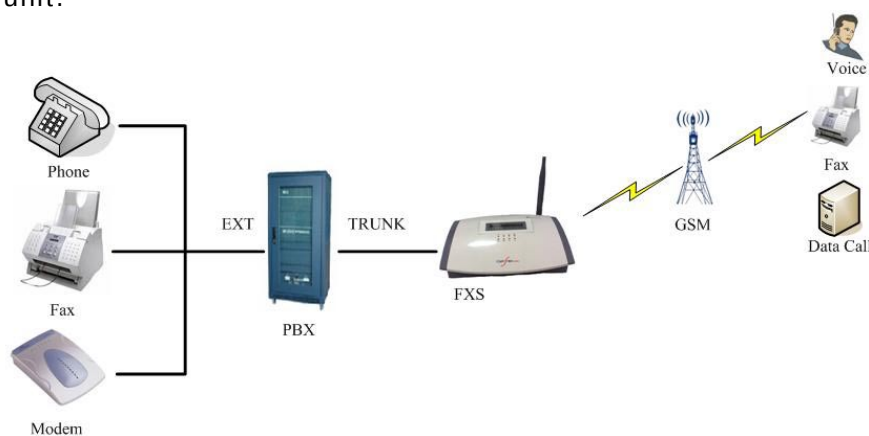
31 Mode (#*1*1# with no sim) – Standalone



Voice /Fax standalone mode application

32A Mode (#*1*2# with no sim) – PBX Trunk Connection

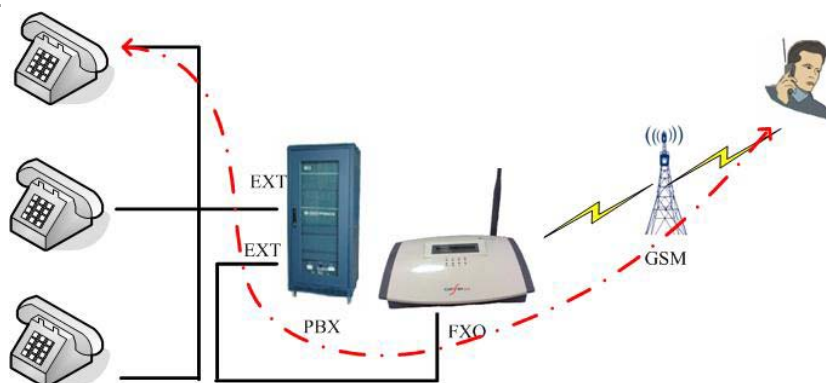
When connecting to the PBX in this mode you are required to connect to the Phone port on the back of the unit.



PBX relay mode application

32B Mode (#*1*3# with no sim) – PBX Extension Connection

When connecting to the PBX in this mode you are required to connect to the PSTN port on the back of the unit.



PBX extension access mode application

4. OPERATING INSTRUCTION

4.1 Telephone Function

4.1.1 Making a phone call

1. Lift up the handset; you will hear a dialing tone.
2. Dial the telephone number; the system will dial your number automatically.
3. When the called party answers voice communication is established
4. Clearing down the handset will hang up the call.

4.1.2 Receiving a phone call

1. The telephone will ring and the PHONE  indicator will flash indicating an incoming call. Lift the handset and start talking.

4.1.3 Call Waiting and Three Parties Conference Function

This device supports GSM Call Waiting and three parties conference function

Note: Please make sure these services are available on the Network SIM you are using

We recommend that the phone you are using for Teleconferencing have the "R" and "#" buttons available.

During your call if you receive another call you will hear "Du, Du" tone. You now have the following options:

- To ignore the incoming call, take no action
- To reject the incoming call, press the R button and then press 0.
- To end the current call and answer the new call, press the R button and then press 1, or hang up the phone to end the current call, the phone will start ringing and the new call can be answered by picking up the phone
- To place the current call on hold and answer the new call, press the R button and then press 2. The speaker can also switch between both parties by pressing the R button and then pressing 2.
- During a conference call, the user can press the R button and then # to hold the current call. Dial the new number after hearing the dial tone.
- When the speaker talks with the new call, the former conversation will still be held. If the speaker wants to hold the three parties conference, press button R and then 3 to add the current conversation into the holding party. This sets the Teleconference
- Clearing down the handset will hang up the conference.

4.2 Fax function

4.2.1 Sending a fax

User can send a fax by attaching a regular G3 Analogue fax machine to the Fax port on the back panel of the Cellfax Plus unit.

