

TOPEX

ACCESS Ti

User's Manual

2003

Congratulations!

The TOPEX Group is a cluster of companies trended towards design, production, sales and services in telecommunications. The group is based upon the Romanian trading companies TOP 9+ Electronic Systems and TOPEX Public Switching S.A. Every year, our group reinvests over 20% of the sales figure for research and development of new products and for modernization of existing lines of equipment.

The TOPEX products are of proprietary design, with a view to perfectly matching the demands of the Romanian telecommunications market. These products are fully compliant with C.C.I.T.T.-I.T.U. recommendations, standards and regulations of the Romanian Communications Ministry and of Romtelecom national provider. Our products are approved by the General Communications Inspectorate for connecting to the national public telephony network of Romania.

All TOPEX products are manufactured using high quality, up to date electronic devices, imported from West Europe or US of A. Manufacturing uses advanced technologies and is closely watched by the Quality Assurance department, organized and certified according to ISO 9001:2000 standard.

Topex products are:

- automated private branch exchanges with capacities from 8 lines up to 248 phone lines;
- automated public small capacity exchanges TOPEX RURAL (from 150 up to 400 phone lines) capacities from 8 lines up to 248 lines;
- automated digital public exchanges TOPEX 1000D (from 256 up to 1,500 phone lines)
- equipment for interfacing PBX to the GSM mobile telephony network, MobiLink
- line of equipment developed for the CDMA mobile telephony network, the Topex-ACCESS family
- software application TopHoTEL for management of billing of the phone calls
- small series systems for custom applications in telecommunication.

The TOPEX Group is represented in Romania by a wide network of distributors who have taken over part of the local activities of market promotion, installing and setting to work, maintenance during the warranty period and post-guarantee.

Thank you for buying one of the TOPEX-ACCESS products and congratulation for your wise option.

By choosing **Access-Ti** you have chosen:

- ✓ to cut down the costs of mobile calls
- ✓ to make important savings on the phone bills
- ✓ voice and data transmission
- ✓ quick solution for connecting a computer to the Internet over the CDMA wireless network
- ✓ high speed access to the Internet, up to 153 kbps
- ✓ high mobility, independence from classic phone lines
- ✓ excellent quality of the audio signal
- ✓ full compatibility with most types of phone exchanges (PBX)
- ✓ simple and fast installation, ease of use

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1. What is ACCESS -Ti ?


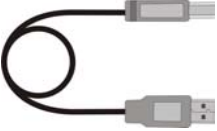
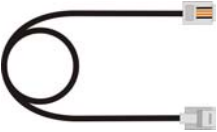


The ACCESS-Ti equipment is an interface between a phone exchange and the mobile telephony network CDMA 450 MHz, interface that cuts down the costs of your fixed-to-CDMA and CDMA-to-fixed calls. It creates a direct connection between a trunk of the phone exchange and the CDMA network, by using a CDMA mobile phone. Using the facilities of the PBX to automatically route the calls by called number, any call to a CDMA phone will get out through the trunk on which ACCESS-Ti was installed. This way you will pay only the cost of mobile-mobile calls instead of the higher fixed-mobile costs.

This benefit also holds true for incoming calls: for any ingoing calls issued from a mobile phone to the number of the Access-Ti unit you can call any inside number and pay just for a mobile-to-mobile call instead of a mobile-to-fixed call.

ACCESS-Ti is not just a voice interface, it also offers a data connection – you can use its USB port to connect a computer to the Internet over the CDMA network.

Access-Ti assures a high speed Internet access, up to 153 Kbps.

2. PACKAGE CONTENT:

1.		Topex ACCESS-Ti equipment
2.		USB cable for connection to PC
3.		Flat phone cable with RJ11 connectors for linking the equipment to PBX
4.		Power supply (mains adapter)
5.		External antenna
6.	✓	Wall mounting kit
7.	✓	Diskette with drivers
8.	✓	User's manual
9.	✓	Warranty certificate

3. INSTALLATION:

3.1. Identifying the connectors



Figure 1: Identification of connectors

USB – USB B type connector for the cable that links Access-Ti to a PC;

TEL – RJ11 female connector for the flat phone cable to PBX or standard telephone

ALIM – Jack for connecting the power supply (the mains adapter shipped together with the equipment).

