PALLADIO USB

MODEM/FAX
MOBILE DATA SOLUTION

User's Guide
rev. 1.0   01/00

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PREFACE

The following installation rules should be respected in order to have the best working order of the equipment and for the user's safety

ENVIROMENTAL CONDITIONS

ENVIROMENTAL TEMPERATURE
from -5 a +45°C

RELATIVE HUMIDITY
from 20 to 80% n.c.

Rapid changes of temperature or humidity should be avoided.
This equipment, including cables, should be installed in an area free from:
- Dust, humidity, heat from direct sun light.
- Objects which irradiate heat. These could cause damage to the container or other problems.
- Objects which produce a strong electtromagnetic field (loudspeakers, etc.)
- Liquids or chemical corrosive substances.

CLEANING THE TERMINAL
Use a clean and soft cloth. Wet the cloth with water or natural detergent if it is necessary to remove any stains. Never use chemical products such as petrol or solvents.

VIBRATIONS OR DROPPING
Caution against vibrations and dropping.

WARNING: This is a class A product.
In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

DECLARATION CE OF CONFORMITY

Digicom S.p.A. via Alessandro Volta 39 21010 Cardano al Campo -Varese-
declares that this product satisfies the basic requirements of
Electromagnetic Compatibility and Safety of the below indicated Directive:
- **89/336/CEE** of 3 May 1989 with subsequent modifications (Directive 92/31/CEE of April 28, 1992, Directive 93/68/CEE of July 22,1993 and Directive 93/97/CEE of 29 October 1993).
- **73/23/CEE** of February 19, 1973 with subsequent modifications (Directive 93/68 ECC of July 22, 1993).

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1. GENERALITY

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This operating manual describes the working and the installation procedure for **Palladio USB**.

Palladio USB is a GSM modem adapter to connect to the Internet, send and receive data/fax at 9600 bps using your GSM cellular phone and its proper supplied kit.

Be sure you got Palladio USB with the GSM kit suitable for your GSM phone.

Palladio USB has been projected to be connected to the USB port of your laptop, like Apple iBook, PowerBook and all Windows 98 laptops. Palladio USB is easy to install as it is Plug&Play and can be connected or disconnected also when the computer is on.

Minimum requirements for the full use of Palladio USB:

- 1 USB port free on your laptop
- Mac/OS 8.6 or later (Mac/OS 9.0 recommended)
- Windows 98
- One of the supported GSM cellular phones:
  Nokia: 61xx/51xxx
  Ericsson: T18s, 8xx/7xx/6xx
  Nec: DB 4000/2000/500

Visit http://www.digicom.it for updates

As for Palladio USB installation, refer to the section about your operating system.

As for the communication programs, refer to their operating manual.

1.1.   TECHNICAL FEATURES

- Asynchronous Tx: from 300 to 9600 bps
- Modem section, modulation standard: V.21, V.22, V.22bis, V.32
- Fax section: modulation standard: V.27ter, V.29 Group3 Class1
- AT commands with autobaud (autospeed and format) up to 115200 bps
- Non volatile memory to store custom setups
- Autocall and autoanswer
- Automatic selection through command
- Error correction: MNP, RLP and V.42
- Data compression: MNP5 and V.42bis
- Fax emulation

2.   INSTALLATION

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2.1.   HARDWARE INSTALLATION

Remove the modem from its package and check it is OK. Proceed in accordance with the following instructions:

1. Connect the miniDIN (6 pins) cable to the Palladio USB socket: be careful to the right insertion. In any case, a mechanical key is present on the socket to avoid an incorrect insertion.

Picture 1
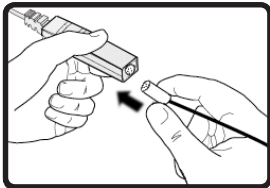
2. Connect the cable for your GSM phone.

Attention: In order to be able to send data and fax with your GSM phone, the services must be enabled by your GSM Telecom Provider.

