



2N[®] EasyGate Pro

GSM gateway



User Manual

Version: 1.0

www.2n.cz

The 2N TELEKOMUNIKACE a.s. is a Czech manufacturer and supplier of telecommunications equipment.



The product family developed by 2N TELEKOMUNIKACE a.s. includes GSM gateways, private branch exchanges (PBX), and door and lift communicators. 2N TELEKOMUNIKACE a.s. has been ranked among the Czech top companies for years and represented a symbol of stability and prosperity on the telecommunications market for almost two decades. At present, we export our products into over 120 countries worldwide and have exclusive distributors on all continents.



2N[®] is a registered trademark of 2N TELEKOMUNIKACE a.s. Any product and/or other names mentioned herein are registered trademarks and/or trademarks or brands protected by law.



2N TELEKOMUNIKACE a.s. administers the FAQ database to help you quickly find information and to answer your questions about 2N products and services. On www.faq.2n.cz you can find information regarding products adjustment and instructions for optimum use and procedures „What to do if...“.



2N TELEKOMUNIKACE a.s. hereby declares that the 2N[®] product complies with all basic requirements and other relevant provisions of the 1999/5/EC directive. For the full wording of the Declaration of Conformity see the CD-ROM (if enclosed) or our website at www.2n.cz.



The 2N TELEKOMUNIKACE a.s. is the holder of the ISO 9001:2009 certificate. All development, production and distribution processes of the company are managed by this standard and guarantee a high quality, technical level and professional aspect of all our products.

Content:

- 1. Product Overview
 - 1.1 Product Description
 - 1.2 Changes
 - 1.3 Terms and Symbols Used
- 2. Description and Installation
 - 2.1 Description
 - 2.2 Before You Start
 - 2.3 Mounting
 - 2.4 Telephone Line Connection
 - 2.5 SMS Sending Input Connection
- 3. 2N® EasyGate PRO Configuration
 - 3.1 2N® EasyGate PRO Configuration
 - 3.2 Table of Parameters
- 4. Function and Use
 - 4.1 Voice Function
 - 4.2 FAX and Data Function
 - 4.3 SMS Sending Input
 - 4.4 Data Connection Using USB Port
 - 4.5 SIM Card PIN protection
- 5. Technical Parameters
- 6. Supplementary Information
 - 6.1 Troubleshooting
 - 6.2 List of Abbreviations
 - 6.3 Regulations and Directives
 - 6.4 General Instructions and Cautions

1. Product Overview

In this section, we introduce the **2N[®] EasyGate PRO** (from now only 'Easy Gate') product, outline its application options and highlight the advantages following from its use. This chapter also includes safety instructions.

Here is what you can find in this section:

- 1.1 Product Description
- 1.2 Changes
- 1.3 Terms and Symbols Used

1.1 Product Description

Basic Features

- The primary purpose of EasyGate is to transmit voice between a GSM network and an attached FXO-interface terminal (PBX, telephone, answering machine, etc.).
- You can establish data connections (GPRS, CSD) and send/receive SMS using EasyGate in combination with a PC and appropriate software.
- You can send an SMS to a pre-programmed number using the SMS sending input.
- Analogue fax transmission on some models.
- Version of EasyGate with Battery backup allows the function in case of power failure.

Advantages of EasyGate use

- **Call cost cutting** by forwarding GSM calls to EasyGate you save a lot on PSTN – GSM calls.
- **Easy installation** EasyGate is designed for immediate use without programming.
- **You get all you need in the delivery** your EasyGate delivery contains all you need to operate the system (the power supply adapter, telephone cable, PC USB cable, SMS input connector, CD-ROM with software).
- **Solution for sites without telephone lines** such as mountain chalets, exhibitions, conferences, etc.
- **CLIP** EasyGate is equipped with the FSK-based CLIP feature, so if a terminal capable of receiving the CLIP is used you know the caller's number.
- **Quick data connection** EasyGate allows connection to internet using GPRS connection (GPRS class 10, max. 85.6 kbps).
- **SMS sending input** simply send an SMS to a pre-programmed number by closing the contact. Recommended for easy supervision, simple securing, etc.
- **Radiation hazard minimization** you are not exposed to a direct effect of the antenna RF electromagnetic field while telephoning as opposed to mobile telephones.
- **Full GSM coverage** EasyGate is available in version quadband (850, 900, 1800, 1900MHz).

Safety Precautions



Do not switch on EasyGate in the vicinity of medical apparatuses to avoid interference. The minimum distance of the antenna and pacemakers should be 0.5m.



Do not switch on EasyGate aboard of a plane.



Do not switch on EasyGate near petrol stations, chemical facilities or sites where explosives are used.



Any mobile telephone use prohibition based on RF energy radiation applies to EasyGate too.



EasyGate may disturb the function of TV sets, radio sets and PCs.



Warning! EasyGate contains components that can be swallowed by small children (SIM card, antenna, etc.).



The voltage value mentioned on the adapter may not be exceeded. If you connect EasyGate to another power supply, make sure that the voltage value is in the acceptable range.



When your EasyGate comes to the end of its operational life, dispose of it in accordance with applicable regulations.

1.2 Changes

Manual Version	Amendments to Earlier Versions
1.00	The User Manual applies to 2N [®] EasyGate II product line: 501323, 501333, 501343 and 501353.
1.01	Name changed to EasyGate PRO, minor changes

Cautions

- The manufacturer continuously meets customer requirements by improving the firmware. For the latest EasyGate processor firmware, programming tool and User Manual see www.2n.cz.
- For a detailed description of the EasyGate firmware upgrade refer to the section devoted to the PC programming tool.

1.3 Terms and Symbols Used

Manual Symbols

The following symbols and pictograms are used in the manual:

Safety

- Always abide by this information to prevent persons from injury.

Warning

- Always abide by this information to prevent damage to the device.

Caution

- Important information for system functionality.

Tip

- Useful information for quick and efficient functionality.

Note

- Routines or advice for efficient use of the device.

Future functions

Grey marked text in this document specifies functions of **EasyGate** , which will be supported in the future.

2. Description and Installation

This section describes the 2N[®] EasyGate PRO product and its installation.

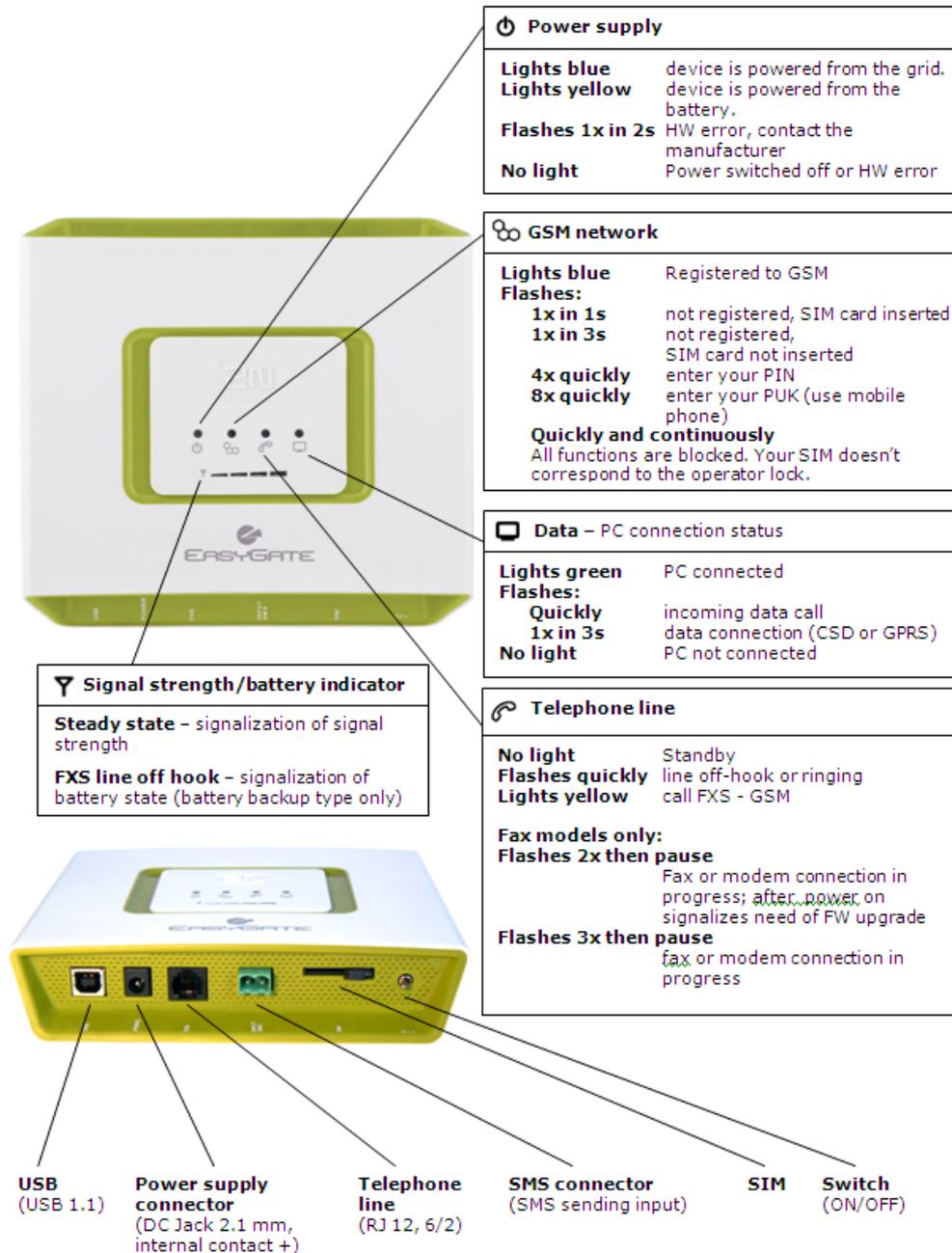
Here is what you can find in this section:

- 2.1 Description
- 2.2 Before You Start
- 2.3 Mounting
- 2.4 Telephone Line Connection
- 2.5 SMS Sending Input Connection

2.1 Description

EasyGate consists of GSM gateway in white plastic cover, removable antenna and cables for connecting to phone set and PC.