*Note: Some older Fax machines cannot send the identification tone and the user must add the Command *01* before the number to prompt the system that this call is a FAX call.*

Note: the Cell-FAX does not support using voice and fax functions in the same call.

When sending a Fax press Start key immediately after dialing to set the mode to Fax.

4.2.2 Receiving a fax

User can receive a fax by attaching a regular G3 Analogue fax machine to the Fax port on the back panel of the Cellfax Plus unit.

The device supports two fax receiving mode: synchronous mode and asynchronous mode. the mode can be set using a keypad command (see section 4.4.2).

Note: Ensure that the SIM card in the unit has a separate Fax number for receiving faxes.

4.3 Data Function

User can transmit data by attaching a regular Analogue Modem to the phone port of the Cellfax Plus

Alternatively the Cellfax Plus can be attached to a PC via the Serial port using the DB9 to DB9 serial cable. This will allow the PC to communicate with the Cellfax Plus as a Standard Modem and also to use the GPRS features of the unit.

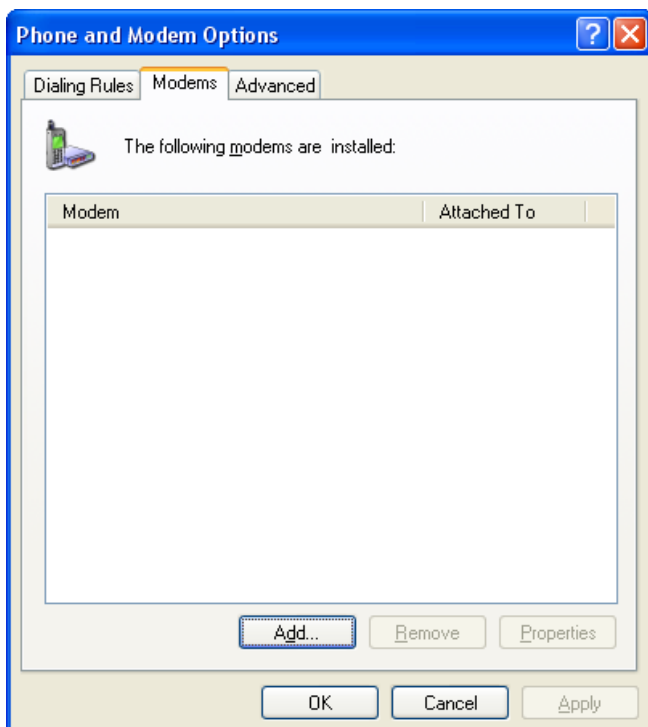
To set up your PC to connect to the Cellfax Plus unit via the serial port use the following instructions:

4.3.1 Installing the Modem

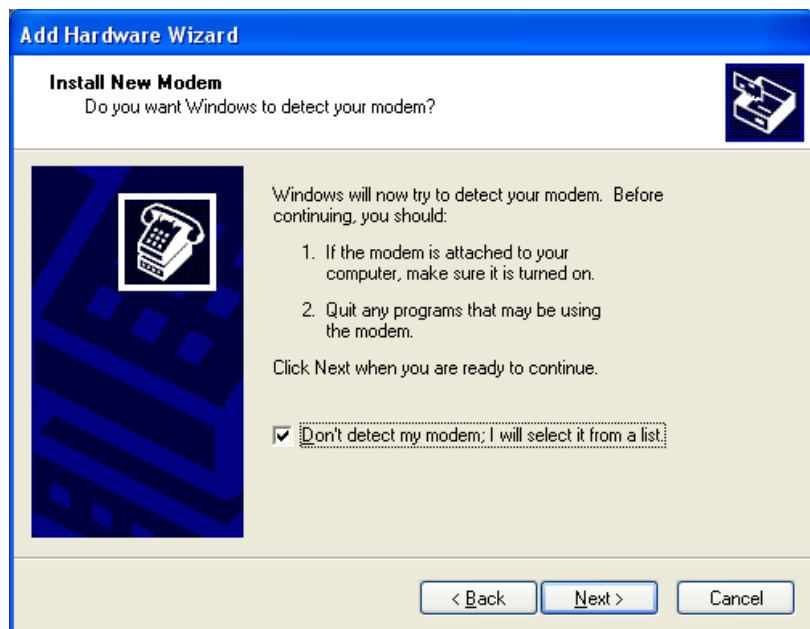
From the Start Menu, click *Control Panel*