3.2. Connecting the cables

1. Insert one end of the phone cable in the RJ11 connector of the ACCESS-Ti equipment and connect the other end to the junction of the phone exchange. If the PBX does not feature a RJ11 connector you must use the two central wires of the phone cable, directly connected to the two wires of the phone exchange.
2. Insert the B end of the USB cable in the USB connector of ACCESS-Ti, while the other end is inserted in the A-type USB port of the PC as shown in figure 2.
3. Power up the Access-Ti using the external adapter: plug the adapter into the wall socket then insert the power supply jack in the special connector marked „ALIM” on the Access-Ti equipment.

Warning! To avoid accidents or damage to the equipment, follow the steps described earlier. The supply adapter must be the last connection made. You should NOT connect the cables for phone or USB while the Access-Ti equipment is powered.

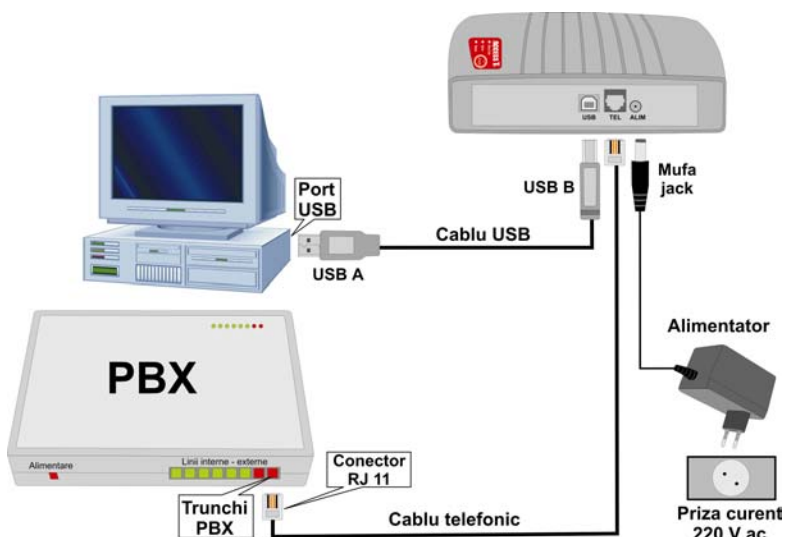


Figure 2: Connecting the cables

3.3. Installing the external antenna

The antenna is threaded into the external connector of the case of ACCESS-Ti.



3.4. Significance of indicators

The equipment is provided with three status LEDs: Data Link, Voice, and Power



Figure 3: Location of light indicators

Significance of "Data Link" indicator LED

STATUS	DESCRIPTION
Lights up red continuously	The DTR signal of the USB port of the computer is active; this means that Topex ACEESS Ti has gone into the "data transmission" mode
Off	The DTR signal of the USB port of the computer is not active, there is no data transmission.

Significance of "Voice" indicator LED

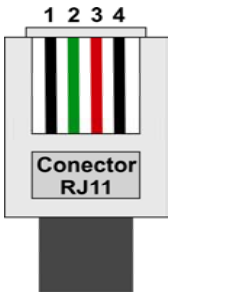
STATUS	DESCRIPTION
Blinking red, 2 Hz frequency	There is no serial communication between the mobile phone and Topex ACCESS-Ti or ACCESS-Ti is in the initialization phase;
Blinking red, 0.5 Hz frequency	There is serial communication between the mobile phone and Topex ACCESS-Ti but the mobile phone is not in the coverage area of the network and the line circuit loop is open
Off	There is serial communication between the mobile phone and Topex ACCESS-Ti, the mobile phone is in the coverage area but no voice connection is achieved
Lights continuously	A voice link is initializing or is in progress (the line circuit loop is closed)

Note: If the call number is dialed in the "Pulse" mode the red **Voice** LED will blink following the dialing of each figure.

