User Guide 2N® EasyGate PRO

v.2.01

www.2n.com

Content:

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

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.
- Analog fax transmission is available on some models.
- The Battery backup version of EasyGate provides the function in the case of power failure.

Advantages of EasyGate Use

- **Call cost cutting** – by forwarding GSM calls to EasyGate you save a lot on PSTN – mobile network calls.
- **Easy installation** – EasyGate is designed for immediate use without programming.
- **All you need in one package** – your EasyGate delivery contains all you need to operate the system (power supply adapter, phone cable, PC USB cable, SMS input connector). The software is available for download at www.2n.com.
- **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.
- **Data connection** – EasyGate UMTS version provides connection to the Internet using HSPA (download at up to 3.6 Mbps with SIM5320 or 14.4 Mbps with PHS8-P). The EasyGate GSM version supports GPRS connection (GPRS class 10, up to 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.

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 0.5 m.

 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
1.02	Free minutes option added (for Firmware version 3.5x only)
1.03	UMTS version added

2.00	Dual SIM (lift) and LTE versions added
2.01	Correction of minor LTE defects

Cautions

- The manufacturer continuously meets customer requirements by improving the firmware. The latest EasyGate processor firmware and PCManager programming tool are available for download at www.2n.com. The User Manual is available for download at wiki.2n.com.
- For EasyGate firmware upgrade details 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

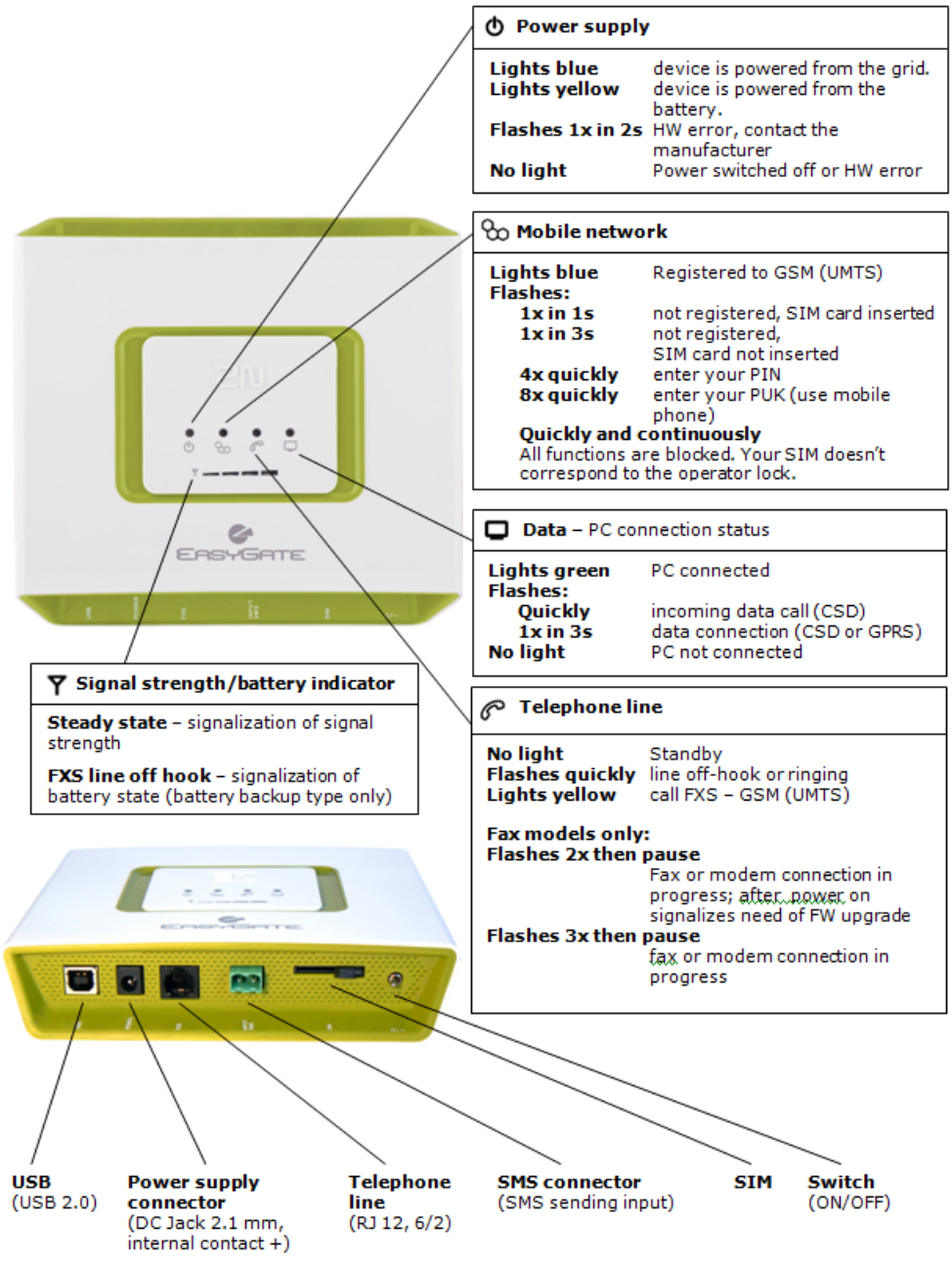
This section describes the **2N® EasyGate PRO** product and its installation.