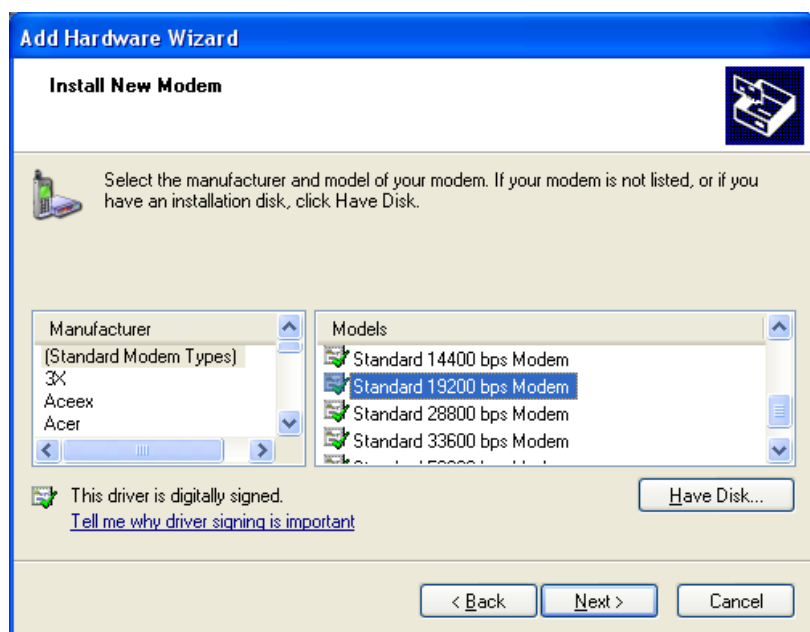
Note: If the screen displayed differs to that shown here click *Switch to Classic View*
Double click *Phone and Modem Options*



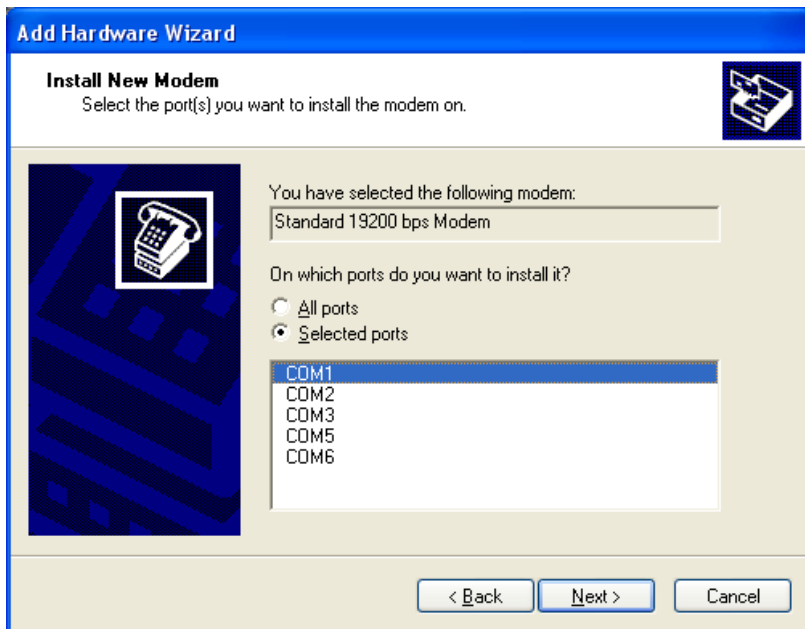
Select the Modems Tab
Click *Add...*



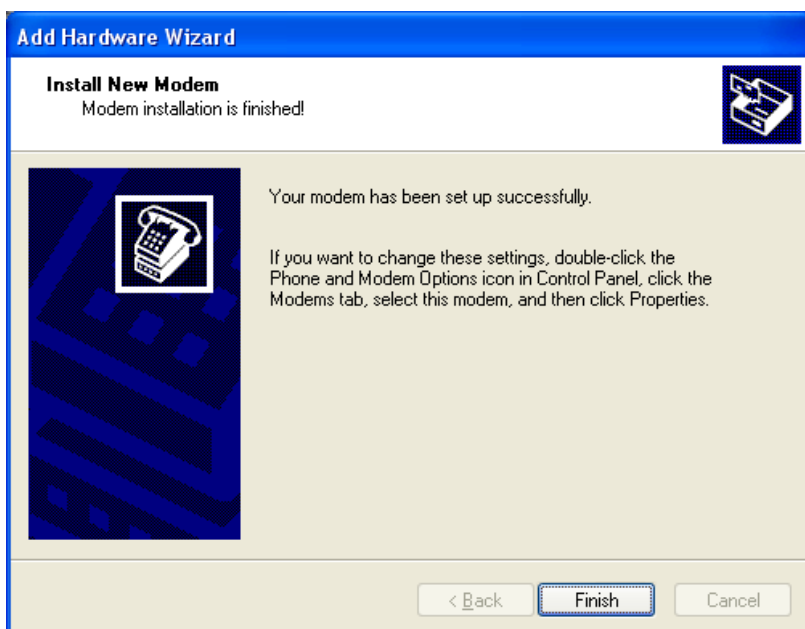
Select *Don't detect my modem, I will select it from a list*
Click *Next*