Significance of "Power" LED

STATUS	DESCRIPTION
Lights continuously	The 5V supply voltage is present
Off	There is no 5V supply voltage

3.5. Assignment of pins at RJ 11 connector

<p>The ACCESS-Ti equipment is shipped with a flat 4-wire phone cable fitted at both ends with male RJ11 connectors. Out of the 4 wires only the two central ones are used, the ones connected to pins 2 and 3 (the polarity does not matter).</p>	
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3.6. Achieving a voice link

Topex ACCESS-Ti may be connected to:

- An analog trunk of a PBX (see fig. 2)
- Directly to a standard fixed telephone (see fig. 4)

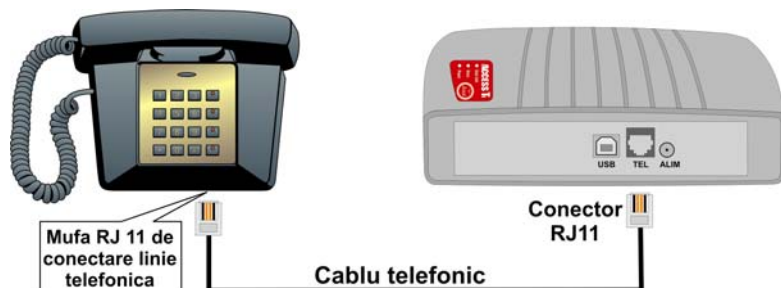


Figure 4. Connecting a fixed telephone to Access-Ti

A voice link may be initialized when the equipment generates disc tone (continuous tone with the frequency of 450 Hz). This corresponds to the „Voice" LED lighting up.

The phone or PBX trunk may send to the Topex ACCESS-Ti equipment the call number in "Tone" (DTMF) mode or in "Pulse" mode. After dialing the last figure, after a 5-second delay, the number dialed is sent by the Topex ACCESS-Ti to its internal mobile phone (Hyundai H-100).

If you want the call number to be sent out immediately to the mobile phone, after the last figure of the number you must dial "#" in "Tone" mode.

The maximum number of figures allowed for dialing is 16.

If there is no serial communication between Topex ACCESS-Ti equipment and the mobile phone or the phone is not the coverage area ACCESS-Ti will generate a warning sound by chopping in cadence a 450 Hz signal this way: 200 ms tone, 100 ms pause, 200 ms tone, 500 ms pause (bip – bip, bip – bip, bip – bip...).

If Topex ACCESS-Ti is used in the mode "data transmission" and the Data Link LED is on, the equipment generates a "busy" tone for the voice link (you can't use at the same time voice and data).

3.7. Achieving a connection to the internet

To achieve a connection to the Internet one must follow these steps:

- Installing the USB driver for the PC
- Installing the CDMA modem driver for PC
- Installing a connection for access to the internet
- Connecting to Internet

Achieving an Internet connection under Windows 98.

a. Installing the USB driver

When you connect the USB cable to the computer, Windows 98 automatically detects a new piece of hardware equipment (USB cable) and the window "Add New Hardware Wizard" appears.

Select Next > Select "Search for the best driver for your device (Recommended)" > Next > Select location of the folder with the USB driver (Actually the driver is on the diskette shipped with the ACCESS-Ti equipment; A:\drivers prolific\Win98_ME; the name of the file is SERSPL.INF) > Next > Next > Finish.

b. Manually installing a modem driver

Insert the diskette with drivers into the floppy disk drive. Select "Control Panel" (Start > Settings > Control Panel) > double click "Modems" > Add > Check "Don't detect my modem; I will select it from a list" > Next > Have Disk > Browse > Select location of the folder with the modem driver (Actually the driver is on the diskette shipped with the ACCESS- Ti equipment; A:\drivers prolific\Modem Zapp\Windows OS; the name of the driver file is MDMZAPP.INF) > OK > OK > Select "Zapp CDMA Handset (With USB 230k serial conv)" > Next > Select "USB Serial Port" > Next > Finish.

Now you have finished installing the modem driver.

c. Installing a connection for access to the Internet:

Start > Programs > Accessories > Communications > Dial-Up Networking > Make New Connection > Enter a name for your connection > Next > Enter the number #777 at "Telephone number" > Next > Finish.