Here is what you can find in this section:

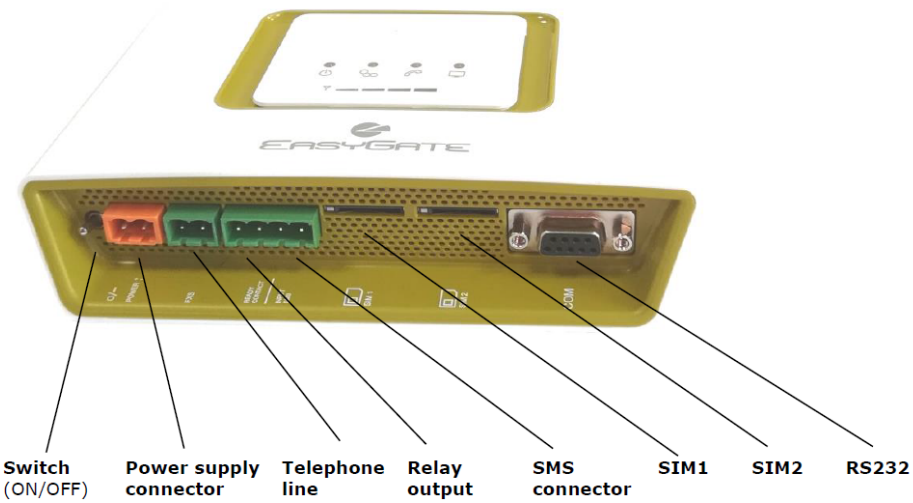
2.1 Description

EasyGate consites 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.



EasyGate LED indicators and EasyGate Connecters



Dual SIM version – front panel

Telephone Line Tones – Operational Tones

The GSM (UMTS) 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 (UMTS) network and ready to receive dialing.

Ringing tone

-
- The called subscriber's telephone is ringing.
- The GSM (UMTS) 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:

- 1x **2N® EasyGate PRO**
- 1x Antenna for direct connection [1)]
- 1x Magnetic Antenna with coax cable [1)]
- 1x Supply adapter
- 1x Telephone Cable
- 1x PC-connection USB cable
- 1x SMS sending input connector
- 2x Dowel
- 2x Bolt
- 1x Quick Installation Guide

Note

- 1) **Antennas:** 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 the GSM (UMTS) signal is poor, in case of interference with other devices or when a poor quality of voice appears. You have to find the best place for the antenna.
- **Software:**
  The 2N® EasyGate PCManager software is available for download at www.2n.com. EasyGate Drivers for PC allowing data connection to the Internet.
- **Lists of AT Commands:**
  Refer to Subs. 4.4 of this manual for the list of AT commands.
- For some types of Easy Gate, the accessory can be modified according to the customers' demand.