Picture 2
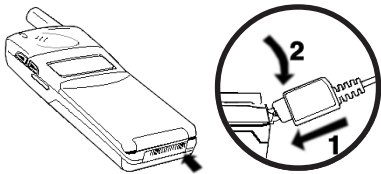
3. Connect the USB cable to the USB socket on your Computer. If you have any problems identifying the USB socket on your Computer, refer to the User's Manual of your PC.

Picture 3

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2.1
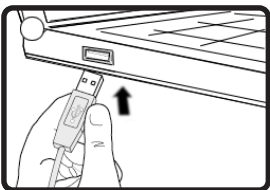
2.2. SOFTWARE INSTALLATION - WINDOWS®

Before starting with the software installation, please read the file Readme.txt on the Floppy Disk or the CD ROM included with the product package.
This file contains the complete installation procedure and more details about the different versions of Windows® 98.
The following sections describe the standard installation of the software driver for your modem using Windows® 98.

1. After the hardware installation, Windows® 98 detects automatically the presence of the new USB hardware.

2. Click **Next**

3. Select **Search for the best driver** for your device and click **Next**.

4. Select Floppy disk drivers.

Note: in case the floppy disk is not available, select Specify a location click Browse and look for the directory Driver/USB/Win98/Palladio USB in the CD-ROM included in the package.

5. Click **Next**.

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6. Click **Finish**.

7. Click **Next**.

8. Select **Display a list of all the......**

9. Click **Next**.
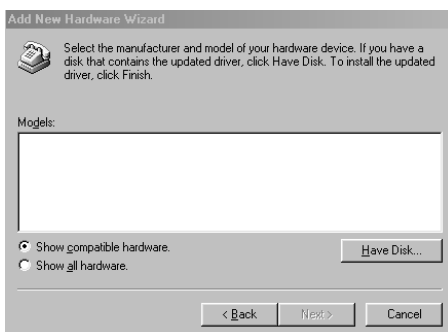
10. Select **Show compatible hardware**.

11. Select the driver you need in accordance with the cable available.

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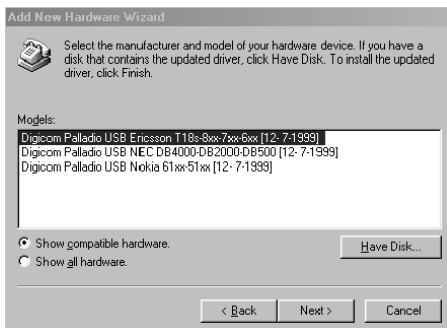
12. Select the driver and click **Next**.

13. Select **Next**.

14. Select **Next**.

15. Click **Finish** to complete the installation.

16. You can check the installation of your Palladio USB from the **Control Panel icon Modem**.

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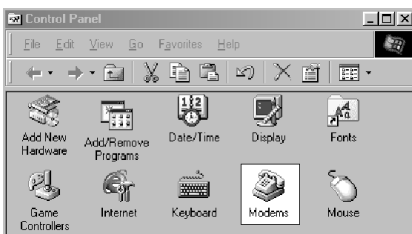
17. Select
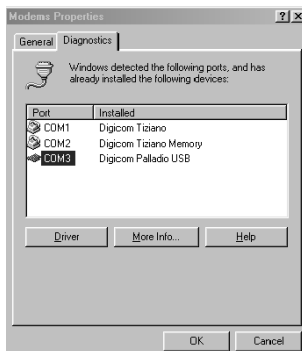
the label Diagnostic and click More Info.
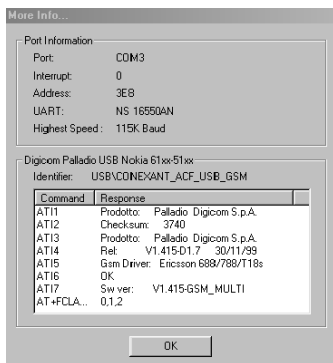
Note: The response to the command ATI5 could be different from the example