You have installed a wireless connection to the Internet.

d. Connecting to Internet

Enter Dial-Up Networking and double click the name of your wireless connection.

Start > Programs > Accessories > Communications > Dial-Up Networking > Double click the name of your connection > At "User name" Enter "Zapp", Check the case "Save Password" > Connect > Now a window called "Connecting to < name of your connection>" appears, telling you that it is connecting and checks the name and password.

**Open your browser (such as Internet Explorer) and surf the Net.
Success!**

Achieving an Internet connection under Windows 2000.

a. Installing the USB driver

When you connect the USB cable to the computer Windows 2000 automatically detects a new piece of hardware equipment (USB cable) and the window "Found New Hardware Wizard" appears.

Select Next > Check "Search for a suitable driver for my device (recommended)" > Next > At "Optional search location" Check, depending upon the location where the USB driver is, USB > Next > Browse > Enter the paths where the driver is (Actually the driver is on the diskette shipped with the ACCESS- Ti equipment; A:\drivers

prolific; the name of the driver file is SERWPL.INF) > OK > Next > Finish.

Now you have finished installing the USB driver.

b. Manually installing a modem driver

Select "Control Panel" > Double click "Phone and Modem Options" > Select the tab "Modems" > Add > Check "Don't detect my modem; I will select it from a list" > Next > Select "Have Disk" > Select the location of the folder with the modem driver (Actually the driver is on the diskette shipped with the ACCESS- Ti equipment; A:\drivers prolific\Modem Zapp\Windows OS; the name of the modem driver file is MDMZAPP.INF) > OK > Select "Zapp CDMA Handset (With USB 230k serial conv)" > Next > Select the port to which you have installed the USB driver (To find out on which port you have installed the USB driver enter Device Manager and click on the sign "+" at "Port (COM & LPT)") > Next > Yes > Finish.

Now you have finished installing the modem driver. It should already appear in the window "Phone and Modem Options" with the name of the port on which it was installed.

c. Achieving a connection for access to Internet

Enter "Network and Dial-up Connections" (Start > Programs > Accessories > Communications > Network and Dial-up Connections) > Double click on "Make New Connection" > Next > Select "Dial-up to the Internet" > Next > Check "I want to set up my internet connection manually, or I want to connect through a local area network (LAN)" > Next > Check "I connect through a phone line and a modem" > Next > Select the modem "Zapp CDMA Handset (With USB 230k serial conv)" > Next > At "Telephone number" Enter "#777", at "Country/region name and code" select "Romania(40)" > Next > At "User name" Enter "Zapp", at "Password" leave empty > Next > Yes > Enter a name for your connection, for example "Zapp ACCESS-Ti" > Next > Check "No" > Next > Finish.

Now you have finished installing your connection to the Internet.

d. Connecting to Internet

Enter "Network and Dial-up Connections" (Start > Programs > Accessories > Communications > Network and Dial-up Connections) and double click on the name of your connection > At "User name" enter "Zapp", at "Password" leave empty > Dial > Now appears a window called "Connecting to <the name of your connection>" which tells you that it is connecting to Internet and checks the name and password > Check "Do not display this message again" > OK

**Open your browser (such as Internet Explorer) and surf the Net.
Have fun!**

Achieving an Internet connection under Windows XP.

a. Installing the USB driver

When you connect the USB cable to the computer Windows XP automatically detects a new hardware equipment (USB cable) and the window "Found new Hardware Wizard" shows up.

Insert the diskette with the USB driver in your floppy disk drive. (The installation diskette is shipped with the ACCESS-Ti equipment) Check the option "Install the software automatically (Recommended)" > Next > Windows XP will look itself for the location where the USB driver is and will install it automatically. Select Finish in the next window.