Installation Requirements

- EasyGate is designed for vertical mounting on suspension holes. This position is the best for signal reception when an antenna without cable is used. EasyGate can be operated in the horizontal position too where the GSM (UMTS) signal is good or where an antenna with a cable is used.
- Install EasyGate with respect to the GSM signal strength – check the signal strength using 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 vapors, 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 startup (SIM card, analog phone set or FXO port of PBX, 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.

In dual SIM version is SIM1 primary slot, SIM2 secondary slot. When the connection using SIM1 is not accessible or the signal level is lower than limit set by parameter, the SIM2 is used for connection. During connection over SIM2 is checked the signal level for connection over SIM1 in regular intervals set by parameter. When the signal level is sufficient, the connection is switched back to SIM1. Connection using primary SIM is signalized by blue color of LED Mobile network, connection using secondary SIM by yellow color.

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 10–16 V 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 mobile network 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 +12 V 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 Parameter Configuration

PC Connection

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

> **Caution**
>
> - If another USB cable is used, 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 PCManager UNI installed. All the functions supported by EasyGate can be set using the PC.
- Or use DTMF programming on a telephone line. Not all functions can be set in this way.

Telephone Line Based Programming

1. Hook off the phone, 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) using DTMF; to cancel a wrong password hang up before sending the  character.
3. To confirm the 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 the hang-up.

6. Enter the number of the parameter to be programmed and press [*]. If the parameter number is correct, you can hear the confirmation tone, if not, you get the rejection tone and can re-enter the parameter number.
7. When the parameter number is confirmed, enter the allowed parameter value and press [*].
8. . If the parameter value is in the allowed range, you can hear the saving tone, if not, you get the rejection tone. You can enter another parameter number in either case.

Numeric parameters are programmed using numbers in the units included in the parameter description. With YES/NO parameters use [1] for YES and [0] for NO.

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

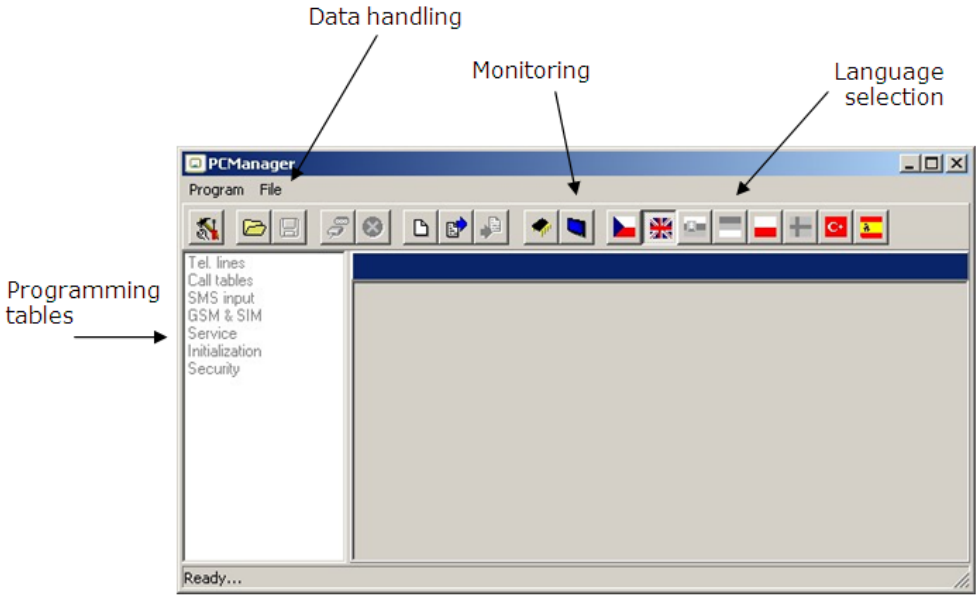
Example:

Dial	Confirmation	Description
[1][2][3][4][5][*]	♪♪	Password entering, OK
[1][0][*]	♪♪	Transmission volume parameter, OK
[3][*]	♪♪♪	Set to medium level, saved
[5][5][*]	♪♪♪♪♪	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 text hints above all the 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 3 s 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 necessary. If EasyGate is not reset after the PCManager UNI is terminated, switch the system off and on again.