18. Close the Control Panel: you are ready to use your Palladio USB.

2.2.1. *HOW REMOVE PALLADIO USB SOFTWARE*

1. From the Start Menu select **Setting Control Panel**,
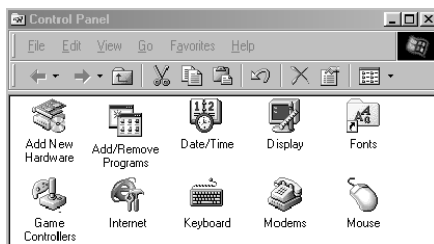
2. Select **Digicom Palladio USB** select **Add/Remove**.
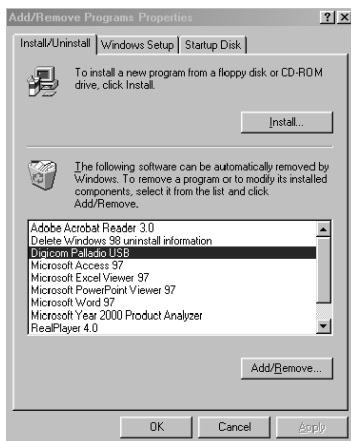
3. Clic **OK** to confirm.

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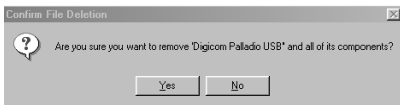
4. Click **Yes** to finish the removal.

2.2.2. HOW TO USE PALLADIO USB WITH NON TAPI APPLICATION

Palladio USB can work with data/fax non-TAPI application as WinPhone or others. In this case you need to select the correct GSM driver using the utility SetGSM (rel 2.0 or later) available in the CD-ROM included in the package.

Run SetGSM, it detect automatically the hardware installed scanning the serial ports.

Once detected the Palladio USB you can select the right driver for your GSM phone.
The drivers available at the time of this document are:
- Nokia serie 61xx/51xx
- Ericsson serie T18, 8xx, 7xx,6xx
- NEC DB4000, DB2000, DB500

For updated list of driver available, please, visit the Digicom web page at:
http://www.digicom.it/english/products/tables/macgsmusb.htm

2.3. SOFTWARE INSTALLATION - MACINTOSH®

After the hardware installation, the MacOS detect automatically the new presence of the new hardware.

1. If the new device is detected the following information window will appear:

> The software needed to use the USB device "Palladio USB " cannot be found. Please refer to the device documentation to install the necessary software.
> If you do not install the software, you may want to remove the device to prevent this dialog from reappearing.
>
> OK
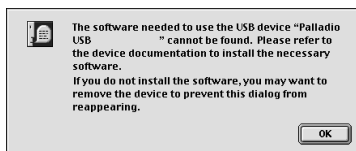
2. Click **OK** and disconnect the modem from the computer's USB port.

3. Insert the CD-ROM included in the package: look for the folder **DRIVER/ USB/PALLADIO USB**, drag and drop the USBPalladio extension file to the **System folder**.

	Digicom_Mac		
🔒	25 items, zero K available		
Name	Date Modified	Size	K
▷ 📁 DOCUMENT	Thu, Oct 21, 1999, 4:04 PM	—	f
▽ 📁 DRIVER	Thu, Oct 21, 1999, 4:13 PM	—	f
▽ 📁 MAC	Thu, Oct 21, 1999, 4:05 PM	—	f
▷ 📁 ARA	Thu, Oct 21, 1999, 7:03 PM	—	f
▷ 📁 FREEPPP	Tue, Sep 28, 1999, 11:22 AM	—	f
▷ 📁 TIMBUKTU	Tue, Sep 28, 1999, 11:22 AM	—	f
▽ 📁 USB	Thu, Oct 21, 1999, 3:53 PM	—	f
📄 Apple License	Fri, Nov 17, 1995, 10:54 AM	16 K	S
▷ 📁 Botticelli	Thu, Oct 21, 1999, 12:56 PM	—	f
📄 Leggimi	Thu, Oct 21, 1999, 12:55 PM	16 K	S
▷ 📁 Leonardo	Thu, Oct 21, 1999, 12:56 PM	—	f
▽ 📁 Palladio	Thu, Oct 21, 1999, 12:56 PM	—	f
🔧 OpenTpt Serial Arbitrator	Tue, Feb 16, 1999, 2:20 PM	8 K	li
🔧 SerialShimLib	Thu, Feb 11, 1999, 1:00 PM	24 K	li
📄 USBPalladio	Wed, Oct 20, 1999, 3:05 PM	24 K	s
📄 Readme	Thu, Oct 21, 1999, 12:54 PM	16 K	S
▷ 📁 Tintoretto	Thu, Oct 21, 1999, 12:56 PM	—	f