2N[®] EasyGate's status is indicated by LED diodes on its front side. All possible states are described in the following figure.



Telephone Line Tones – Operational Tones

The GSM gateway sends tones to the telephone line to indicate the line status. Following part describes the factory default setting. The tone frequency is 425 Hz.

Dial tone

- continuous or morse A 
- EasyGate is registered to GSM network and ready to receive dialing.

Ringing tone

- 
- The called subscriber's telephone is ringing.
- The GSM network transmits this tone.

Busy tone

- 

The busy tone is transmitted in any of the following cases:

- The SIM card has not been installed.
- EasyGate is logged-out.
- EasyGate is logged-in to a foreign network but roaming is disabled.
- The called number has too many digits (more than 30).
- The called number is barred.
- The called subscriber line is busy.
- The called subscriber has hung up (disconnection).

Dialing end signaling

- 
- Dialing reception has been terminated. Connection is being established.

PIN tone

- 
- Enter the PIN code.
- This tone is transmitted upon power up if the PIN has to be entered manually.

PUK tone

- 
- Enter the PUK code.
- This tone is transmitted upon repeated wrong PIN entering attempts. SIM card is blocked. PUK code can't be inserted in the gateway, it is necessary to use mobile phone.

Telephone Line Tones – Programming Mode

Tones confirming/refusing the values entered are transmitted during telephone line based programming. Each tone has a different melody.

Confirmation

- 
- Confirms that the service password or parameter number entered is correct and has been accepted.

Refusal

- 
- Incorrect parameter number;
- Incorrect parameter value
- Transmitted when a parameter is cancelled with a .

Saving

- 
- Parameter value entered is correct and has been saved.

2.2 Before You Start

Product Completeness Check

Check the product for completeness before installation please:

- 1× 2N[®] EasyGate PRO
- 1× Antenna for direct connection 1)
- 1× Magnetic Antenna with coax cable 1)
- 1× Supply adapter
- 1× Telephone Cable
- 1× PC-connection USB cable
- 1× SMS sending input connector
- 2× Dowel
- 2× Bolt
- 1× Quick Installation Guide
- 1× CD-ROM with User Manual and software 2)

Note

- 1) **Antenas:** The delivery includes an antenna to be connected directly to the EasyGate SMA connector and an antenna with a cable. The antenna with a cable should be used when GSM signal is poor, in case of interference with other devices or when poor quality of voice appears. You have to find the best place for the antenna.
- 2) **Enclosed software and manuals:** Software for gateway configuration and upgrade PCManager UNI Simple SMS program for SMS sending and receiving EasyGate Driver for PC allowing data connection GPRSUser Manual and QuickStart in format PDF Lists of AT Commands for Cinterion GSM module MC55i-w

Installation requirements

- EasyGate is designed for vertical mounting on suspension holes. This position is the best for signal reception when the antenna without cable is used. EasyGate can be operated in the horizontal position too where the GSM signal is good or when the antenna with cable is used.
- Install EasyGate with respect to the GSM signal strength - check the signal strength using the PCManager or LED indicator.

- Place EasyGate out of range of sensitive devices and human bodies for electromagnetic interference reasons.
- For the allowed range of operating temperatures refer to the "Technical Parameters".
- It is impossible to operate EasyGate on sites exposed to direct solar radiation or near heat sources.
- EasyGate is designed for indoor use. It may not be exposed to rain, flowing water, condensed moisture, fog, etc.
- EasyGate may not be exposed to aggressive gas, acid vapours, solvents, etc.
- EasyGate is not designed for environments with high vibrations such as means of transport, machine rooms, etc .

**Caution**

- Check that you have everything needed for EasyGate start-up (SIM card, analogue phone set or FXO port of PBX, eventually PC etc.)

2.3 Mounting

External Antenna Connection

Screw the antenna enclosed into the SMA antenna connector.

Caution

- Tighten the antenna connector **gently with your hand** - never use wrenches!

Note

- The antenna without cable has a sufficient gain for trouble-free operation in normal conditions. If the GSM signal is poor or you want to place your antenna separately from EasyGate, you can use an antenna with an SMA-connector terminated cable. The antenna should be mounted vertically.
- The Antenna shall be located within the same building as the main equipment.
- For antenna parameters see the "*Technical Parameters*".

SIM Card Installation

Slot for SIM card is placed on the connector panel. Insert the SIM card to the slot with contacts oriented to the front panel with LED. Make sure that the card is locked properly.

Cautions

- Make sure that the GSM provider's SIM card is compatible with the GSM network supported by your EasyGate version.
- Operator services and SIM card services, such as preferred networks, SMS service centre, PIN protection etc. must be set in your mobile phone before inserting your SIM card into EasyGate.

Power Supply Connection

EasyGate is fed with 10-16V DC. Where a source other than the included power supply adapter is used, the voltage range and polarity have to be maintained. See technical parameters.

EasyGate with battery option allows to support functionality in case of power failure. For backup use four pieces of accumulators NiMh size AA. These accumulators are not part of delivery. Put the accumulators to the battery holder on the bottom side under the cover prior to installation. Polarity of accumulators is marked inside of the battery space.

Warning

- **Do not activate the power supply** until the antenna is connected to EasyGate to avoid the GSM module damage.
- For backup use only suggested type of accumulators NiMh size AA. Only this type of storage batteries is permitted for use!. **When another type of batteries is used, there is a danger of damage of device or even explosion!**
- The battery should never be placed in municipal waste. Please check local regulations for disposal of batteries.

2.4 Telephone Line Connection

PBX Connection

Connect EasyGate to a free CO line of your PBX. Configure your PBX in such a manner that GSM outgoing calls are routed to EasyGate.

 **Tip**

- EasyGate is equipped with the FSK-based CLIP function. If your PBX is able to process the caller's ID, you are advised to enable this function.

Telephone Set (Answering Machine, Coin Telephone Station) Connection

You can connect a standard telephone, answering machine or any other FXO-interface terminal to EasyGate. Optionally you can connect analogue fax (special model of EasyGate).

 **Tip**

- EasyGate is equipped with the FSK-based CLIP and so it is advantageous to connect a terminal that is able to display the CLIP.

2.5 SMS Sending Input Connection

You have got a special connector for easy connection to EasyGate. The connector is equipped with screwing clamps to connect wires leading to a switching contact (device to be monitored). The other connector end can be connected to the respective EasyGate panel connector.

The input is designed for the switching contact connected between the input pins. The input is activated by contact closing (pin interconnection).

A transistor switch or logic signal can be used too. The pin near the telephone line connector is connected to GND of the device the second one is active. Please, respect the loop current polarity. The input is over-voltage protected (up to +12V DC).

3. 2N[®] EasyGate PRO Configuration

This section describes configuration of the product 2N[®] EasyGate PRO.

Here is what you can find in this section:

- 3.1 2N[®] EasyGate PRO Configuration
- 3.2 Table of Parameters

3.1 2N® EasyGate PRO Configuration

PC Connection

An USB cable is added to the package. Use it to interconnection PC and EasyGate.

Caution

- If is used another USB cable make sure that a longer cable works properly to avoid errors at high transmission rates.

EasyGate Parameter Programming

All EasyGate parameters have such default values that meet most users' demands and need not be changed. To change EasyGate parameters in spite of that, you can either:

- Use a PC with the PCManager UNI installed. All functions supported by EasyGate can be set using the PC.
- Or use the DTMF programming on a telephone line. Not all functions can be set in this way.

Telephone Line based Programming

1. Hook off the telephone, you can hear the dial tone or the busy tone, and the Line LED starts flashing.
2. Enter the service password (12345 by default, can be changed) with the DTMF; to cancel a wrong password hang up before sending the  character.
3. To confirm password enter a .
4. If you have entered a correct password, you hear the confirmation tone. If not, the dialed number may be sent to the GSM network as a call. To prevent this, hang up when you do not hear the confirmation tone.
5. EasyGate shall remain in the programming mode until hang-up.
6. Enter the number of the parameter to be programmed and press a . If the parameter number is correct, you can hear the confirmation tone, if not, you get the refusal tone and can re-enter the parameter number.

7. When the parameter number is confirmed, enter the allowed parameter value and press a . If the parameter value is in the allowed range, you can hear the saving tone, if not, you get the refusal tone. You can enter another parameter number in either case.

Numeric parameters are programmed using numbers in units included in the parameter description. For YES/NO parameters use  for YES and  for NO.

To cancel any programming step in the programming mode, press a . Having done so, you can hear the refusal tone and can enter a new parameter number. Parameters are saved when the saving tone is transmitted. Hang up to quit programming.