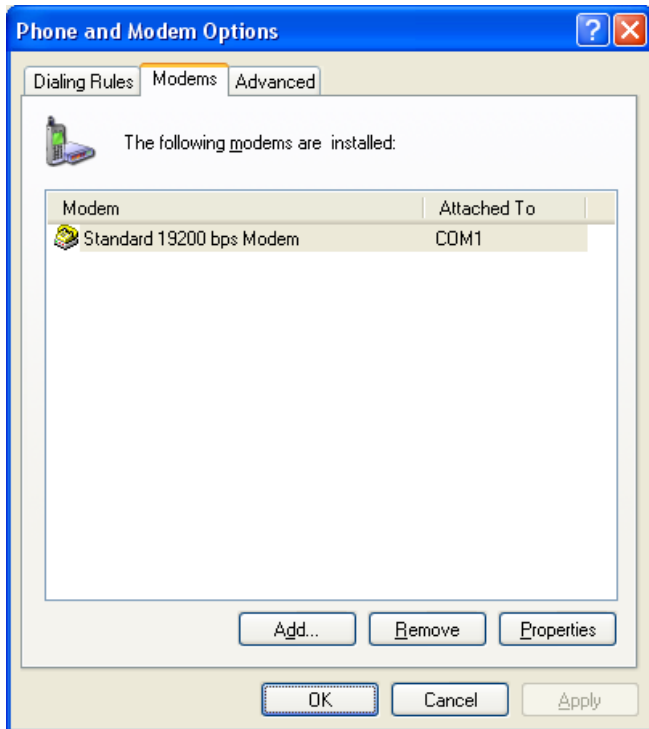
Ensure that *Standard Modem Types* is selected on the left and click on *Standard 19200 bps Modem* on the right
Click *Next*



Select the serial port that the CELLFAX PLUS is attached to and click *Next*



Click *Finish*



Click **OK**

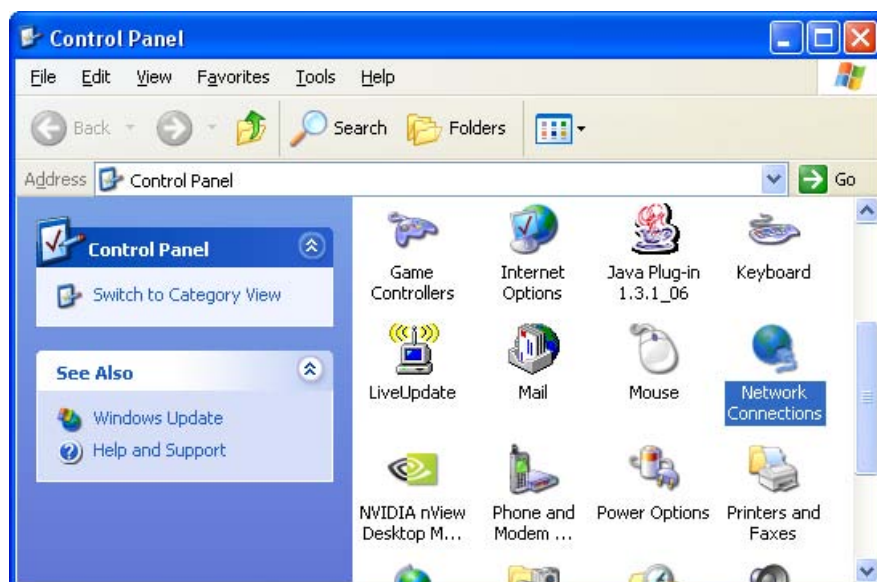
The CELLFAX PLUS is now installed as a modem on your PC. If you wish to use GPRS refer to section 4.3.4 for instructions on setting up for GPRS.