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4. Click **OK** to confirm the copy.

This item needs to be stored in the
Extensions folder in order to be available to
the computer. Put "USBPalladio" into the
Extensions folder?

Cancel   OK
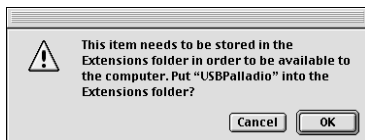
5. The following step is to copy ARA driver (CCL script).

6. Browse on the CD-ROM the folder **DRIVER/MAC/ARA/PALLADIOGSM**.

Name	Date Modified
Leggimi.txt	Thu, Oct 21, 1999, 5:04 PM
Palladio GSM ERICSSON 6-7/T18S	Thu, Oct 21, 1999, 4:45 PM
Palladio GSM NEC G9/DB5/DB2K	Thu, Oct 21, 1999, 4:52 PM
Palladio GSM NOKIA 2110	Thu, Oct 21, 1999, 4:52 PM
Palladio GSM NOKIA 3110/8110	Thu, Oct 21, 1999, 4:52 PM
Palladio GSM NOKIA 51X/61X	Thu, Oct 21, 1999, 4:52 PM
Palladio GSM SIEMENS S10	Thu, Oct 21, 1999, 4:53 PM
Palladio GSM SIEMENS S4	Thu, Oct 21, 1999, 4:53 PM
Palladio USB ERICSSON 6-7/T18S	Thu, Oct 21, 1999, 4:51 PM
Palladio USB NEC G9/DB5/DB2K	Thu, Oct 21, 1999, 4:46 PM
Palladio USB NOKIA 2110	Thu, Oct 21, 1999, 4:46 PM
Palladio USB NOKIA 3110/8110	Thu, Oct 21, 1999, 4:47 PM
Palladio USB NOKIA 51X/61X	Thu, Oct 21, 1999, 4:48 PM
Palladio USB SIEMENS S10	Thu, Oct 21, 1999, 4:49 PM
Palladio USB SIEMENS S4	Thu, Oct 21, 1999, 4:49 PM
Readme.txt	Thu, Oct 21, 1999, 5:04 PM

PALLADIOGSM
16 items, zero K available

7. Drag and drop the Palladio USB driver for your GSM phone (i.e. Ericsson
    T18) to the **System Folder** and confirm the copy.
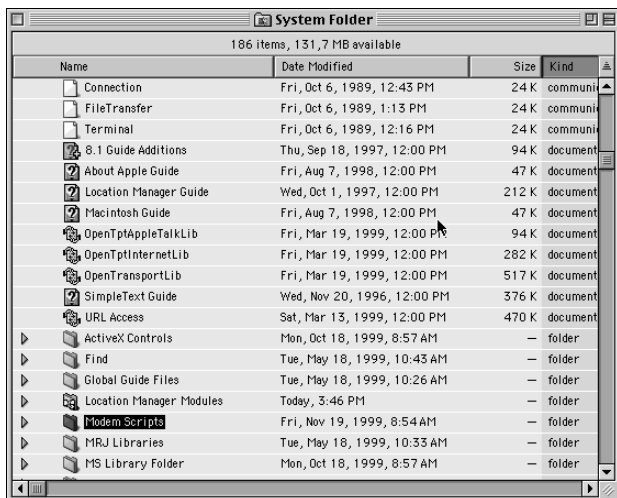
8. Close all and **reboot** the computer.