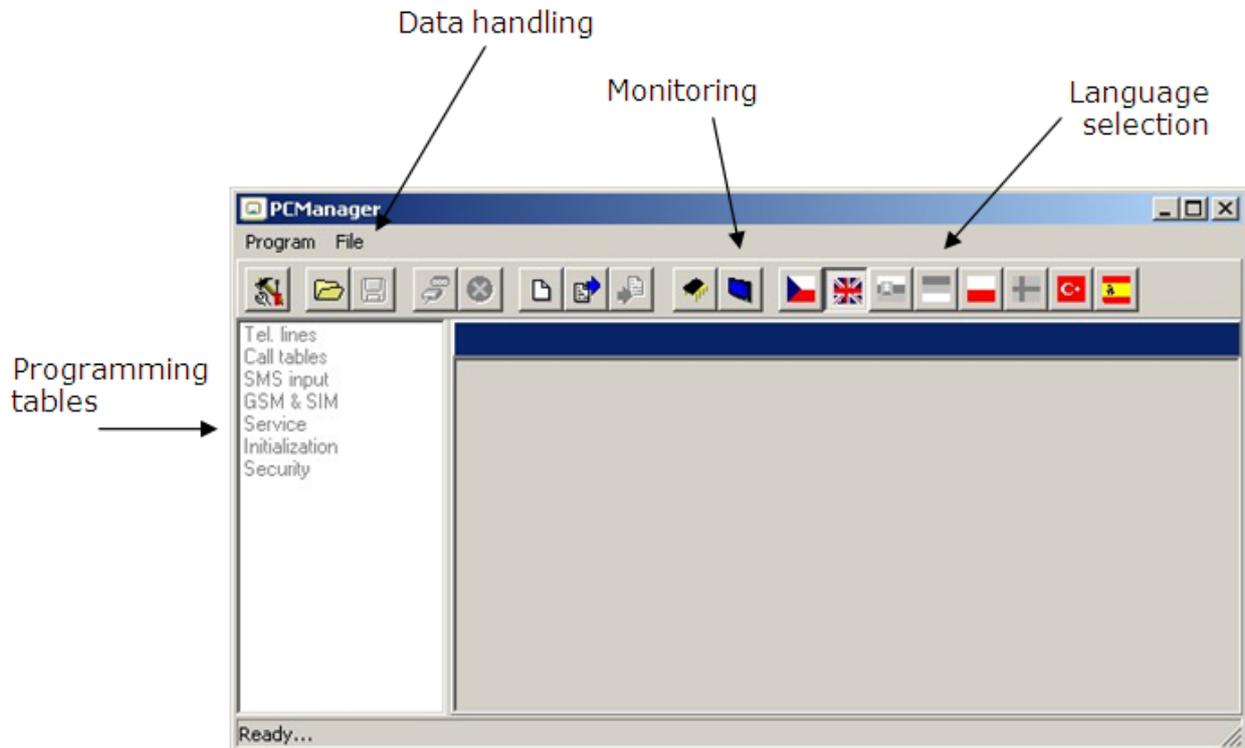
Example:

Dial	Confirmation	Description
     		Password entering, OK
  		Transmission volume parameter, OK
 		Set to medium level, saved
  		Non-existent parameter number, refusal

PC based Programming

For programming, connect EasyGate to a PC with a USB cable and make sure that the PCManager UNI is installed. Programming is intuitive and easy. All steps are accompanied with texts hints above all items you point at with the mouse.

EasyGate data uploading and storing, including firmware upgrade, are executed in a special mode, in which EasyGate waits for about 3s after power up (all LEDs are on). If instructed so by the PCManager UNI during this timeout, EasyGate remains in this mode as long as it is necessary. If EasyGate is not reset after the PCManager UNI is terminated, switch the system off and on again.



Installation and setting of EasyGate PCManager (Win7)

1. Connect EasyGate to the PC using USB connection. EasyGate must be switched off.
2. After connecting is the virtual serial port in PC installed automatically. In case, that the port doesn't install automatically and unknown device is detected, install drivers by using file: Drivers/win/CDM20814_Setup.exe.
3. Find the number of virtual port using Device manager. Look at setting of COM ports and find port marked as **USB Serial Port(COMn)**.
4. Install PCManagerSmG from CD.
5. Run EasyGate PCManager, select the language on the upper bar.
6. In menu **Program** select **Setup**. Set the COM port – local and select COM port number according information from point 3.

Using of PCManager - basic

1. The main purpose of PCManager UNI is setting of configuration and upgrade firmware of EasyGate.
2. When the configuration in EasyGate should be changed, the configuration must be first loaded from EasyGate, than edited using PCManager and finally saved back to EasyGate.
3. The groups of parameters are listed in the left window of the program. All parameters are described in next part of this manual. There is interactive help in PCManager for all parameters.
4. When you start with any operation which needs communication with EasyGate, the gateway must be switched to special programming mode. PCManager will show you the demand to switch the gateway off and on to set it to this mode.

Further Data Handling Options

In addition to the EasyGate memory, settings can be saved in a PC file and reloaded into the PCManager. This is recommended for backing up of current configurations or saving the same configuration to another Easy Gate unit.

Caution

- The table Security includes the PIN code and service password. These parameters have a special handling. They are not saved in a PC file for security reasons. If you load a PC file into the PCManager UNI and then into EasyGate, the PIN and service password should not change unless you change them manually before saving.

Caution

- All tables are filled-in with default values when PCManager UNI starts. It is recommended to load data from EasyGate before parameters programming and saving. If you only save data after PCManager UNI start, all parameters except the PIN and service password in the EasyGate memory will have default values.

 **Caution**

- The PIN and service password can only be modified either manually or by full initialization.

Monitoring

Monitoring is active when EasyGate is in operation and registered to the GSM network. If EasyGate is not registered to GSM, the COM is locked and no monitoring can be made.

This simple informative function helps you identify:

- The GSM module type and IMEI ID;
- The SIM card IMSI ID and selected SMS service centre necessary for SMS sending;
- The GSM provider's name and signal strength received by EasyGate - this information helps you find the optimum signal location (the information is updated in 10s intervals);
- The EasyGate line status - standby, outgoing call, incoming call including telephone number. The serial port is locked during dialing and incoming call ringing, so the PCManager reports serial port blocking.

Firmware Upgrade

The firmware actualization of 2N[®] Easy Gate is done in programming mode using PCManager UNI. Description of upgrade follows.

Upgrading procedure

1. Run the PCManager UNI, select the language for displaying texts on the right-hand side.
2. In menu *File* use *Upgrade* or select proper icon from bar. When the gateway is not in programming mode, you will be instructed to switch the gateway on and on.
3. If there is more than one file in the PCManager directory, chose one of them. The upgrade takes place automatically. **Do not switch your PC or EasyGate off during the process of upgrading!**

 **Caution**

- The PCManager checks the software version in EasyGate and the upgrade file. If the version in the file is new, everything is all right. An identical or earlier software version is stored in EasyGate too but the PCManager requires confirmation to be on the safe side.

 **Caution**

- The manufacturer responds to clients' requirements with periodical firmware updating. The current EasyGate firmware, PCManager and User Manual are available on www.2n.cz.

3.2 Table of Parameters

All programmable parameters are listed in this section. Each parameter is accompanied with the unit used, function number (if available) for programming via a telephone line, description of EasyGate's behavior, setting options, setting step and default (initialization) value.

Numeric parameters must be set in unit listed in the parameter description. For parameters with different setting are values defined in the parameters description (for phone line programming in parenthesis). When phone line programming is used, character  can't be included in the string, because it is dedicated for confirmation of the new parameter value.

Telephone interface FXS parameters

Dialing parameters

Type of dialing (Function No.:100)

Select the dialing type to be received by EasyGate on the FXS interface. 2N® EasyGate accepts only the selected type of dialing, ignoring the others.

Setting options:

DTMF (0) -EasyGate receives tone dialing only.

Pulse (1)-EasyGate receives pulse dialing only

Default setting:DTMF

Time to dial [s] (Function No.:101)

Timeout during which EasyGate waits for further digits to be dialed. It starts to establish connection when this timeout passes.

Setting options: 1-255 s

Setting step: 1 s

Default setting: 5 s

Minimal On Hook [ms] (Function No.:102)

The minimum line current break that EasyGate evaluates as hang-up.

Setting options: 100-25500 ms

Setting step: 100 ms

Default setting: 500 ms

DTMF during call (Function No.: 107)

When DTMF is transmitted in voice channel of GSM network problem with quality can occur, because the GSM compression can damage the signal. You can set digital transmission mode, than SmartGate mutes original DTMF signal from telephone line, and instead of this transmits digital DTMF in signaling channel. This function can't solve problems, when Easy Gate receives DTMF, it influences sending direction only and it is active only when Easy Gate originates the call.

Setting options: Analogue - DTMF transmission trough voice channel without change (0)

Digital - DTMF is muted in voice channel and is transmitted digitally (1)

Default setting: Analogue

Beep after dialing end (Function No.:103)

Select a beep to signal the end of dialing (beginning of outgoing call establishing).

Setting options: YES(1)/NO(0)

Default setting: YES

Signaling

Line reversal indication for call in progress (Function No.:110)

Select call in progress signaling by telephone line polarity reversal on FXS interface. There is voltage of reversed polarity on the telephone line during the whole call.

Setting options: YES(1)/NO(0)

Default setting: NO

Tariff pulse when call starts/ends (Function No.:111)

Signaling of call start or end by tariff pulse.

Setting options:

None (0)- EasyGate doesn't send tariff pulse as signaling of callstart/end.

Call end (1) - EasyGate sends tariff pulse when call ends.

Call start (2)- EasyGate sends tariff pulse when call starts.

Call start and end (3) - EasyGate sends tariff pulse when call starts and ends too.

Default setting: None

Tariff pulse frequency (Function No.:112)

Tariff pulse frequency setting.

Setting options:

16 kHz (0)- EasyGate transmits 16 kHz tariff pulses

12 kHz (1)- EasyGate transmits 12 kHz tariff pulses

Default setting: 16 kHz

Tone settings

Dial tone - Double frequency tone[Hz] (Function No.:-)

Parameter can be set for all three types of tone (Dial tone, Busy tone, Ringbacktone). This parameter is intended for switching between single tone and double tone setting. When the parameter is set, the second frequency of appropriate tone must be set too. When this parameter isn't set, the second frequency is automatically set to the same value, which results in single tone generation. This parameter can't be set using phone line programming. When the phone line programming is used for frequency change, both tones must be set (for single frequency to the same value).

Setting options: YES/NO

Default setting: NO

Dial tone - frequency 1[Hz] (Function No.:120)

Setting of frequency 1 of dial tone. This tone is generated after Off-Hook in case EasyGate is ready to accept dialing.