4.3.2 Connecting to the Internet

It is assumed that an Internet account has already been set up with a service provider. You will have been given:

- Telephone number for the dial-up connection
- Username and Password

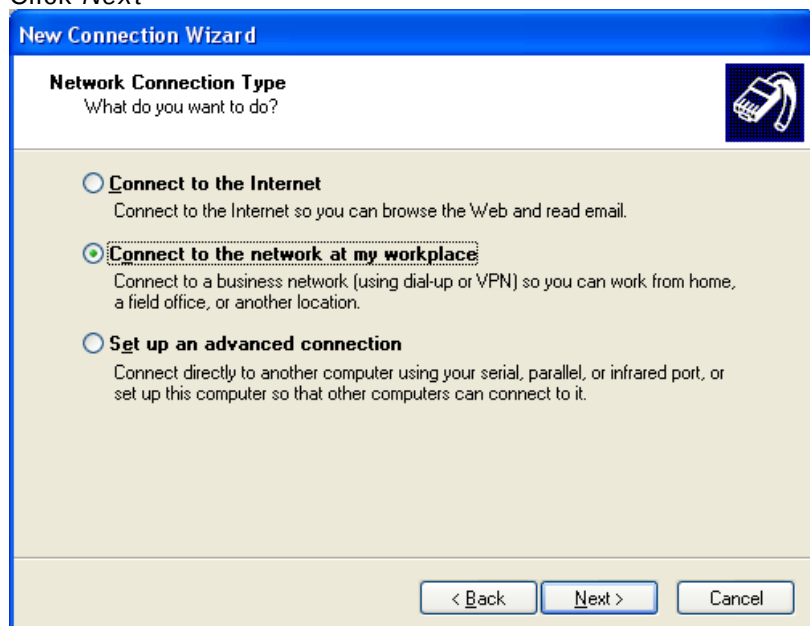
From the Start Menu, click *Control Panel*