9. At the next boot Palladio USB will be initialized from the Operating System.
   If the initialization is OK, the red LED on Palladio USB will be ON.

Now some setting for Internet access in the Remote Access menu.

10. Select the menu **Apple/Control Panel/Remote Access**.

11. From the Menu bar select **RemoteAccess Modem**.

12. Select in **Connect via** the choice Palladio USB.

13. Select in the **Setup Modem** the driver previously installed.

14. Close all and **Save**.
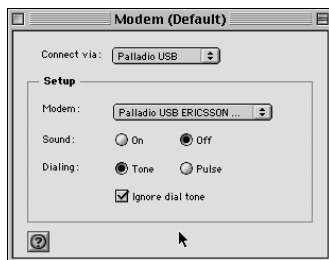
> ⚠ Save changes to the current configuration?
>
> [Don't Save]   [Cancel]   [Save]
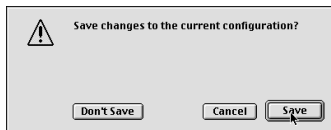
15. Select from the menu **RemoteAccess TCP/IP**.
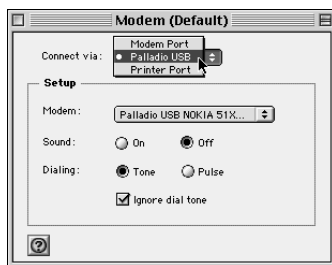
> **RemoteAccess**
> AppleTalk...
> DialAssist...
> Modem...
> **TCP/IP...**
> Activity Log   ⌘L
> Change Password...
> Dial Manually   ⌘D

16. Select in the field **Connect** via the choice **PPP**.

> TCP/IP (LAN Digicom)
>
> Connect via: [PPP]
> Setup
>   Configure: [Using PPP Server]
>
>   IP Address: < will be supplied by server >
>   Subnet mask: < will be supplied by server >
>   Router address: < will be supplied by server >
>
>   Search domains:
>   Name server addr.: 151.99.125.2
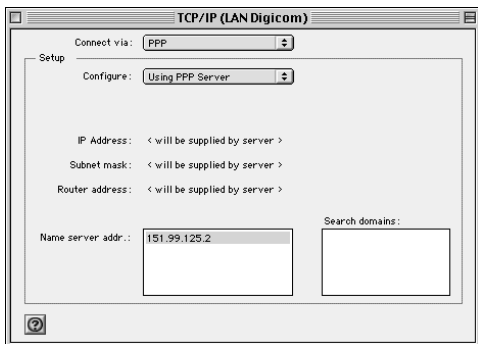
17. Close the TCP/IP window and **save** the changes.

18. Insert the right parameters for your Internet access: name (userID), password and telephone number to dial. For more details ask to your Internet Service Provider.

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19. Click on **Options** and verify the choice **PPP** in **Protocol Use Protocol**.
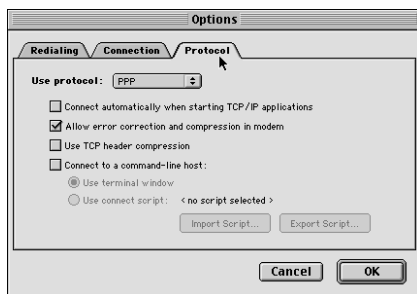
20. Click **OK**.

21. Select **Connect** to start the Dial: the telephone number dialed will appear on the display of your GSM phone.

Note: In order to be able to send data and fax with your GSM phone, the services must be enabled by your GSM Telecom Provider.

22. When the connection is done will appear:

Enjoy your surfing!

3.   MODEM AT COMMAND SET

3

Palladio USB digicom supports the AT command set to define the configuration, initiate or terminate modem communication, test the modem and the communication link. The modem will work in two basic operation modes: **command mode** and **data mode**.