Now you have finished installing the USB driver.

b. Manually installing a modem driver

Even under Window XP the Zapp modem must be installed manually. Enter "Control Panel" > double click on "Phone and Modem Options" > Select the tab "Modems" > Select "Add" > Check "Don't detect my modem; I will select it from a list" > Next > Select "Have Disk" > Select the location where the modem driver is (you will find it on the diskette shipped together with the equipment; A:\drivers prolific\Modem Zapp\Windows OS; the name of the file is MDMZAPP.INF) > Open > OK > Select "Zapp CDMA Handset (With USB 230K serial conv)" > Next > Select the port onto which you have installed the USB driver (To find out on which port you have installed the USB driver enter Device Manager and click on the sign "+" at "Port (COM & LPT)" > Next > Finish.

Now you have finished installing the modem driver. It should already appear in the window "Phone and Modem Options" with the name of the port on which it was installed.

c. Achieving a connection for Zapp access to Internet

Enter "Network Connections" (Start > Programs > Accessories > Communications > Network Connections) > Click on "Create a new connection" > Next > Check "Connect to the Internet" > Next > Check "Set up my connection manually" > Next > Check "Connect using a dial-up modem" > Next > Check "Modem – Zapp CDMA Handset (With USB 230k serial conv) (COM...)" > Next > Enter a name for your connection, for example "Zapp ACCESS-Ti" > Next > For "Phone Number" enter "#777" > Next > for "User name" write

"Zapp" > for "Password" and "Confirm password" leave blank > Next > Finish.

Now you have finished installing your wireless connection to the Internet.

d. Connecting to Internet

Enter "Network Connections" (Start > Programs > Accessories > Communications > Network Connections) and double click the name of your connection > For "User name" enter "Zapp", for "Dial" enter "#777" > Dial > Now a window "Connecting to <Name of your connection>" appears, telling you that it is connecting to the Internet and then checks the user name and password.

**Open your browser (such as Internet Explorer) and surf the Net.
Have fun!**

3.8. Mounting the Topex ACCESS-Ti equipment

Access-Ti is designed to be mounted on a wall in a vertical position or horizontally on a desk or in a rack. Its location must be chosen in a way to allow for a maximum level of the received signal.

The manufacturer recommends that you place the Topex ACCESS-Ti equipment in such way as to avoid the radio interferences with other appliances or office equipment, such as PC displays, radios, audio – video sets, copiers and so on.

For mounting it on the wall execute the following steps:

<ul style="list-style-type: none">- mark the position of a pair of holes on the wall, spaced at 135 mm apart- drill the holes in the wall- forcibly insert into the holes the plastic dowels- thread the metallic woodscrews into the plastic dowels leaving the end to protrude outside for some 5 mm- hang the case of Access-Ti in the two metallic woodscrews and push it down a little to get it fixed	
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4. TECHNICAL FEATURES:

Frequency band	CDMA 450 MHz
Maximum RF output power	0,2W
Analog Voice Port	RJ 11 Connector
Data Port	USB version 1.1
External antenna	HR 210
Indicator lights	Data Link, Voice, Power
WAN port speed	Up to 153 Kbps
Mobile phone type	Hyundai H-100
Power supply	10V AC / 1,5A ± 10% 220 V AC / 0,3A / 50Hz
Disc tone	450 Hz ± 10%
Line voltage	48 V ± 10%
Line current	30 mA max.
Ring signal	25 Hz, min. 60 V effective
Impedance	600 Ω
Operating temperature range	From 0 to 50 °C
Humidity	5 to 95%, non-condensing
Dimensions (L x W x H)	230 mm x 170 mm x 65 mm
Mass	750 g – ACCESS Ti 1,5 kg – the whole package

4.1. Operating environment:

Topex ACCESS-Ti must be installed in closed rooms or enclosures, where the environment conditions should be inside the limits specified in the above table.

You should avoid dust and prolonged exposure to Sun radiation.

Also, Access-Ti must NOT be used in flammable or explosive environment, or in locations where toxic or flammable gases may accumulate.