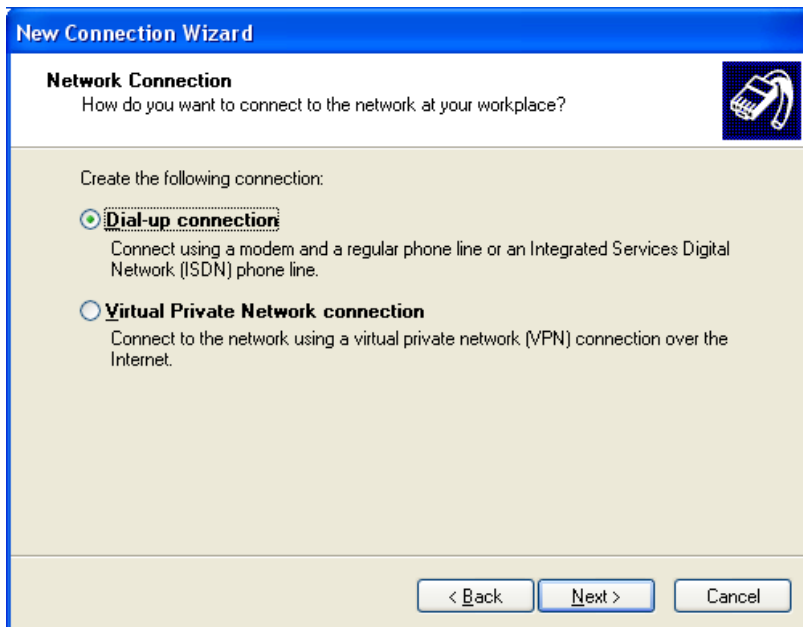
Double click *Network Connections*

Click *Create A New Connection*

Click *Next*

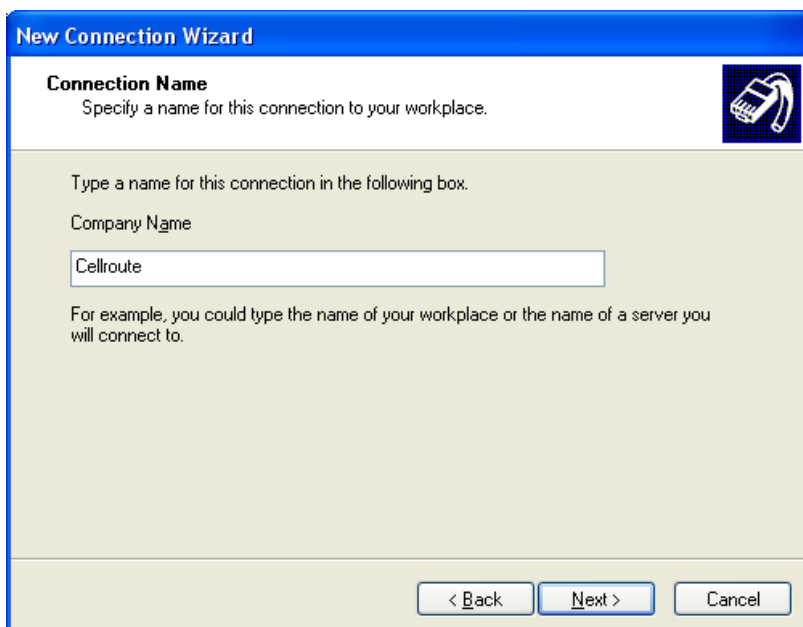


Select *Connect to the network at my workplace* and click *Next*



Click *Dial-up connection* and click *Next*

Click *Next*



Enter a name for the connection and click *Next*

Enter the phone number for your internet provider and click *Next*

Click *Finish*



Enter the Username and Password given to you by your Internet provider and click *Dial*

The computer will then connect to your Internet provider and log you on.

4.3.3 Disconnecting from the Internet

When on-line there is a computer icon in the bottom right corner of the screen that flashes whenever data is being transferred.



To terminate the connection, right click on this icon and click on *Disconnect*. The CELLFAX PLUS will then go off line and return to voice mode after a few seconds.

4.3.4 Setting up GPRS

The following are additional steps that need to be carried out in order to use the CELLFAX PLUS unit with GPRS.

To connect to the internet via GPRS the Cellfax Plus requires a GPRS enabled SIM Card and the following information must be provided by the Network Operator:

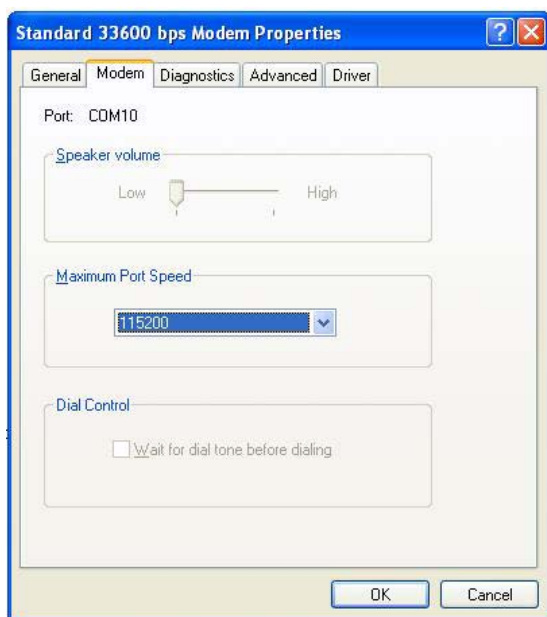
- Access Point Name (APN)
- Username
- Password

Increase port speed and add Advanced Settings:

Click *Start, Settings, Control Panel*

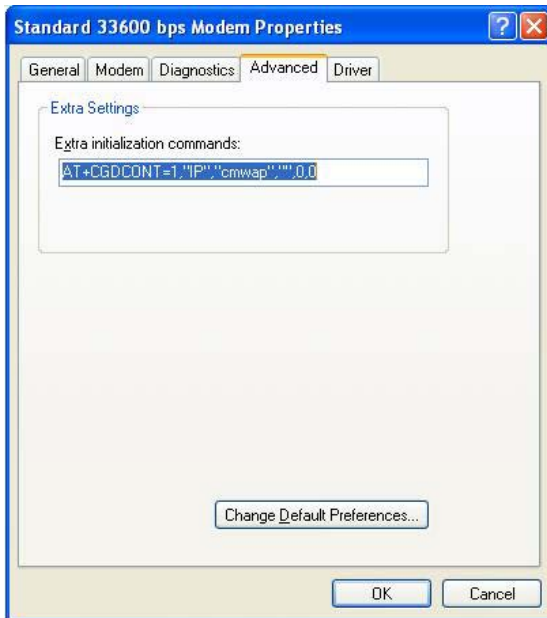
Double-click *Phone and Modem Options*

Click on the *Standard 19200 bps Modem* and click *Properties*



Change the *Maximum Port Speed* setting to **115200**

Click on the *Advanced* tab



Under Extra initialisation commands enter the following text exactly as it appears here:

AT+CGDCONT=1,"IP", "**APN**"

Where **APN** is the access point name is provided by the Network operator.

Click *OK* to confirm the settings

Click *OK* to exit the Phone and Modem options screen.

Configure connection:

Refer to the section 4.3.2 Connecting to the Internet for instructions on setting up an internet connection. Right-click the connection and choose *Properties*. Click *Configure* and change the modems Maximum Speed to 115200bps. Click *OK*.