Setting options: 1-3400 Hz

Setting step: 1 Hz

Default setting: 425 Hz

Dial tone - frequency 2[Hz] (Function No.:121)

Setting of frequency 2 of dial tone.

Setting options: 1-3400 Hz

Setting step: 1 Hz

Default setting: 425 Hz

Dial tone - cadence (Function No.:122)

Dial tone cadence setting.

Setting options:

Continuous (0) - EasyGate generate continuous dial tone

Morse A (1) - EasyGate generate dial tone with 330/330/660/660 ms timing

Default setting: Continuous

Busy tone - frequency 1[Hz] (Function No.:123)

Setting of frequency 1 of busy tone.

Setting options: 1-3400 Hz

Setting step: 1 Hz

Default setting: 425 Hz

Busy tone - frequency 2[Hz] (Function No.:124)

Setting of frequency 2 of busy tone.

Setting options: 1-3400 Hz

Setting step: 1 Hz

Default setting: 425 Hz

Busy tone - cadence (Function No.:125)

Busy tone cadence setting.

Setting options:

330/330 ms (0)-cadence 330 ms tone, 330 ms pause

200/200 ms (1)-cadence 200 ms tone, 200 ms pause

250/250 ms (2)-cadence 250 ms tone, 250 ms pause

375/375 ms (3)-cadence 375 ms tone, 375 ms pause

500/500 ms (4)-cadence 500 ms tone, 500 ms pause

Default setting: 330/330 ms

Ring back tone - frequency 1 [Hz] (Function No.:126)

Setting of frequency 1 of ringback tone. This tone is send after dialing end, before GSM network starts to generate its own Ringback tone.

Setting options: 1-3400 Hz

Setting step: 1 Hz

Default setting: 425 Hz

Ringback tone - frequency 2 [Hz] (Function No.:127)

Setting of frequency 2 of ringback tone.

Setting options: 1-3400 Hz

Setting step: 1 Hz

Default setting: 425 Hz

Ringback tone - cadence (Function No.: 128)

Ringback tone cadence setting.

Setting options:

OFF (0) -not generated, only network tone

1000/4000 ms (1) -cadence 1 s tone, 4 s pause

400/200/400/2000 ms (2) -cadence 2x400 ms tone, 2 s pause

1500/3500 ms (3) -cadence 1,5 s tone, 3,5 s pause

2000/4000 ms (4) -cadence 2 s tone, 4 s pause

Default setting: OFF

Tone after disconnection (Function No.:129)

If the remote subscriber hangs up first, the EasyGate subscriber can hear the tone selected here.

Setting options:

Busy (0)-EasyGate transmits the busy tone upon call end.

Permanent (1) -EasyGate transmits the permanent tone upon call end.

Default setting: Busy tone

Volumes

Transmission volume (Function No.:190)

Volume setting for GSM transmission with a 4 dB step.

Setting options: 1-5

Setting step: 1

Default setting: 3 = medium volume level

Reception volume (Function No.:191)

Volume setting for GSM reception with a 4 dB step.

Setting options: 1-5

Setting step: 1

Default setting: 3 = medium volume level

Ringling signal settings

Ringling signal - frequency [Hz] (Function No.:140)

Ringling signal frequency setting.

Setting options: 25 / 50 Hz-EasyGate rings with 50 or 25 Hz on FXS interface

Default setting: 50 Hz

Ringling signal - cadence (Function No.:141)

Ringling signal cadency setting.

Setting options:

1000/4000 ms (0) - 1 s ring, 4 s pause

400/200/400/2000 ms (1)- 400ms ring, 200ms pause,

400ms ring, 2s pause1500/3500 ms (2) - 1,5 s ring, 3,5 s pause

2000/4000 ms (3) - 2 s ring, 4 s pause

Default setting: 1000/4000 ms

CLI transmitting (Function No.:148)

Set this item to enable/disable identification of a telephone line calling from a GSM network. The function can be enabled if you have a device on your telephone line that is capable of receiving FSK according to ETSI standards.

Setting options: Disable (0) - EasyGate does not transmit the CLI.

FSK during ringing (1) -EasyGate transmits the FSK-based CLI according to the ETSI EN 300 659 standard (transmission during ringing).

Default setting: Disable

Replace character + in CLI by (Function No.:149)

If this parameter is filled, the + character in the international prefix of CLI is replaced by the defined string. The + character can neither be transmitted by the FSK protocol nor dialed by the DTMF from a terminal.

Setting options: 0-4 characters (0-9,*,#)

Default setting: blank

Automatic call

BabyCall number (Function No.: 180)

A number to be dialed for the automatic call function. If this item is blank, the function is disabled.

Setting options: 0-15 characters (0-9,*,#,+)

Default setting: blank

BabyCall timeout [s] (Function No.: 181)

Time between line Off-Hook and automatic call beginning (if enabled). During this timeout EasyGate waits for dialing that cancels the automatic call. You can make standard call if the BabyCall function is enabled.

Setting options: 0-15 s

Setting step: 1 s

Default setting: 0 s

FXS Routing Parameters

All parameters related to the number dialed for an outgoing call are arranged in this table. According to the prefix you can:

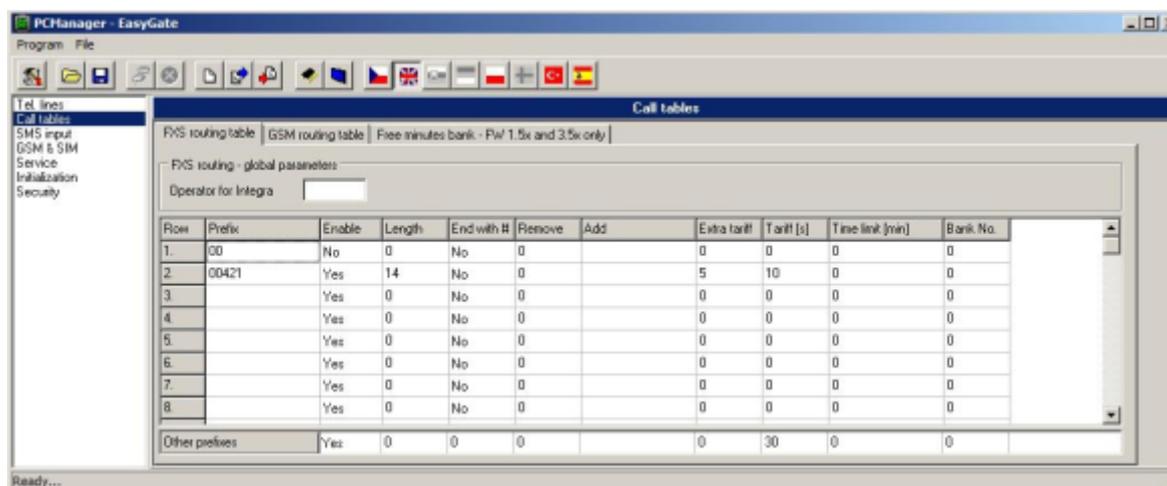
- Bar the number to be dialed - the calling subscriber hears the busy tone;
- Accelerate connection establishing by knowing the number length for the given prefix;
- Accelerate connection establishing by allowing to terminate dialing with a #;
- Modify the number to be dialed by removing and/or adding digits.
- Set tariff metering for the given prefix.
- Set time limit for call

Every table line includes a prefix (of variable length) plus parameters that define EasyGate's behavior in case the beginning of the dialed number matches this prefix. The table can contain up to 120 different prefixes.

There may be exceptions to the rule - a number may start with the same digits but has to be served in a different way. Any table line that starts with the same prefix followed by one or more digits is considered an exception of the line with shorter prefix.

Remember to complete the "Other numbers" line for a number whose prefix is not included in the table.

An example in the figure below shows how to bar all international calls with the exception of calls to Slovakia including dialing acceleration by selecting the number length parameter and tariff setting (5 impulses after call connect and then one impulse every 10 seconds). All other calls are enabled and their tariff is one impulse every 30 second.



Routing table

Operator for Integra (Function No.: 405)

In some GSM networks you can add to dialed number # character and PBX subscriber number. Subscriber number is displayed on other side together with CLI. This parameter take place when dialed number doesn't contain # character.

Setting options: 0-8 characters (0-9)

Default setting: blank

Caution!

- Configuration using phone line programming (DTMF) is applicable for line 'Other prefixes' only.

Prefix (Function No.: -)

A prefix identifying the call type (GSM, trunk call, free call, etc.). "Other numbers" line is used for calls with prefixes that are not included in the table.
Setting options: 0-14 characters (0-9, *, #)

Default setting: blank

Call enable (Function No.: 391)

This parameter allows/bars calls with prefixes included on the same line.

Setting options: YES/NO

Default setting: YES

Number length (Function No.: 393)

The parameter defines the expected length of a number with a prefix included on the same line. This enables to start dialing into a GSM network immediately after the last digit is dialed. If the telephone number to be dialed is shorter, a timeout is respected. The "0" setting means that the function is disabled.

Setting options: 0, 3-15

Setting step: 1

Default setting: 0

End with # (Function No.: 394)

This parameter enables to establish the call when a # is received. The # character is removed from the dialed number. If a # should be part of the dialed number, this function cannot be used for the given prefix.

Setting options: YES (1)/NO (0)

Default setting: NO

Remove (Function No.: 395)

The Remove parameter is used for automatic call routing. A defined count of digits (prefix) is removed from the number beginning.

Setting options: 0-20

Setting step: 1

Default setting: 0

Add (Function No.: 396)

The Add parameter is used for automatic call routing. A defined string (prefix) is added to the beginning of the number to be dialed.

Setting options: 0-8 characters (0-9, *, #, +)

Default setting: blank

Extra tariff (Function No.: 397)

Pseudo tariff metering setting (tariff is based on call duration). The Extra tariff parameter defines transmitting of fixed quantity of tariff pulses after call start. This parameter sets minimal call cost.