Command mode is when the modem is not connected to another modem, therefore Off Line or in a idle condition. In this mode the modem will accept commands beginning with AT prefix.

Data mode is when the modem is connected to another modem, that is an On Line condition or functioning. In this mode all the characters sent from computer are interpreted as data and they are sent to the remote modem.

You may switch from data to command mode by entering an escape sequence. The default escape sequence is +++ there must have at least one second before and after being keyed. To go back into data mode simply type ATO.

Data Length

Each caracter of the AT command must be an ASCII code with any of the following format combinations:

START BIT	DATA BIT	PARITY	STOP BIT	TOT
1	7	1	1	10
1	8	0	1	10
1	7	0	2	10

The modem will accept even, odd, mark, or space.

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3.1. AT COMMAND SET DESCRIPTION

AT   Attention

All the characters following the letters AT are commands. In AT command mode the modem automatically detects the computer speed and parity format. The modem will response using the same speed and parity format of AT command.

ATA   Answer incoming data call

Causes the modem to go off hook and attempt a handshake in answer mode.

A/   Repeat last command

Causes the modem to repeat the last AT command. This command is neither preceded by AT and is not followed by CR.

ATD   Dial Command

0:9	Dial number.
*	DTMF digits.
#	DTMF digits.
A-D	DTMF digits.
T	tone dial.
S=n	Dial one of the four stored phone numbers (n=0-3) in the modem non volately memory (See &z Command)
!	flash.
,	pause.
L	recall the last number dialed.

ATE   Commands Echo

E0	Commands echo disabled.
● E1	Commands echo enabled.

ATH   Disconnection

H0	Modem disconnects.
H1	Modem connects to the line and remain in command mode for the time defined in S7.

ATI   Identification

I0	Maximum line speed.
I1	Product code.
I3	Product name.
I4	Firmware release.
I5	GSM driver enabled.

ATN   Automode enable

	N0	Automode detection is disabled.
●	N1	Automode detection is enabled.

ATO   Return On line

O0   On line state when during connection the modem is in command mode.
O1   Like previous plus equalaizer retrain.

ATQ   Quit result codes

● Q0   Display result codes.
Q1   No result code (quiet).

ATS   Read/write a register

Sn=x   Write value x to S Register n.
Sn?   Read value at S Register n.

ATV   Verbos result code

V0   Result code display as digit (short form).
● V1   Result code display as words (extention form).

SHORT	EXTENTION	SHORT	EXTENTION
0	OK	17	CONNECT 38400
1	CONNECT	19	CONNECT 115200
2	RING	40	CARRIER 300
3	NO CARRIER	46	CARRIER 1200
4	ERROR	47	CARRIER 2400
5	CONNECT 1200	48	CARRIER 4800
6	NO DIALTONE	49	CARRIER 7200
7	BUSY	50	CARRIER 9600
8	NO ANSWER	66	COMPRESSION:CLASS5
10	CONNECT 2400	67	COMPRESSION: V42 bis
11	CONNECT 4800	69	COMPRESSION: NONE
12	CONNECT 9600	76	PROTOCOL: NONE
13	CONNECT 7200	77	PROTOCOL: LAP
16	CONNECT 19200		

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ATW   Report at connection

	W0	When connected the modem displays:CONNECT and the digital rate.
	W1	When connected the modem displays: Line Speed, Error Correction Protocol (if any), Digital rate.
●	W2	When connected the modem displays:CONNECT and line speed.

ATX   Select Return Codes

X0   Enable return codes from 0 to 4.
X1   Enable all return codes.
X2   For compatibility only.
X3   For compatibility only.
X4   For compatibility only.
Store: S24 (bit 3) S22 (bit 4, 5, 6) Default=X1

ATY   Break disconnection

● Y0   Disable long space disconnect.
  Y1   Enable long space disconnect. In non-error correction mode or in buffer mode, the modem will senda long space of four seconds prior to going on-hook. In error correction mode, the modem wil respond to the receipt of a long space (a break signal greater than 1,6 seconds) by going on-hook.