EasyGate PC Manager UNI basic screen

Installation and Setting of EasyGate PCManager

1. Connect EasyGate to the PC using USB connection. EasyGate must be switched off.
2. After connecting, the virtual serial port in PC is installed automatically. In case the port fails to be installed automatically and an unknown device is detected, install the drivers using the Drivers/win/CDM20814_Setup.exe file.
3. Find the virtual port number using the Device manager. Look at the COM port settings and find a port marked as ***USB Serial Port (COM*n*).***
4. Launch the EasyGate PCManager installation.
5. Run EasyGate PCManager, select the language on the upper bar.
6. In the ***Program*** menu select ***Setup.*** Set the COM port to local and select the COM port number according to the information from point 3.

PCManager Use – Basic

1. The main purpose of PCManager UNI is to set configuration and upgrade firmware of EasyGate.
2. When the EasyGate configuration is to be changed, the configuration must be first loaded from EasyGate, then edited using PCManager and finally saved back to EasyGate.
3. The parameter groups are listed in the left window of the program. All the parameters are described in the next part of this manual. There is an interactive help in PCManager for all the parameters.
4. When you start any operation that needs communication with EasyGate, the gateway must be switched to a 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 PCManager. This is recommended for backing up current configurations or saving the same configuration to another Easy Gate unit.

Caution

- The Security table 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 PCManager UNI and then into EasyGate, the PIN and service password should not change unless you change them manually before saving.

Caution

- All the tables are filled-in with default values when PCManager UNI starts. It is recommended to load data from EasyGate before programming and saving the parameters. If you only save data after the PCManager UNI start, all the parameters except the PIN and service password in the EasyGate memory will have their 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 center 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 10 s 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 PCManager reports serial port blocking.

Remote monitoring can be done by the SMS GGMC (GSM Gateway Monitoring Center). The phone number for SMS sending and the sending period can be set using the 'Telephone number for service SMS' (714) and 'Time period for GGMC SMS [h]' (970) parameters.

The SMS message contains the following information:

– Serial number of the Gateway

– Period for GGMC SMS sending

– Letter S or R – S – start, after restart, R – running, service in progress

– Firmware version

– Signal strength – according to command AT+CSQ

0	−113 dBm or less
1...30	−111...−53 dBm
31	−51 dBm or greater
99	unknown or undetectable

– Number of calls realized since the last restart

Firmware Upgrade

The firmware upgrade in **2N® Easy Gate** is done in the programming mode using PCManager UNI. The upgrade description is as follows.

Upgrading procedure

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

Caution

- 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 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 at 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 phone line programming, **2N® EasyGate** behavior description, setting options, setting step and default (initialization) value.

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

FXS Telephone Interface Parameters

Dialing Parameters

Type of dialing (Function No. 100)

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

Setting options:

*DTMF (0) – **2N® EasyGate** receives tone dialing only.*

*Pulse (1) – **2N® EasyGate** receives pulse dialing only*

Default setting: DTMF

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

Timeout during which **2N® 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

Minimum On Hook [ms] (Function No. 102)

The minimum line current break that **2N® 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 via a GSM voice channel, a problem can occur with transmission quality, because GSM compression can damage the signal. You can set digital transmission mode, then **2N® SmartGate** mutes the original DTMF signal from the telephone line and transmits digital DTMF in the signaling channel instead. This function cannot solve the problem when **2N® EasyGate** receives DTMF, it influences the sending direction only and is active only if **2N® EasyGate** originates the call.

Setting options: Analog – DTMF transmission through voice channel without change (0)

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

Default setting: Analog

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 the call in progress signaling by the telephone line polarity reversal on the 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) – **2N® EasyGate** does not send a tariff pulse to signal the call start/end.*

*Call end (1) – **2N® EasyGate** sends a tariff pulse when the call ends.*

*Call start (2) – **2N® EasyGate** sends a tariff pulse when the call starts.*

*Call start and end (3) – **2N® EasyGate** sends a tariff pulse when the call starts and ends too.*

Default setting: None

Tariff pulse frequency (Function No. 112)

Tariff pulse frequency setting.