Setting options: 0-255

Setting step: 1

Default setting: 0

Tariff [s] (Function No.: 398)

Pseudo tariff metering setting (tariff is based on call duration). The Tariff parameter sets the call cost according to call duration. Set how often in seconds do you want to transmit pulses. Smaller number means more expensive call. Zero means not to transmit pulses according to call duration.

Setting options: 0-255 s

Setting step: 1 s

Default setting: 0 s

Time limit [min] (Function No.: 399)

After time elapsing is call connection terminated immediately. You can hear beep 30s before end of call. 10s before end you can hear beep every second. The "0" setting means that the function is disabled.

Setting options: 0-255 min

Setting step: 1 min

Default setting: 0 (disabled)

Bank No (Function No.:-)

Special function - with FW 1.5x and 3.5x only. Don't use this parameter and the menu 'Free minutes bank', with detailed setting of free minutes banks, for standard Easy Gate.

GSM routing parameters

Incoming calls from GSM contain the CLI. According to received CLI Easy Gate can do following:

- Reject the call;
- Use function CallBack - automatic call to the GSM subscriber;
- Automatic dial in. EasyGate dials preprogrammed PBX subscriber number (for example switchboard operator) to be connected with calling GSM subscriber.

FXS line Off-Hook to DISA timeout [ms] (Function No.: 500)

Timeout between FXS line Off-Hook and automatic dial in according to parameter "Dial in" in the table.

Setting options: 100-25500 ms

Setting step: 100 ms

Default setting: 2000 ms

Max. ring time for CallBack (Function No.: 502)

Parameter sets up a behaviour for CallBack function. You've got 2 options how to use a Callback on the FXS port:

Simple CallBack - set up for 0. During an incoming call the FXS port gives a ringing. When the FXS port is off-hooked an incoming call from GSM is rejected and after 10s the gateway calls back the GSM number. During those 10s the caller must hang up to be ready for answering the callback call. On the FXS port a melody is played.

Advanced Callback - set up for 1-255. During an incoming call the FXS port gives a ringing. If the caller wants to use a callback functionality he/she must hang up before the parameter Max. ring time for Callback runs out. The gateway then calls back immediately. If the call is answered on the analog side earlier the called party hears the melody. If the call is answered on the GSM side first then the calling party number hears the melody. If the caller doesn't want to use the Callback he just doesn't hang up and the call is handled as a standard incoming call.

Setting options: 0-255 s

Setting step: 1 s

Default setting: 5 s

FAX from GSM route to (Function No.: 509)

Incoming FAX call from GSM network you can route to telephone line FXS, or to serial line (PCFAX). Parameter takes place only on models with FAX converter, on other models FAX calls are routed always to serial line.

Setting options:

-FXS line - Incoming FAX call is routed to FAX machine on FXS line.

-COM - Incoming FAX call is routed to serial line

Default setting: FXS line

DATA from GSM route to (Function No.: 508)

Incoming DATA call from GSM network you can route to telephone line FXS, or to serial line. Parameter takes place only on models with FAX/DATA converter, on other models DATA calls are routed always to serial line.

Setting options:

-FXS line - Incoming DATA call is routed to modem on FXS line

-COM - Incoming DATA call is routed to COM

Default setting: FXS line

 **Caution**

- Configuration using phone line programming (DTMF) is applicable for line 'Other prefixes' only.

CLI - calling number (Function No.: -)

Fill in CLI, to route the call according to parameter on the same table line. It is possible to fill in only prefix for group of CLI's. If parameter "Substring" = 0, you must fill prefix as you see it on display of your mobile phone - It means inclusive of + and international prefix if they are included. If parameter "Substring" > 0, 2N® SmartGate UMTS searches filled prefix as substring of the received CLI, but max. to position given by "Substring" parameter. Positions are counted from zero. See examples in "Substring" parameter hint.

Setting options: 0-16 characters (0-9,*,#,+)

Default setting: blank

Substring (Function No.: -)

Parameter is used to make filling CLI prefix easier. If parameter "Substring" > 0, EasyGate searches filled prefix as substring of the received CLI, but max. to position given by "Substring" parameter. Positions are counted from zero.

for example received CLI +420603198222 corresponds with settings:

CLI - calling number	Substring
+420603198222	any setting
+420603	any setting
+420	any setting
603198222	4, or more
603	4, or more

Setting options: 0-15

Step: 1

Default setting: 0

Route to (Function No.: 591)

It is possible to route incoming GSM call to FXS interface or reject it. When the call is routed to FXS port you can use the CallBack feature. For correct functionality please set up "Max. ring time for Callback" parameter.

Setting options: FXS (0) -incoming call is routed to FXS

FXS CallBack (2) -incoming call is routed to FXS with CallBack functionality

Reject (4) -incoming call is rejected

Default setting: FXS

Dial in (Function No.: 592)

Parameter "Dial in" is used for automatic connection to switchboard operator, or directly to other subscriber. If this parameter is blank, calling person has telephone line fully at disposal and has to dial the subscriber number by DTMF. You can fill only # character to disable Integra function.

Setting options: 0-16 characters (0-9,*,#)

Default setting: blank

Time limit [min] (Function No.: 599)

After time elapsing is call connection terminated immediately. You can hear beep 30s before end of call. 10s before end you can hear beep every second. The "0" setting means that the function is disabled.

Setting options: 0-255 min

Setting step: 1 min

Default setting: 0 min

SMS Sending Input Parameters

Telephone number for SMS (Function No.: 600)

The telephone number to which an SMS is sent upon SMS input activation. If blank, the function is off.

Setting options: 0-16 characters (0-9,*,#,+)

Default setting: blank

SMS text (Function No.: -)

The SMS text to be sent to the preset telephone number. If the SMS text is blank, an empty SMS is sent.

Setting options: 0-40 characters

Default setting: blank

Send if activated longer than [ms] (Function No.: 601)

Set the SMS activation time necessary for SMS sending. This parameter prevents SMS sending in the event of short-time activation. If a "0" is selected, SMS is sent immediately upon the input activation.

Setting options: 0-25500 ms

Setting step: 100 ms

Default setting: 0 ms

Timeout after sending [s] (Function No.: 602)

Set the Time of inactivity after SMS sending. During this timeout no SMS is sent even if the SMS input gets activated. This prevents sending multiple SMS units in the case of repeated activation of the input.

Setting options: 0-2550 s

Setting step: 10 s

Default setting: 0 s

GSM & SIM Parameters

GSM operator lock (Function No.:-)

Provider blocking is set by manufacturer in EasyGate. If EasyGate is blocked to a GSM provider, no other GSM provider's SIM card can be used. If an unacceptable SIM card is used, the GSM modules does not registered to GSM and the GSM network LED flashes quickly on the EasyGate panel.

CLIR - incognito (Function No.: 701)

Sets the calling line identification restriction (CLIR) for outgoing calls from EasyGate. Attention, before enabling it is necessary to activate this feature by GSM operator, otherwise outgoing calls can be rejected by GSM network.

Setting options: -According to provider (0) - depending on how the function is selected in the GSM network

-Activation (1) - ID is not sent.

-Suppression (2) - ID is always sent

Default setting: According to provider

Roaming enable/disable (Function No.: 702)

You can make EasyGate work even if it is registered to a foreign GSM network.

Setting options: -Disable (0) - The GSM module logs out of a foreign network and attempts to register again in within 5 minutes.

-Enable (1) - EasyGate works in any GSM network.

Default setting: Disable

Call Handover workaround (Function No.: 703)

This parameter offers a workaround to prevent problems during call handover into the 1900 MHz (or 1800 MHz) band, caused by non-conforming configurations of the 1900 MHz (or 1800 MHz) GSM network.

Setting options: -Disable (0) -Disable workaround.

-Enable (1) -Enable workaround.

-Select only when handover into a 1800/1900MHz band fails.

Default setting: Disable

GPRS APN (Function No.: -)

GPRS APN (Access Point Name) for automatic setting.

Setting options: 0-40 characters

Default setting: blank

AMR Enable (Function No.: 704)

You can disable AMR (Adaptive Multi Rate) on GSM module to improve voice quality in some GSM networks

Setting options: -Enable (1)

-Disable (0)

Default setting: Enable

Low credit checking with prepaid SIM

Time period for low credit checking [h] (Function No.: 710)

Set to change time interval between credit checks. If your credit drops under defined value, EasyGate sends SMS "LOW CREDIT". The "0" setting means that the function is disabled.

Setting options: 0-255 h

Step: 1 h

Default setting: 0

Code for credit checking (Function No.: 711)

Credit in prepaid SIM cards is checked by network function, which displays text message on mobile phone display. Code of network function must be terminated with "#" symbol.

⚠ ATTENTION

- find out if you have to pay for this function. Every check can lower your credit.

Setting options: 0-8 characters (0-9,*,#,+)

Default setting: blank

Minimal credit (Function No.: 712)

Set minimal credit value to send warning SMS "LOW CREDIT". If credit is lower than given value, warning SMS is sent after every credit check, until you recharge your SIM card.

Setting options: 0-999

Step: 1

Default setting: 0

Credit value position in received SMS (Function No.: 713)

If there are more numbers except credit value in text answer (e.g. date, time and so on) EasyGate seeks the number corresponding with credit value from given position in text. The seek algorithm skips every non-number character. If credit value is the first number in text you can leave setting 0. If there are other numbers before credit value, set parameter to text position, from which the algorithm will seek.

Setting options: 0-180

Step: 1

Default setting: 0

Telephone number for service SMS

Telephone number for service SMS. The number is common for GGMC SMS, for "LOW CREDIT" SMS on prepaid SIM cards and for battery status SMS. To be set in part Service.

Service

Hardware version

EasyGate hardware version - for information only (cannot be modified). Must be used for communication with the manufacturer.