ATZ   Reset and load user profile

Z0   Reset and load user profile 0.
Z1   Reset and load user profile 1.

MOD	MODULATION	POSSIBLE RATE bps
0	V.21	300
1	V.22	1200
2	V.22bis	2400 or 1200
9	V.32	9600 or 4800

AT%C Compression control

%C0   Compression disable.
%C1   MNP5 enable only.
%C2   V42bis enable only.
● %C3   MNP% and V42bis enable.

AT%E Autoretrain control

%E0   Autoretrain disable.
%E1   Autoretrain enable.
● %E2   Fallback/fallforward enable. Enable only in error corrector or buffer
mode.   **3.4**

AT%I Selection of the GSM phone

%I0	NEC DB4000, DB2000, DB500.
%I1	Nokia 2110, not supported.
%I2	Nokia 3110, Nokia 8110, not supported.
%I3	Ericsson 8xx, 7xx, 6xx, T18.
%I4	Siemens S10, not supported.
%I5	Siemens S4, not supported.
%I6	Nokia 61xx, 51xx.

AT&C Carrier detect option

&C0	Carrier detect always ON. When modem disconnects DCD (C109) goes OFF for 1 sec.; function 109 wink.
● &C1	Carrier detect is ON when remote carrier is present.

AT&D Data terminal ready option

&D0	DTR signal is ignored.
&D1	Modem return to Command Mode upon detecting ON to OFF transition on DTR.
● &D2	Modem hangs up and disables auto-answer upon detecting ON to OFF transition on DTR.
&D3	Modem reset upon detecting ON to OFF transition on DTR.

AT&F Factory configuration

&F0	Load factory configuration 0.
&F1	Load factory configuration 1.

AT&K Data flow control

&K0	Flow control disable.
● &K3	Hardware flow control (RTS/CTS) enable (Default for data modem modes).
&K4	Software flow control (Xon/Xoff) enable.
&K5	Software flow control (Xon/Xoff) in trasparent mode enable.
&K6	Hardware and software flow control enable (default for fax modem modes).

AT&Q Operating mode selection

● &Q5	Operations with error corrector. It is automatically selected with \N command (different fron 0 and 1).
&Q6	Asynchronous with buffer enabled (AT/N0).

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AT&R C106

	&R0	In asynchronous mode, C106 is controlled according to V25 handshake recomendation.
●	&R1	In synchronous mode, C106 follows the flow control.

AT&S C107 (data set ready option)

	&S0	DSR will remain ON all the time.
●	&S1	DSR will became active after answer tone has been detected and inactive after the carrier has been lost.

AT&V View active and stored profiles

AT&W Store active profile

&W0	Store active profile as Profile 0.
&W1	Store active profile as Profile 1.

AT&Y Define default profile after power On

	&Y0	Use profile 0 after power on.
●	&Y1	Use profile 1 after power on.

AT&Z Store the X telephone number in a location

AT&Zn =X (n = from 0 to 3; X = dialing string from 0 to 35 numbers).

AT\A   MNP block size

	\A0	Block size 64 chr.
●	\A1	Block size 128 chr.
	\A2	Block size 192 chr.
	\A3	Block size 233,6 chr.

AT\B   Break signal size

\B1 to \B9 In non-error corrector mode, the modem will trasmit a break signal to the remote modem with a length in multiples of 100 ms according parameter specified. The command works in conjunction with the \K command. In error corrector mode, the modem will signal a break through the active error correction protocol, giving no indication of the length.

AT\Kn Set break control

Controls the response of the modem to a break received from the DTE or the remote modem or the \B command according to the parameter supplied. The response is different in three separate states.