Setting options:

*16 kHz (0) – **2N® EasyGate** transmits 16 kHz tariff pulses*

*12 kHz (1) – **2N® EasyGate** transmits 12 kHz tariff pulses*

Default setting: 16 kHz

Call progress signaling via CPC (Function No. 113)

Call end signaling setting via CPC – Calling Party Control. A short-time current interruption with a phone loop for call end signaling.

Setting options: Off (0)

On (1)

Default setting: Off

Tone Settings

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

The parameter can be set for all the three tone types (Dial tone, Busy tone, Ringback tone). This parameter is intended for switching between the single tone and double tone settings. When the parameter is set, the other frequency of the appropriate tone must be set too. When this parameter is not set, frequency 2 is automatically set to the same value, which results in single tone generation. This parameter cannot be set using phone line programming. When phone line programming is used for a 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 dial tone frequency 1. This tone is generated after Off-Hook in case **2N® 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 dial tone frequency 2.

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) – **2N® EasyGate** generates the continuous dial tone.*

*Morse A (1) – **2N® EasyGate** generates the dial tone with 330/330/660/660 ms timing.*

Default setting: Continuous

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

Setting of busy tone frequency 1.

Setting options: 1–3400 Hz

Setting step: 1 Hz

Default setting: 425 Hz

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

Setting of busy tone frequency 2.

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 ringback tone frequency 1. This tone is sent after dialing end before the 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 ringback tone frequency 2.

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 **2N® EasyGate** subscriber can hear the tone selected here.

Setting options:

*Busy (0) – **2N® EasyGate** transmits the busy tone upon call end.*

*Permanent (1) – **2N® 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 4dB 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 4dB step.

Setting options: 1–5

Setting step: 1

Default setting: 3 = medium volume level

Ringing Signal Settings

Ringing signal – frequency [Hz] (Function No. 140)

Ringing signal frequency setting.

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

Default setting: 50 Hz

Ringing signal – cadence (Function No. 141)

Ringing signal cadency setting.

Setting options:

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

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

400 ms ring, 2 s 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

Ringing signal – cadence for data/fax (Function No. 142)

Ringing signal cadency setting for incoming fax call data.

The same setting as parameter 141.

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 the device on your telephone line 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 fulfilled, 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 DTMF dialed 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, **2N® EasyGate** waits for dialing that cancels the automatic call. You can make a 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 a time limit for the call.

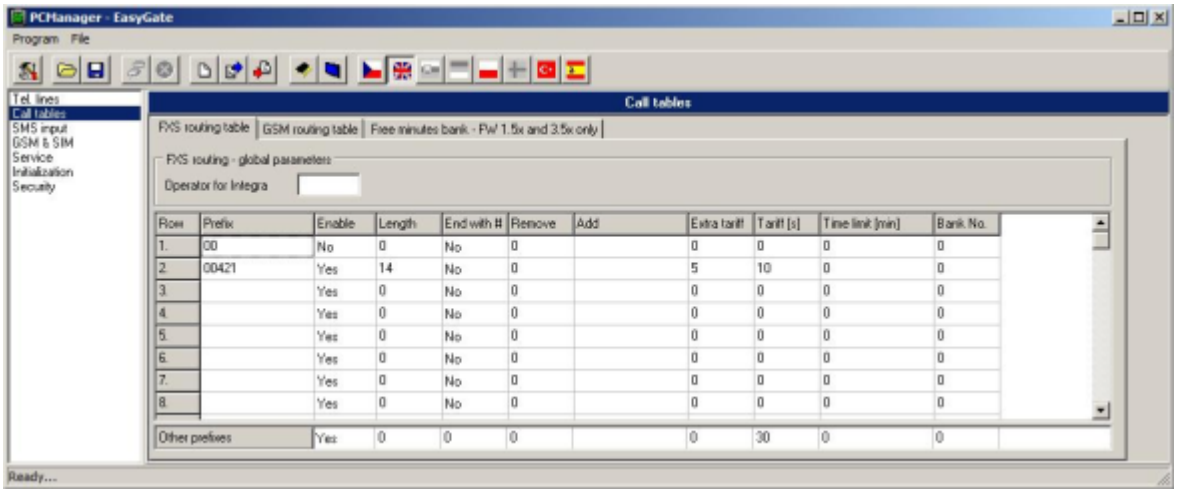
Every table row includes a prefix (of variable length) plus parameters that define **2N® EasyGate**'s behavior in case the beginning of the dialed number matches this prefix. The table can contain up to 120 different prefixes.