Firmware version

EasyGate firmware version - EasyGate central processor program version. The manufacturer can issue upgrades to extend functions. To load new firmware into EasyGate use the Upgrade function. Keep communicating with the manufacturer.

Serial number

EasyGate serial number - for information only (cannot be changed). Must be used for communication with the manufacturer.

Blocked to operator

Refer to GSM & SIM Parameters.

COM enable (Function No.: 960)

With this parameter you can enable/disable the serial interface function. You can disable communication in the operating mode, maintaining the special programming mode after power up.

Setting options: YES/NO

Default setting: YES

Time limit for data connections (Function No.: -)

After time elapsing is data/fax connection terminated immediately without warning. The "0" setting means that the function is disabled.

Setting options: 0-255 min

Step: 1 min

Default setting: 0

Telephone number for service SMS (Function No.: 714)

Telephone number for service SMS. The number is common for GGMC SMS and "LOW CREDIT" SMS on prepaid SIM cards.

Setting options: 0-16 characters (0-9,*,#,+)

Default setting: blank

Time period for GGMC SMS [h] (Function No.: 970)

Time interval for GGMC SMS sending. GGMC = GSM Gateway Monitoring Centre. The "0" setting means that the function is disabled.

Setting options: 0-255 h

Step: 1 h

Default setting: 0

Battery status SMS (Function No.: 962)

Setting of this parameter allows sending SMS with information with battery status. Disconnecting of battery (Battery Error) and connecting of battery (Battery Ready) and critically low voltage (Battery flat) is reported by SMS.

Setting options: enable (1)

disable (0)

Default setting: disable

Power failure SMS (Function No.: 963)

Mains status can be reported when this parameter is set. The report about mains failure and recover is sent with defined delay (Power off/on).

Setting options: disable (0)

Enable with delay 1-255 min

Default setting: disable

Initialization

All programmable parameters are arranged in tables according to their functions. You can initialize either all parameters at once or one table of parameters.

Telephone line initialization FXS (Function No.: -)

Initialization of all parameters necessary for the telephone line FXS.

Call table initialization FXS (Function No.: -)

Initialization of all parameters related to FXS routing table.

Call table initialization GSM (Function No.: -)

Initialization of all parameters related to GSM routing table.

Initialization of GSM & SIM (Function No.: -)

Initialization of all parameters related to the GSM network and SIM card (except the PIN code).

SMS input initialization (Function No.: -)

Initialization of all parameters for SMS sending upon SMS input activation.

Global initialization (Function No.: 999)

Initialization of all EasyGate parameters including the PIN and service password.

Only Global initialization can be done by phone line programming. As parameter of this function service password followed by  must be used. This operation isn't followed by confirmation tone. Successful setting is followed by pause (aprox.10s), during this time period is performed reset of configuration memory. Than is the gateway restarted.

Security Parameters

PIN - value (Function No.: 700)

Fill in the PIN value for automatic PIN entering upon EasyGate power up. It is applied only if the SIM card is PIN secured. If the given PIN fails to match the SIM, it is deleted automatically. If entered via a telephone line upon EasyGate start, the PIN is stored automatically.

Setting options: 0, 4-8 characters (0-9)

Upon full initialization: blank

Service password (Function No.: 900)

Fill the service password for programming via a telephone line. Some parameters can be programmed by DTMF dialing and so the access to programming must be password-protected.

Setting options:4-8 characters (0-9)

Upon full initialization: 12345

4. Function and Use

This section describes the basic and extending functions of the product 2N[®] EasyGate PRO.

Here is what you can find in this section:

- 4.1 Voice Function
- 4.2 FAX and Data Function
- 4.3 SMS Sending Input
- 4.4 Data Connection Using USB Port
- 4.5 SIM Card PIN protection

4.1 Voice Function

Outgoing and incoming call establishing procedures for an analog telephone are described for illustration. The procedures are the same for the EasyGate-PBX connection, just remember to program call routing to EasyGate properly. Check EasyGate's function by connecting a telephone before.

Suppose that a SIM card has been inserted, the PIN code entered or not required, the antenna connected and EasyGate registered to GSM network – the GSM network LED is permanently on and you can hear the dial tone upon off-hook.

Outgoing Call

1. Hook off the telephone, you can hear the dial tone and the Line LED starts flashing.
2. Dial the required GSM subscriber number. Since EasyGate receives tone dialing by default, select the DTMF mode. If your telephone transmits pulse dialing only, program EasyGate to receive pulse dialing. The delay between digits to be dialed may not exceed 5 s (programmable parameter). The number is evaluated as complete and transmitted to the GSM network after this timeout.
3. A short delay follows the last-dialed digit for EasyGate to await further dialing. Then, the dialing end is signaled and connection is established.
4. If the called subscriber is available, you can hear the ringing tone. If not, you can hear the busy tone or any of the GSM provider's messages.
5. When the called subscriber answers the call, a call is established. The Line LED is permanently on during the call.
6. Hang up to terminate the call. The Line LED goes off. If the called subscriber is the first to hang up, you can hear the busy tone and hang up.

Incoming Call

1. Ringing signals an incoming call. The Line LED flashes during ringing. If programmed so, EasyGate transmits the CLIP by FSK between the first and second rings. Advanced telephone sets are able to display the CLI.
2. Hook off the phone to establish the call. The Line LED is permanently on during the call.
3. Hang up to terminate the call. The Line LED goes off. If the called subscriber is the first to hang up, you can hear the busy tone and hang up.

Automatic Call ("Baby Call")

If the BabyCall function is enabled, a pre-programmed period of time is counted down after off-hook. If you do not start dialing within this timeout, EasyGate signals dialing end and starts establishing a call to the pre-programmed number automatically – from now on EasyGate behaves as if a standard outgoing call had been established. Any dialing during the BabyCall timeout cancels this function and a standard outgoing call can be made.

Tariff pulses 16 or 12 kHz

EasyGate has tariff pulse transmitter. You can use tariff pulses for outgoing call pricing. EasyGate offer pseudotariff only – tariff metering doesn't correspond to real price of call, tariff pulses are transmitted according to programmed parameters and call duration. You must program specific parameters in call table to set tariff metering for different prefixes of dialed numbers.

You can also program EasyGate to transmit tariff pulses as call connect/disconnect signaling if your PBX cannot receive telephone line polarity change signaling.

Configuration of network services

EasyGate provides some of network services to improve possibility of usage. The configuration is done by standard Star-Hash codes you can know from mobile phones.

To configure these services:

1. Hook off the telephone, you can hear the dial tone.
2. Enter the Star-Hash code described below.
3. Wait for information tone. You may wait about 3 seconds.
4. Hook on.

Information tones:

Confirmation - OK: 

- Confirms that the service was configured correctly.

Confirmation - bad: 

- Service was not correctly configured
- Service isn't activated by your provider

Confirmation - service activated: 🎵🎵🎵

- Confirms that the service was configured correctly and the service is activated.

Confirmation - service deactivated: 🎵🎵🎵

- Confirms that the service was configured correctly and the service is deactivated.

Call forwarding

For forwarding activation you must specify <Telephone number> the calls will be forwarded to. You may specify <Call type>, if you want to forward specified call type only. You may specify <Delay time> in seconds for forwarding if no answer too.

Description of <Call type> field codes:

Voice: 1 1

Data: 2 5

Fax: 1 3

Call forwarding unconditional

If activated, incoming calls will be always forwarded to the configured telephone number.

Activation for all call types:

* * 2 1 * <Telephone number> #

Activation for selected call type:

* * 2 1 * <Telephone number> * <Call type> #

Deactivation:

2 1

Status check:

* # 2 1 #

Call forwarding if busy

If activated, incoming calls will be forwarded to the configured telephone number if there is call in progress on EasyGate.

Activation for all call types:

* * 6 7 * <Telephone number> #

Activation for selected call type:

* * 6 7 * <Telephone number> * <Call type> #

Deactivation:

6 7

Status check:

* # 6 7 #

Call forwarding if no answer

If activated, incoming calls will be forwarded to the configured telephone number if incoming call isn't answered during specified timeout. Default timeout is 20 seconds.

Activation for all call types:

* * 6 1 * <Telephone number> #

Activation for selected call type:

* * 6 1 * <Telephone number> * <Call type> #

Activation for all call types and specified delay time:

* * 6 1 * <Telephone number> * * <Delay time> #

Activation for selected call type and specified delay time:

* * 6 1 * <Telephone number> * <Call type> * <Delay time> #

Deactivation:

6 1

Status check:

* # 6 1 #

Call forwarding if not accessible

If activated, incoming calls will be forwarded to the configured telephone number if your EasyGate is not accessible in the GSM network.

Activation for all call types:

* * 6 2 * <Telephone number> #

Activation for selected call type:

* * 6 2 * <Telephone number> * <Call type> #

Deactivation:

6 2

Status check:

* # 6 2 #

Call waiting

If the call waiting is activated the incoming call isn't refused if there is call in progress on EasyGate. If there is the other incoming call during connected call it will be indicated by tone. See 0. for multiple calls management.

Activation:

* 4 3 #

Deactivation:

4 3

Status check:

* # 4 3 #

Call hold

Check if your network supports the service before you use it.

This service relates to Call waiting described in 5.7. If there is call waiting on the line, you have more possibilities what to do. Every action is made by FLASH and DTMF code:

To terminate all held calls, or reject waiting call dial:

R 0

To terminating active call and accept the held or waiting call dial:

R 1

To place the active call on hold and accept the held or waiting call (switching between two calls) or

To place the active call on hold to have possibility to dial other outgoing call dial:

R 2

To place all held calls to active calls and set up conference call dial:

R 3

To connect the two calls (active and held) and disconnect the EasyGate from both calls dial:

R 4

4.2 FAX and Data Function

Caution

- Only EasyGate with fax converter supports fax and data functions.