When prompted for a Username and Password enter the Username and Password provided by the Network Operator. When prompted for a phone number use the following number for a GPRS connection exactly as it appears here:

991#**

4.4 Telephone Keypad Configuration Commands

User may enter commands by using telephone keypad of a telephone connected to the Phone socket on the back panel of the unit as follows:

1. Lift Receiver
2. Enter Command – a confirmation tone will then be heard
3. Replace Receiver

4.4.1 System Configuration

1. Set system date
Command `#*20*y*m*d#`
Set the system date, y means year, m means month, and d means day
2. Set system time
Command `#*21*h*m*s#`
Set the system time of the device, h means hour, m means minute and s means seconds.
3. Set work mode
Command `#*1*working mode#`
Set the work mode of Cellfax Plus: Working mode = 0 is voice mode. 1 is voice/fax mode. 2 is PBX Trunk mode. 3 is PBX extension mode
4. Set dial mode
Command `#*333*n#`
Set the terminal dialing mode, n=0 is audio dial mode; n=1 is pulse dial mode.
5. Set auto-dialing delay
Command `#*3*seconds#`
Set up dialing time and auto sending-out time upon completely entry of numbers, default setting 3 seconds.
<seconds> Set point range 1-20 sec
6. Set external line flash key delay
Command `#*4*<flashDelay>#`
Set external line flash key delay, default, 700ms delay
<delay> 0~2000 ms
7. Set GSM output voice volume
Command `#*53*volume#`
Set GSM output voice volume. Volume = 0 ~ 4.
8. Set overtime of Button R
Command `#*85*n#`
Set time of Button R, This feature is only available in the SIM card used by the open call waiting function effectively. Default, 2 seconds
<n> 1~5 seconds
9. Set FAX and Voice Ring both ports
Command `#*68*n#`
n= 0 for separate ringing (Fax calls ring on FAX port, Voice calls ring on PHONE port)
n= 1 for both to ring (Fax and Voice calls ring on PHONE port and FAX port).
10. Minute Prompt

Command `#*110*n#`

Description `n=1` the device will send a prompt tone per one minute during user's conversation. `n=0` Disable this function.

4.4.2 Fax mode configuration

1. Set fax receive mode

Command `#*950*n#`

Description `n=0` fax receiving mode is Synchronization; `n=1` fax receiving mode is Asynchronous. Default `n=0`.

2. Set fax send mode

Command `#*951*n#`

Description `n=0` fax sending mode is Synchronization; `n=1` fax sending mode is Asynchronous. Default `n=0`.

4.4.3 Call Diverts

1. Set the FXO call diversion type

Command `#*75*n#`

Description: Set the FXO call diversion type (`0`=divert always ; `1`=divert when no answer; `2`=do not divert)

2. Set the divert number from FXO to GSM

Command `#*71*Number#`

Description: Set the divert number from FXO to GSM. Number is the number which will be dialled from GSM port.

3. Set the call divert switch from GSM to FXO

Command `#*76*n#`

Description: Set the call divert switch from GSM to FXO (`0`=off `1`=on)

4. Set the call divert number from GSM to FXO

Command `#*77*number#`

Description: Set the call divert number from GSM to FXO. When the GSM to FXO call diversion is on, GSM dials this Number from FXO port.

4.4.4 Detect the caller ID identification function standard

1. Detect the Caller ID Standard

Command `#*99#`

Description: Detect the standard of supporting caller ID identification. After completing this command, the user should hang up the phone immediately. If the standard of displaying caller ID identification is compliant with local standard, then the display will show "0123456789". If the device can not display this character string, the user will need to change the current standard of caller ID identification by command `"#*81*n#"`.

2. Select Caller ID standard

Command `#*81*n#`

Description: Select the standard of caller ID identification.

(0=Off 1= ETSI DTMF 2= ETSI V.23 3= Bellcore) Default value is 3

3. Set keyboard command for transmitting caller ID during calling

Command `#*82*n#`

Description: Set keyboard command for whether or not to transmit caller ID during calling (0=No transmit 1= Transmit).

4.4.5 Set Serial port Mode

- 1 Set serial port mode

Command `#*83*n#`

Description: Set serial port mode (0=Off 1=CLI 2=MODEM).

4.4.6 SIM Card settings

- 1 Input PIN code

Command `#*86*n#`

Description: Input PIN code (n is the PIN code)

- 2 Modify PIN code

Command `#*88*old pin*new pin*new pin#`

Description: Modify PIN code. The "Old pin" is old PIN code, the "New pin" is new PIN code which must be entered twice.