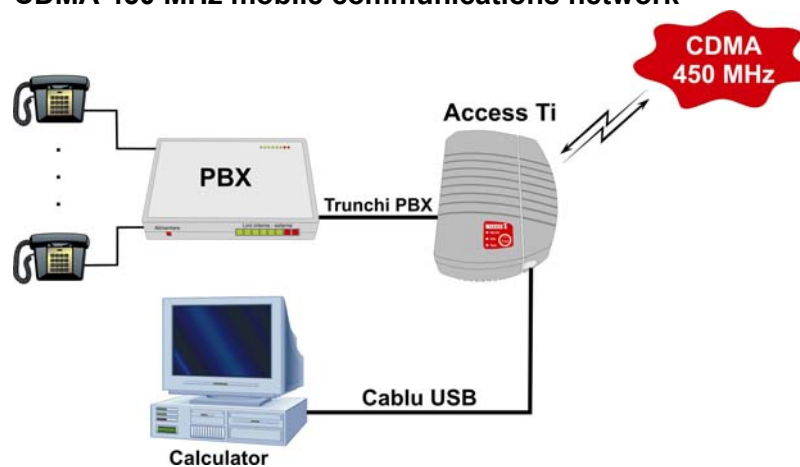
The equipment must be handled with care, to avoid mechanical shocks and blows.

Access-Ti should not be used in an environment with high level of EMI (electromagnetic interference), near copiers, PC monitors, TV sets or other audio-video appliances or high power equipment such as electric motors or heaters.

When selecting the location for installing Access-Ti you must have in mind the recommendations listed in the chapter about mounting the equipment.

5. APPLICATIONS

a. Voice-data interface between PBX, computer and the CDMA 450 MHz mobile communications network



ACCESS-Ti achieves a direct voice connection between the PBX (private branch telephone exchange) and the CDMA mobile communications network. The equipment is connected to an analog trunk of the PBX and assures the benefit of an easy and fast connection of the local subscribers to mobile telephony, bypassing the fixed telephony operator. Using the automatic routing feature of the PBX (the outgoing calls are automatically directed by the routing software, depending on the prefix of the dialed number) any call to a CDMA phone will go out through the trunk on which the ACCESS-Ti was installed. This way you will pay only the cost of a mobile-to-mobile call instead of a fixed-to-mobile call.

Also, for any call issued from a CDMA mobile phone to the number of the ACCESS-Ti connected to the PBX you may call any local subscriber being billed only for a mobile-to-mobile call instead of a mobile- to- fixed call.

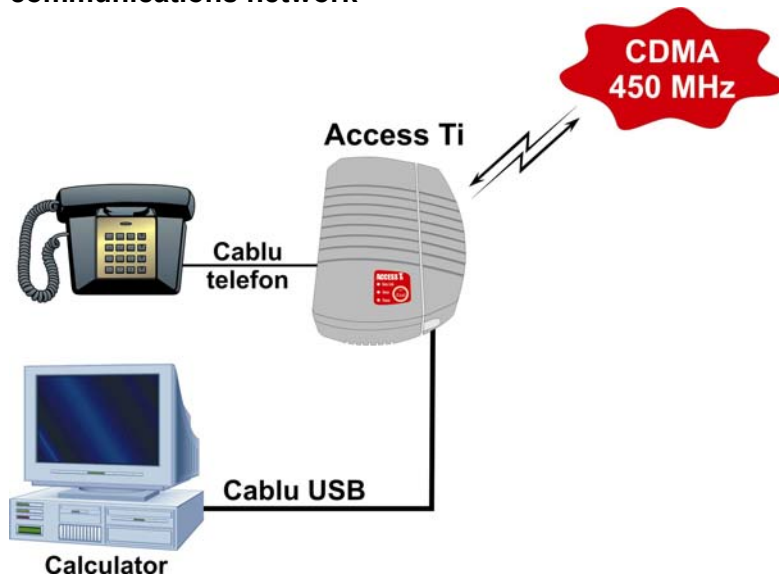
To the ACCESS-Ti you may connect a computer through the USB port for high speed Internet access, up to 153 Kbps.

Note: When you have a call in progress through the ACCESS-Ti interface the computer cannot connect to Internet via the data link, the voice link and the data link can't work at the same time.

This application is targeted towards companies that have large phone traffic from fixed phone local subscribers to mobile phones and vice-versa, and want to cut down their phone bills.