Sending fax message or modem connection to and from GSM

GSM fax and Data connection

EasyGate with fax converter has ability to send and receive GSM fax messages using analogue fax Group 3 connected to telephone line FXS. The fax communication service must be registered with your GSM operator. It is possible to establish data connection using analog modem connected to FXS line. **It is useful for devices with build-in modem, without possibility to use serial line.** The data communication service must also be registered with your GSM operator.

Sending a fax message to GSM and modem connection through GSM

When connected device is able to send CNG tone (1100Hz for fax 1300Hz for modem), the gateway recognizes whether the call is fax or data, the connection will be established automatically. When the tone is not send or some problems with recognition occurred, is necessary to dial before destination number code ***01*** for fax call or ***02*** for data call. This code us used to inform the Gateway, that the call is a fax or data call.

Receiving a fax message from GSM

It is recommended to activate separate fax number on your SIM card -**multinumbering scheme**. Fax messages must be routed to fax number, data call to data number. Incoming fax, data and voice calls will be than automatically recognized. It is possible to set ring pattern for fax and data call, different from the pattern for voice call.

If the fax or data number is not activated, the call from analogue network routed to your GSM number is not detected as fax or data call and is routed via the analogue channel of GSM network and the connection is not successful. In this case it is possible to set the gateway using DTMF commands using device connected to FXS line. These commands can be used for data and fax routing to FXS line or serial line.

DTMF codes for fax receive:

- ***9900#** Reset of all following settings for fax receive
- ***9901#** The next call is fax, this setting is suspended after receiving call or by command ***9900#**
- ***9902#** Fax routed to FXS, inactivate **9900# or device reset *+**
- ***9903#** Fax routed to COM, inactivate **9900# or device reset *+**

DTMF codes for data receive:

- ***9800#** Reset of all following settings for data receive
- ***9801#** The next call are data, this setting is suspended after receiving call or by command ***9800#**
- ***9802#** Data routed to FXS, inactivate **9800# or device reset *+**
- ***9803#** Data routed to COM, inactivate **9800# or device reset *+**

Commands marked **+** are used to set parameters, which can be set permanently in configuration program (PCManager). Using DTMF commands has higher priority, than setting in configuration program, but is valid only till reset of gateway or inactivating command.

Setting for the next call is only alternative solution, which is not able to substitute using of multinumbrig scheme (e.g. when unexpected voice call is incoming before the fax or data call, this solution disables to receive it).

Supported fax and data protocols

Supported fax protocols

The gateway supports connection of analogue Fax Group 3 using protocols V.29, V.27 and V.27ter. Maximal data rate is 9,6kbps. The maximal data rate is strongly dependent on line quality, which is tested on the beginning of connection, to avoid data errors. The fax service is available up to field strength -90dBm.

Supported data protocols

The gateway supports connection of analogue modem using protocols V.34, V.32bis, V.32, V.22bis, V.22, Bell 212A and Bell 103. Maximal data rate is 56kbps. For connection between two modems is the data rate limited by the CSD data rate in GSM network, the maximum is 14,4kbps.

Higher data speed could be useful only for GPRS connection. The maximal data rate is strongly dependent on line quality, which is tested on the beginning of connection, to avoid data errors. The data rate for GPRS connection is limited by actual speed of GPRS transfer in GSM network too. This speed is often affected by network load.

4.3 SMS Sending Input

This universal input is intended especially for reporting alarm or error statuses of any equipment provided with the appropriate contact (a relay contact, e.g.).

By activating this input (electric input pin interconnection) you send one SMS to one pre-programmed telephone number.

 **Caution**

- Do not use in life-supporting or property-protection applications because of the character of SMS service and EasyGate. The manufacturer shall not be liable for health and property damage incurred as a result of SMS sending failure.

4.4 Data Connection Using USB Port

EasyGate device is equipped with virtual serial port that simulates standard COM port in PC according to specification RS-232C. Installation is described in **section 3.1** paragraph „Installation and setting of EasyGate PCManager“ points 1 to 3.

The transmission rate ranges from 1200 to 115200 bps (EasyGate supports autobauding, i.e. responds to an AT command at a rate identical with the AT command transmission rate, and retains set on this rate). The transmission setup must be 8 bits, no parity and one STOP bit (8N1).

During the call establishing and terminating the serial interface of GSM module is used by the central processor of EasyGate. During this time periods the communication with module is impossible. The communication is blocked by setting of the signals for flow control on virtual COM port. All PC SW must provide transmission hardware flow control (HW handshaking).

CSD PC-PC Data Transmission

The CSD mode provides data transmission in the GSM network at the maximum transmission rate of 14400 bps. It works like a classic connection of two modems (AT commands ATD, ATH, ATA, etc.). Connection can be made with another GSM modem or a PSTN modem.

Caution

- Data calls and fax calls from the PSTN come as voice calls (the telephone line on EasyGate rings) because an analog network is unable to distinguish a modem/fax call. Therefore, it is necessary to have a special telephone number for incoming data and fax calls on the SIM card different from voice call numbers (Multi-numbering scheme). The GSM network identifies a call incoming to this number as a data/fax call and lets the COM serial interface ring.

CSD or High-Speed GPRS Data Connection to Internet

To connect to the Internet, install the faxmodem driver from the EasyGate CD-ROM first. Another possibility is to use the GSM provider's installation wizard in case it supports the GSM module Cinterion MC55i-w installed in EasyGate. GPRS/faxmodem driver can be found on installation CD (mdm2n_vx.x.inf, x.x – driver version).

The installation wizard usually configures the telephone connection of the network too. If you use manual installation, you have set it properly. Ask you GSM provider for Internet connection instructions because they can be different for each provider

(especially the telephone number to be dialed, DNS, etc.). For GPRS connection is necessary to set the APN. It could be set in gateway using PCManager (GSM&SIM - GPRS APN) or in modem extra settings in PC:

Example: `at+cgdcont=1,"IP","internet.t-mobile.cz"`

APN can be set using configuration tool PC Manager UNI too. (GSM&SIM/GPRS APN)

 **Caution**

- GSM providers mostly specify the **99#** number to be dialed for GPRS connection in their instructions. Cinterion GSM modules require the ***99**1#** format.

CSD or GPRS Data Connection?

The maximum CSD transmission rate is 14400 bps. GSM connection is reserved for the whole time of connection and calls are charged according to the connection time. The CSD mode can provide data connection of two PCs.

EasyGate is equipped with GSM modules providing GPRS class 10 (4+2 timeslots), which means that it is able to transmit data into a PC at the rate of 85600 bps and at half the rate towards the GSM network. The GPRS cannot be used for connection of two PCs. It can only provide connection with an APN – e.g. the Internet. Most GSM providers charge GPRS connections according to the volume of data transmitted or by a lump sum and so the GPRS is suitable for long-time connection with occasional data transmissions.

SMS Sending and Receiving

It is possible to send and receive SMS units using appropriate AT commands. There are a number of PC programs that are based on this principle. Install SW designed for SIEMENS GSM modules (SIEMENS mobile telephone SW can also be used). You can send and receive SMS even during EasyGate voice calls.

Combination of serial connection with Voice Calls

As already mentioned, SMS transmission can be made even during telephone calls. The SMS program is only blocked temporarily during outgoing call establishing and incoming call ringing.

The same applies to PCManager monitoring. A message announcing that EasyGate is blocked is displayed during voice call establishing.

No voice call can be made during CSD data connection.

Outgoing and incoming calls can be made during GPRS connection. The GPRS connection remains active during the whole call but no data can be transmitted (EasyGate is a GPRS terminal of class B). Once the call is terminated, data transmission is recovered immediately.

List of Supported AT Commands

There are original files related to Cinterion GSM modules in the PDF format on the EasyGate CD-ROM.

Caution

- Since the GSM module is primarily used by the EasyGate central processor for voice calls, use AT commands carefully. You might misconfigure the GSM module thus making EasyGate inoperative. To solve most of these problems, switch EasyGate off and on again to make the central processor execute full initialization of the GSM module.

Do not use particularly:

ATQ1	AT+CMUT=	AT^SNFI=
ATS3=	AT+CMUX=	AT^SNFM=
ATS4=	AT+CSCS=	AT^SNFO=
ATS5=	AT^SAIC=	AT^SNFPT=
ATV0	AT^SM20=	AT^SNFS=
AT&C0	AT^SMSO=	AT^SNFV=
AT+IPR=	AT^SNFA=	AT^SNFW=
AT+CFUN=	AT^SNFD=	

4.5 SIM Card PIN protection

If a SIM card is PIN-protected and the PIN is not programmed in EasyGate, GSM LED indicates the state and the PIN tone is transmitted on telephone line.

PIN Entering by PCManager

Like other parameters, the PIN code can be entered using a PC programming tool. The PIN will be entered automatically upon next EasyGate power up.

PIN Entering via Telephone Line

To enter the PIN via a telephone line using the DTMF:

1. Hook off the telephone, you can hear the PIN tone.
2. Enter the PIN using the DTMF; to cancel the wrong PIN hang up before sending a  .
3. To confirm enter a  .
4. If you hear the busy tone in a while (a few seconds), you have entered the PIN correctly. Hook on and wait for registering to the GSM network.
5. If you hear the PIN tone again in a while, you have entered a wrong PIN. Re-enter the PIN.
6. If you hear the PUK tone in a while, you have entered a wrong PIN and the SIM card is blocked. Use the mobile phone to unblock the SIM card.

A correctly entered PIN is stored in EasyGate's memory as if you had programmed it using the PCManager. The PIN will be entered automatically upon the next EasyGate power up.

Automatic PIN Entering

You need not enter the PIN upon power up if it is stored in EasyGate – it is entered automatically. This function is convenient in case of power failure; EasyGate is operable in a short time after power recovery without any intervention by the operating staff.