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 row that starts with the same prefix followed by one or more digits is considered an exception of the row with a shorter prefix.

Remember to complete the "Other numbers" line for the 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 pulses after call connect and then one pulse every 10 seconds). All other calls are enabled and their tariff is one pulse every 30 seconds.



Routing Table

Operator for Integra (Function No. 405)

In some GSM networks you can add the # character and PBX subscriber number to the number dialed. The subscriber number is displayed on other side together with the CLI. This parameter takes place when the dialed number does not contain the # character.

Setting options: 0–8 characters (0–9)

Default setting: blank

Caution!

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

Prefix (Function No. –)

A prefix identifying the call type (GSM, trunk call, free call, etc.). "Other numbers" 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 the calls with prefixes included on the same row.

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 row. This enables you to start dialing into a GSM network immediately after the last digit is dialed. If the phone number to be dialed is shorter, the 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 you to establish a call when a # is received. The # character is removed from the dialed number. Should a # 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 a fixed quantity of tariff pulses after the call start. This parameter sets the minimum 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 you want to transmit pulses. A smaller number means a 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 the time elapses, the call connection is terminated immediately. You can hear a beep 30 s before the call end and beeps every second 10 s before the end. 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 – for FW 1.5x and 3.5x only. Do not use this parameter and the 'Free minute bank' folder with detailed settings for standard **2N® EasyGate**.

GSM, UMTS, LTE Routing Parameters

Incoming GSM calls contain the CLI. According to the received CLI **2N® EasyGate** can do the following:

- Reject the call.
- Use the CallBack function – automatic call to the GSM subscriber.
- Automatic dial in. **2N® EasyGate** dials the preprogrammed PBX subscriber number (switchboard operator, e.g.) to be connected with the 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 the "Dial in" parameter in the table.

Setting options: 100–25500 ms

Setting step: 100 ms

Default setting: 2000 ms

Max ring time for CallBack (Function No. 502)

The parameter sets up the CallBack behavior. There are 2 options for using CallBack on the FXS port:

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

Advanced CallBack – set to 1–255. During an incoming call, the FXS port gives a ringing. To use the CallBack functionality, the caller 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 hears the melody. In order not to use the CallBack, the caller just does not 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)

You can route an incoming GSM FAX call to the phone line FXS or to a serial line (PCFax). The parameter takes place only on models with ac FAX converter, otherwise the FAX calls are always routed to a 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)

You can route an incoming GSM DATA call to the telephone line FXS or to a serial line. The parameter takes place only on models with a FAX/DATA converter, otherwise the DATA calls are always routed to a 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 'Other prefixes' only.

CLI – calling number (Function No. –)

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

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

Default setting: blank

Substring (Function No. –)

The parameter is used for making the completion of the CLI prefix easier. If the parameter "Substring" > 0, **2N® EasyGate** searches the filled-in prefix as a substring of the received CLI, but at most to the position given by the "Substring" parameter. The positions are counted from zero.

For example: the received CLI +420603198222 corresponds with the following 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 an incoming GSM call to the FXS interface or reject it. When a call is routed to the FXS port, you can use the CallBack feature. For correct functionality please set up the "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)

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

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

Default setting: blank

Time limit [min] (Function No. 599)

When the time elapses, the call connection is terminated immediately. You can hear a beep 30 s before the call end and beeps every second 10 s before the end. The "0" setting means that the function is disabled.