- 3 Input PUK code

Command `#*89*PUK*PIN#`

Description: Input PUK code , PUK is input by user PIN is new PIN code input by user

- 4 Set PIN code function

Command `#*90*n*pin#`

Description: Set PIN code function (n=0 Disable PIN function n=1 Enable PIN function)

4.4.7 Hotline call number

1. Set the hotline call number
Command `#*65*hotline number#`
Description: set the hotline call number.
2. Set the hotline dialing time
Command `#*66*seconds#`
Description: Set the time from picking up to auto-dialing the hotline number.
Seconds = 0 disables the Hotline feature (default)
Seconds = 1 ~ 10 is the auto-dial time. If no number is dialled within the specified number of seconds after picking up the handset then the hotline number will be dialed.

4.4.8 Emergency call number

1. Set the emergency number 112
Command `#*672*n#`
n=1, all emergency numbers dialled will be 112 (default)
n=0 will not dial 112.
2. To add the emergency call number
Command `#*67*n#`
Set the emergency call number, n = emergency number up to 12 digits
Note: Before you can change the Emergency number you are required to remove 112 by entering command `#*672*0#`.
3. Delete all the emergency call number
Command `#*670#`
Description: deletes all the emergency number that was set.
4. Show all the emergency call number(require LCD)
Command `#*671#`
Description: Show all the emergency number that was set.

NOTE: Emergency Calls

This terminal operates using GSM signals, which cannot guarantee connection in all conditions. Therefore, you should never rely solely on the terminal equipment for essential communications such as medical or emergency services.

NOTE: Check with your Network provider if emergency services are available.

Command `(*|#|*#|**|##) 004*DN*BS#`
Description GSM diverting call under all terms

1. GSM outgoing call limiting
Command `(*|#|*#) 33*PW*BS#`
Description GSM outgoing calls are limiting
2. GSM international call restriction
Command `(*|#|*#) 331*PW*BS#`
Description GSM restrict the outgoing international call
3. GSM international call restriction except the homeland
Command `(*|#|*#) 332*PW*BS#`

Description GSM restrict all the international call except the homeland

4. GSM all incoming call restriction
Command (*|#|*#) 35*PW*BS#
Description GSM restrict all the incoming call
5. GSM all incoming call restriction roam
Command (*|#|*#) 351*PW*BS#
Description GSM restrict all incoming call during roaming
6. GSM enable/disable call waiting
Command (*, #, *#43#)
Description GSM enable/disable call waiting function

4.4.9 Technical Specification

Frequency Bands

- GSM 900/1800MHz

Transmission Power

- EGSM 900 Class4 (2W Peak)
- GSM 1800 Class1 (1W Peak)

Frequency Range

- EGSM 900 880~915 MHz 925~960 MHz
- GSM 1800 1710~1785 MHz 1805~1880 MHz

Power Consumption

- Average power consumption < 5W

Power Supply

- Output DC12V , 1000mA
- Input 100~240V AC; 50~60Hz

Port interface

- RJ11: Fax and Phone port (2RJ11), PSTN port (1RJ11)
- RS232: DB9 port
- GSM Antenna: TNC-female (50Ω)
- SIM card: 3V SIM card

Phone port

- Impedance 270Ω+(750Ω|150nF) default
- Open circuit voltage (OCV) 50V on-hook
- Feed current 25mA (off-hook)
- Ringing Load Supports integrating 3 phones (Max 3REN)

Working Environment

- Operating temperature 0~45
- Operating humidity: 20%~75%
- Storage temperature: -20~60
- Storage Humidity 5%~95%`

Dimensions:

- Length×Width×Height 20cm×15cm×4cm
- Weight: 0.5kg

Battery backup (if supplied)

- Lithium 3.7v/1700mAh
- Standby Time: 12-18 hours, depending on the Network condition, humidity and temperature.
- Airtime 2-3 hours, depend on the Networks (subject to humidity and temperature)
- Charging Time: 12 hours for the first time, 8 hours thereafter.

6. WARRANTY

1. The CellFax Plus is supplied with a 1 year return to base warranty which covers any defect in design or manufacture. No other warranties whatsoever are given.
2. TelecomFM shall accept no liability for any error or damages of any kind resulting from the use of this document or the equipment it relates to.
3. No responsibility is assumed by TFM for the use or reliability of the Cell-Fax Plus when used in a situation or with other equipment not supplied or specified by TFM.
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