Warning

- **One PIN entering option is exhausted** by the attempt to enter the PN automatically upon SIM card or PIN change. If wrong, the automatically entered PIN is cleared from the internal memory to avoid another false attempt upon next power on. There are still two manual PIN-entering attempts after such unsuccessful automatic entering. To prevent the unsuccessful automatic PIN entering, delete or program properly the EasyGate PIN using the PCManager in the case of SIM card change.

5. Technical Parameters

GSM

- **GSM module:** MC55i-W
- **GSM bandwidth:** EGSM 850/ EGSM 900/ GSM 1800/ GSM 1900 MHz
- **Transmission power:**
 - 2 W EGSM 850 / 900 MHz,
 - 1W GSM 1800 / 1900 MHz
- **Receiver sensitivity:** -105 dBm
- **Audio:**
 - HR+FR+EFR Half rate+Full rate+Enhanced full rate
 - Echo cancellation, Echo suppression
- **DATA:**
 - GPRS Class 10, 4+2 max. 85.6 kbps downlink
 - CSD max. 14.4 kbps; Coding scheme CS 1, 2, 3, 4
- **Fax:** Fax Group 3 on model with fax converter
- **Antenna:**
 - 850/ 900/ 1800/ 1900 MHz 50 Ω
 - SMA antenna connector
- **SIM card:** 3V or 1,8V plug-in

Power Supply

- **Mains supply:** 230/12V; 0.5A adapter
- **DC power supply:** 10 to 16V DC
- **12V consumption:**
 - Standby 90mA
 - Call - typ. 300mA, max. 600mA
 - Data - typ. 200mA, max. 400mA
 - Battery charge - additional consumption 70 mA (Battery backup version only)
- **Supply connector:** DC Jack 5.5/2.1 mm, positive to center
- **When other power source than supplied adapter is used, the power source must meet the criteria for SELV standard.**

Battery backup (optional)

- **Accumulator type:** Charging cell NiMh size AA
- **Number of pieces:** 4
- **Power consumption from batteries:**
 - Standby - typ. 230mA
 - Call - typ. 600mA, max. 1200mA
 - Data - typ. 350mA, max 800mA
- **Charging current:** Typ.70 mA, regulated
- **Accumulators are not part of delivery.**

Telephone interface

- **Interface type:** 2-wire analog, FXS
- **Telephone connector type:** RJ 12, 6/2
- **Call impedance:** 600 Ω
- **Loop voltage:** 48 V DC
- **Loop current:** max. 40 mA
- **Loop resistance:** max. 800 Ω
- **Tone frequency:** adjustable, default 425 Hz
- **Dialing type:** tone (DTMF) and pulse
- **Ringing voltage:** 42 Vrms 50/25 Hz
- **Calling line identification:** CLI during ringing according to ETSI FSK
- **Tariff pulses:** f=16/12 kHz ; Umin=100mVef on 200 Ω
- **Answer supervision:** polarity reversal, 12/16 kHz pulses

SMS Sending Input

- **Closed loop resistance:** max. 1k Ω
- **Open loop resistance:** min. 25k Ω
- **Output voltage / current:** open loop 3V / short circuit 0,3mA
- **Input overvoltage protection:** max. +/- 12V

Serial interface

- **Interface type:** USB 1.1
- **Connector:** USB typ B
- **Interface transmission rate (on virtual COM port):** 1200 - 115200 bps (autobauding) 8N1

Versions of product

Ordering number (without country code - x letters)

- **501323x:** Basic version
- **501333x:** Battery backup version
- **501343x:** Analogue fax support
- **501353x:** Analogue fax support and battery backup

Other parameters

- **Dimensions (w/o connectors):** 163 x 157 x 38 mm
- **Operating temperature:** 0 °C to 45 °C
- **Operating status signaling:**
 - 4 LEDs (on, GSM network, line, data)
 - Signal / Battery status

6. Supplementary Information

This section describes supplementary information of the product. Here is what you can find in this section:

- **6.1 Troubleshooting**
- **6.2 List of Abbreviations**
- **6.3 Regulations and Directives**
- **6.4 General Instructions and Cautions**

6.1 Troubleshooting



For the most frequently asked questions refer to faq.2n.cz.

- *No LED is on after power up*
 - Check the power supply.
- *All LEDs are on. No call is currently in progress.*
 - EasyGate is in the special PCManager-based programming mode - exit the PCManager to reset EasyGate.
 - Try to switch EasyGate off and on, the LEDs should go off in 3s and signal the status of EasyGate.
- *EasyGate does not register to GSM*
 - Check the SIM card.
 - Check the PIN.
 - Check the antenna connection.
 - Select a place with a good GSM signal.
- *No tone can be heard after line off-hook*
 - Check the telephone line connection.
 - EasyGate is not initialized properly upon start (approx. 10s after power up).
 - EasyGate is not supplied with power.
- *EasyGate keeps transmitting a tone during dialing, not receiving the dialing*
 - Select the correct dialing type (DTMF or pulse).
- *EasyGate does not communicate with PC*
 - Check the serial cable connection.
 - Check the COM number setting on PC.
 - Check the COM parameters (1200-115200 bps, 8N1).
 - EasyGate is not registered to GSM network.
 - A dialing or outgoing call establishing process takes place on EasyGate.
 - An incoming call is ringing on EasyGate.

6.2 List of Abbreviations

- **APN** Access Point Name - necessary for the GPRS service
- **CLIP** Calling Line Identification Presentation
- **CSD** Circuit Switched Data
- **COM** PC serial port
- **DTMF** Dual Tone Multifrequency - tone dialing
- **EG** EasyGate
- **FSK** Frequency Shift Keying
- **FXO** an interface electrically identical with a standard telephone (opposite side = FXS interface)
- **FXS** a telephone interface allowing standard telephone connection (opposite side = FXO interface)
- **FW** Firmware - similar to SW, a term for the central microprocessor program
- **GSM** Group Switched Mobile system - the present standard digital mobile telephone network
- **GPRS** General Packet Radio Service - high-speed data transmission for GSM networks
- **HW** Hardware - an electronic device, circuit, board, component, etc. in this context
- **P(A)BX** Private (Automatic) Branch Exchange
- **PC** Personal Computer (based on the IBM PC standard)
- **PIN** Personal Identification Number - a SIM card securing password
- **PUK** Personal Unblocking Key - a password used to unblock a blocked SIM card after repeated wrong PIN entering
- **RS-232C** a PC serial port standard
- **SIM** Subscriber Identity Module - a chip-equipped module to be inserted in a GSM device for identification
- **SMS** Short Message Service, a term for the system and one unit (message)
- **SW** Software
- **TTL** Transistor-Transistor Logic - a standard digital technology defining voltage for levels 0 and 1
- **PSTN** Public Switched Telephone Network

Europe

2N[®] EasyGate PRO conforms to the following directives and regulations:

Directive 1999/5/EC of the European Parliament and of the Council, of 9 March 1999 - on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity

Directive 2006/95/EC of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

Directive 2004/108/EC of the Council of 15 December 2004 on the harmonisation of the laws of Member States relating to electromagnetic compatibility

Commission Regulation (EC) No. 1275/2008, of 17 December 2008, implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment

Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

Regulation (EC) No. 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No. 793/93 and Commission Regulation (EC) No. 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC

Directive 2012/19/EC of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment.

6.4 General Instructions and Cautions

Please read this User Manual carefully before using the product. Follow all instructions and recommendations included herein.

Any use of the product that is in contradiction with the instructions provided herein may result in malfunction, damage or destruction of the product.

The manufacturer shall not be liable and responsible for any damage incurred as a result of a use of the product other than that included herein, namely undue application and disobedience of the recommendations and warnings in contradiction herewith.

Any use or connection of the product other than those included herein shall be considered undue and the manufacturer shall not be liable for any consequences arisen as a result of such misconduct.

Moreover, the manufacturer shall not be liable for any damage or destruction of the product incurred as a result of misplacement, incompetent installation and/or undue operation and use of the product in contradiction herewith.

The manufacturer assumes no responsibility for any malfunction, damage or destruction of the product caused by incompetent replacement of parts or due to the use of reproduction parts or components.

The manufacturer shall not be liable and responsible for any loss or damage incurred as a result of a natural disaster or any other unfavourable natural condition.

The manufacturer shall not be held liable for any damage of the product arising during the shipping thereof.

The manufacturer shall not make any warrant with regard to data loss or damage.

The manufacturer shall not be liable and responsible for any direct or indirect damage incurred as a result of a use of the product in contradiction herewith or a failure of the product due to a use in contradiction herewith.

All applicable legal regulations concerning the product installation and use as well as provisions of technical standards on electric installations have to be obeyed. The manufacturer shall not be liable and responsible for damage or destruction of the product or damage incurred by the consumer in case the product is used and handled contrary to the said regulations and provisions.

The consumer shall, at its own expense, obtain software protection of the product. The manufacturer shall not be held liable and responsible for any damage incurred as a result of the use of deficient or substandard security software.

The consumer shall, without delay, change the access password for the product after installation. The manufacturer shall not be held liable or responsible for any damage incurred by the consumer in connection with the use of the original password.

The manufacturer also assumes no responsibility for additional costs incurred by the consumer as a result of making calls using a line with an increased tariff.

Electric Waste and Used Battery Pack Handling



Do not place used electric devices and battery packs into municipal waste containers. An undue disposal thereof might impair the environment!

Deliver your expired electric appliances and battery packs removed from them to dedicated dumpsites or containers or give them back to the dealer or manufacturer for environmental-friendly disposal. The dealer or manufacturer shall take the product back free of charge and without requiring another purchase. Make sure that the devices to be disposed of are complete.

Do not throw battery packs into fire. Battery packs may not be taken into parts or short-circuited either.



2N TELEKOMUNIKACE a.s.

Modřanská 621, 143 01 Prague 4, Czech Republic

Phone: +420 261 301 500, Fax: +420 261 301 599

E-mail: sales@2n.cz

Web: www.2n.cz

v1.0