As an extra feature, the users will also benefit from high speed Internet access via CDMA network from any desktop PC or notebook.

b. Voice-data interface between a fixed telephone, a computer and the CDMA 450 MHz mobile communications network



ACCESS-Ti creates a direct voice connection between an analog fixed telephone and the CDMA mobile communications network. You connect jack of the phone cable to the ACCESS-Ti and have access to the mobile network without the need for a connection (landline) to the fixed telephony operator.

Also, for any call issued from a mobile phone, when you dial the number of the cellphone inside the ACCESS-Ti unit, you can call directly the fixed telephone in your home.

You may connect to ACCESS-Ti a computer, by means of the USB port, for high speed Internet access.

Note: When you have a call in progress through the ACCESS-Ti interface the computer cannot connect to Internet via the data link; the voice link and the data link can't work at the same time.

This application is targeted for persons or small companies who don't have access to the fixed telephony network that is they have no phone landline to their homes or offices. With ACCESS-Ti they will be able to use the fixed phone to call anywhere through the CDMA mobile telephony network.

The benefits of this application include

- The immediate installation of a telephone in remote areas, that may not be reached by phone lines, but which are inside the coverage area of a mobile network
- Diminishing the risk of loss implied by a small size mobile device.
- The means of easy use of an ordinary, fixed telephone, for calls to a mobile network.
- The means to use two fixed phones in derivation or branching mode.
- Getting rid of the radiation of the cellphone. The CDMA mobile phone and the external antenna will NOT be located near the user or close to Hi-Fi audio or video appliances that could be sensitive to EMI.

As a bonus, the home or office users can have high-speed access in the CDMA network from any computer or notebook that has an USB port.

6.The Topex ACCESS product family:

Benefiting from the CDMA 450 MHz mobile network active in Romania Topex has developed a new range of products compatible with this operator. This product family includes:

ACCESS LAN	<ul style="list-style-type: none"> - Connects to the Internet a computer network (LAN) via CDMA 450 MHz mobile telephony network - High speed Internet access, up to 153 Kbps - Compatible with TCP/IP network - External antenna for the CDMA mobile phone - Configurable through serial port
ACCESS GEO	<ul style="list-style-type: none"> - Sends the geographical co-ordinates received from the GPS module to the dispatch center, via the CDMA 450 MHz mobile telephony network - Integrated GPS module - External antenna for GPS - External antenna for the CDMA mobile phone - Configurable through serial port
ACCESS DATA	<ul style="list-style-type: none"> - Allows connection of serial devices to the CDMA 450 MHz mobile telephony network - RS-232 interface for serial devices - TCP/IP Protocol - External antenna for the CDMA mobile phone - Configurable through serial port
ACCESS IP-Link	<ul style="list-style-type: none"> - Allows connection of serial devices to a local computer network (LAN) - RS-232 interface for serial devices - Network interface type Ethernet 10 Base-T - TCP/IP Protocol - Configurable through serial port
ACCESS S	<ul style="list-style-type: none"> - Allows access of a computer, via serial port, to the CDMA 450 MHz mobile telephony network - At the same time supplies the voltage required to power up the CDMA mobile phone - External antenna for the CDMA mobile phone

The manufacture reserves its right to modify the product and manual for the purpose of technical improvement and so forth without prior notice. The manufacturer guarantees the good functioning of the products provided that it has been correctly installed and the directives for storage and usage have been respected. The warranty implies exclusively the replacing and setting up of the defective unit. The warranty does not include any indirect losses or benefits not achieved. The manufacturer is not liable for any damage, whether direct, indirect, special, incidental, or consequential, as a result of using Access-LAN.

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It is certified hereby that the ACCESS Ti unit is manufactured in concordance with the legal provisions concerning responsibility towards the quality of delivered products, fulfills the quality parameters specified in its "User's Manual" and is fit for the purpose for which it has been designed. It also warrants that the equipment will perform substantially in accordance with the accompanying documentation.

Any comments, suggestions and proposals of yours concerning our products are welcome and we wait for your feedback at the following address:

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