Setting options: 0–255 min

Setting step: 1 min

Default setting: 0 min

Free Minutes Bank

See subsection 4.6 for detailed description. This option can be used with Firmware 3.5x only.

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 it is blank, the function is off.

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

Default setting: blank

SMS text (Function No. 603)

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 – SIM2 parameters – dual SIM version

Blocked for operator

For information only – not to be set. Provider blocking is set by the manufacturer in **2N® EasyGate**. If **2N® EasyGate** is blocked to the provider, no other mobile provider's SIM card can be used. If an unacceptable SIM card is used, the gateway does not register to the network and the LED network flashes quickly.

CLIR – incognito (Function No. 701) (SIM2-751)

Set the calling line identification restriction (CLIR) for outgoing calls from **2N® EasyGate**. Warning: Before enabling be sure to have this feature activated by the GSM provider to avoid outgoing call rejection by the 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

Minimum acceptable signal Function No.: 707 (SIM2-757)

On dual SIM gateway specify minimum acceptable signal. If current signal falls under this level, gateway will switch to opposite SIM. Setting options: -103 dBm -97 dBm -91 dBm -85 dBm Default setting: -103 dBm

Roaming enable/disable (Function No. 702) (SIM2-752)

You can make **2N® 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) – **2N® EasyGate** works in any GSM network.*

Default setting: Disable

Call handover workaround (Function No. 703) (SIM2-753)

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 1800/1900 MHz band fails.

Default setting: Disable

APN setting Function No.: 706 (SIM2-756)

GPRS, UMTS, LTE or APN (Access Point Name) for automatic setting. The function number can be used for SMS programming only (if available) Setting options: 0-40 characters Default setting: blank

AMR enable (Function No. 704) (SIM2-754)

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

Setting options: – Enable (1)

– Disable (0)

Default setting: Enable

Wireless network selection (Function No. 705) (SIM2-755)

You can select the network connection technology, for UMTS gateways only.

Setting options: UMTS & GSM (0) – automatic selection, UMTS preferred

UMTS only (1)

GSM only (2)

Default setting: UMTS & GSM

Setting of SIM switching – dual SIM version only

SIM2 enable Function No.: 790

You can disable using off SIM2 on dual SIM gateway.

Setting options: Enable (0)

Disable (1)

Default setting: Enable

Return to SIM1 after Function No.: 791

Set time interval for SIM1 checking, if EasyGate is switched to SIM2 for reason of weak signal or some other issue. Select Off, if you want to switch back to SIM1 only if problem occurs on SIM2.

\n\nSetting options:\n-1 Hour\n-1 Day\n-Off\nDefault setting: 1 Hour

Setting options: 1 Hour (0)

1 Day (1)

Off (2)

Default setting: 1 Hour

Low Credit Checking with Prepaid SIM – SIM1 only

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

Set the change time interval between credit checks. If your credit drops under the defined value, **2N® EasyGate** sends a "LOW CREDIT" SMS. 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)

The prepaid SIM card credits are checked by a network function which displays a text message on the mobile phone display. The network function code must be terminated with the "#" 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 minimum credit value for sending a warning SMS "LOW CREDIT". If the credit is lower than the given value, the 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 than the credit value in the text answer (e.g. date, time and so on), **2N® EasyGate** seeks the number corresponding to the credit value from the given position in the text. The seek algorithm skips every non-number character. If the credit value is the first number in the text, you can leave setting 0. If there are other numbers before the credit value, set the parameter to the text position, from which the algorithm shall 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 the Service section, not here.

Service

Hardware version

2N® EasyGate hardware version – for information only (cannot be modified). Must be used for communication with the manufacturer.

Firmware version

2N® EasyGate firmware version – **2N® EasyGate** central processor program version. The manufacturer can issue upgrades to extend functions. To load new firmware into **2N® EasyGate**, use the Upgrade function. Keep communicating with the manufacturer.

Serial number

2N® EasyGate serial number – for information only (cannot be changed). Must be used for communication with the manufacturer.