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1) The first state is where the modem receives a break from the DTE when the modem is operating in data transfer mode.
- \K0   Enter on-line command mode, no break sent to remote modem.
- \K1   Clear data buffer and send break to remote modem.
- \K2   Same as 0.
- \K3   Send break to remote modem immediatly.
- \K4   Same as 0.
- \K5   Send break to remote modem in sequence with trasmitted data.

2) The second case is where the modem is in the on-line command state (waiting for AT commands) during a data connection, and the \B is received in order to send a break to the remote modem.
- \K0   Clear data buffer and send break to remote modem.
- \K1   Same as 0.
- \K2   Send break to remote modem immediatly.
- \K3   Same as 2.
- \K4   Send break to remote modem in sequence with data.
- \K5   Same as 4.

3) The third case is where a break is received from a remote modem during a non-error corrected connection.
- \K0   Clear data buffers and sends break to the DTE.
- \K1   Same as 0.
- \K2   Send a break immediately to DTE.
- \K3   Same as 2
- \K4   Send a break in sequence with received data to DTE.
- \K5   Same as 4.

AT\N   Error correction MNP and V42

\N0 Selects normal speed buffered mode (disables error correction mode).

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3.2.   S REGISTERS

REG.	RANGE	UNIT	DEF	DESCRIPTION
S0	0-255	Ring	0	Ring to answer on
S1	0-255	Ring	0	Ring count
S2	0-255	ASCII	43	Escape character
S3	0-127	ASCII	13	Carriage return character
S4	0-127	ASCII	10	Line Feed character
S5	0-127	ASCII	8	Back Space character
S6	0-255	1 sec	4	Wait for dial tone
S7	0-60	1 sec	60	Wait for data carrier
S8	0-255	1sec	2	Pause time for "," character
S9	0-255	100ms	6	Answer tone detection time
S10	0-255	100ms	14	Lost carrier to hang up delay
S12	0-255	20ms	50	Escape sequence code guard
S32	0-255	ASCII	17	Xon character
S33	0-255	ASCII	19	Xoff character
S95	0-255	ASCII	2	Connection messages management

3.2.1. SPECIAL S REGISTERS DESCRIPTION

ATS9   Detection time for answer tone

0 - 255	100ms	The modem after the dial doesnít wait for remote answer tone but starts with the handshake.

Default = 6

ATS10 Carrier detect response time

0-255	100ms	Sets the length of time, in tenths of a seconds, that the modem waits before hanging up after a loss of carrier.
255	10ms	The modem doesnít disconnect for a loss of carrier.

Default = 14

3.8

3.3. CONNECTION MESSAGE

After the handshake phase the modem gives a message indication to your Computer. The syntax of these messages (when ATX1) is in according to the value of register S95 and the state of the ATWn command.
In the table below you can see the available messages:

S95	ATW0	ATW1	ATW2
0	CONNECT Dte	PROTOCOL:Prot CONNECT Dte	CONNECT Dce
0	CONNECT Dte	PROTOCOL:Prot CONNECT Dte	CONNECT Dce
1	CONNECT Dte	PROTOCOL:Prot CONNECT DCe	CONNECT Dce
2	CONNECT Dte/ARQ	PROTOCOL:Prot CONNECT Dte/ARQ	CONNECT Dce/ARQ
4	CARRIER Dce CONNECT Dte	CARRIER Dce PROTOCOL:Prot CONNECT Dte	CARRIER Dce CONNECT Dce
8	PROTOCOL:Prot CONNECT Dte	PROTOCOL:Prot CONNECT Dte	PROTOCOL:Prot CONNECT Dce
32	COMPRESSION:Comp CONNECT Dte	PROTOCOL:Prot PROTOCOL:Prot CONNECT Dte	CARRIER Dce CONNECT Dce

Dce = Line Speed
Dte = Interface Speed
Comp. = V.42bis - MNP5 - NONE
Prot. = V.42 - LAPM-NONE

COMMAND	DESCRIPTION
ATX	List of available messages
ATW	Answer message Format
ATS95	Connection message management

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