Blocked for 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. 961)

After the time elapses, the data/fax connection is 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, for "LOW CREDIT" SMS on prepaid SIM cards, for battery status SMS, power failure and for lift service SMS.

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

Default setting: empty

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)

Set this parameter to allow the SMS with information on the battery status to be sent. Battery disconnection (Battery Error) and connection (Battery Ready) as well as critically low voltage (Battery flat) is reported by the SMS.

Setting options: enable (1)

disable (0)

Default setting: disable

Power failure SMS (Function No. 963)

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

Setting options: disable (0)

enable with delay 1–255 min

Default setting: disable

Battery status reporting using P100 (Function No. 964)

This parameter allows the battery status to be reported using the P100 protocol with the connected communicator **2N® Lift1**. For special versions of **2N® EasyGate** only.

Setting options: disable (0)

enable (1)

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.

FXS line initialization FXS Function No.: -

Initialization of all parameters necessary for the telephone line FXS.

FXS routing table initialization Function No.: -

Initialization of all parameters related to FXS routing table.

Mobile routing table initialization Function No.: -

Initialization of all parameters related to the routing table from mobile network.

Initialization of GSM & SIM Function No.: -

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

Free minutes bank initialization Function No.: -

Initialization of all Free minutes bank parametersTable of Parameters 3.2 49 For special version of EasyGate only

Network and SIM initialization Function No.: -

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

SMS input initialization Function No.: -

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

Lift application initialization Function No.: -

Initialization of all parameters related to Lift application. EasyGate lift version only.

SIP initialization Function No.: -

Initialization of all parameters related to SIP calls. Not supported

VoLTE initialization Function No.: -

Initialization of all parameters related to VoLTE calls. EasyGate with VoLTE support only

IP stack initialization Function No.: -

Initialization of all parameters related to internal IP stack. For special version of EasyGate only

Global initialization (Function No. 999)

Initialization of all **2N® EasyGate** parameters including the PIN and service password.

Only Global initialization can be done by phone line programming. As a parameter of this function, the service password followed by  must be used. This operation is not followed by

the confirmation tone. A successful setting is followed by a pause (approx.10 s), during which reset of the configuration memory is performed. Then the gateway is restarted.

Security Parameters

PIN – value (Function No. 700)(SIM2-750)

Fill in the PIN value for automatic PIN entering upon the **2N® 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 the **2N® 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 in 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

Lift application (optional)

Battery error signalization Function No.: 964

Set battery error signalization protocol. Using Lift1 setting is only for connection with 2N Lift1 communicator. Gateway reports error to Lift1 and then Lift1 makes call to monitoring center.

Setting options: Off

Using Lift1

P100 not active

P100 2N extended not active

Default setting: Off

FXS line voltage break Function No.: 965

You can set signalization of network registration and powering state by voltage break on FXS line interface. FXS Line voltage is disconnected all time when selected problem lasts.

Setting options: Off -Function is off, FXS line voltage is allways on

Network error -FXS line voltage break when not registered to network

Power error -FXS Line voltage break when main power is disconnected and battery is flat, or battery failure

Network or battery error -both states are signalized by FXS line voltage break.

Default setting: Off

Relay signalization Function No.: 969

You can set signalization of network registration and powering state by NO relay contact. Contact is closed all time when selected problem lasts.

Setting options: Off -Contact is open all the time

Network error - Contact is closed when not registered to network

Power error - Contact is closed when main power is disconnected or battery is low, or battery failure

Network or battery error - both states are signalized by closed contact.

Default setting: Off

Id text Function No.: 968

Fill in Identification text for Checking SMS. It will be place on SMS beginning. If text is blank, P100 Id number is used, if the P100 Id is empty, Serial Number is used. When the parameter is programmed by SMS, the text must be in brackets () and no brackets used inside of the text.

Setting options: 0-40 characters

Default setting: blank

ID number Function No.: 971

Fill in Identification code for P100 protocol.

Setting options: 0-16 characters (0-9)

Default setting: blank

P100 phone number Function No.: 972

Not implemented in EasyGate!

Fill in phone number of your monitoring center. This number will be dialed in case of P100 call.

Setting options: 0-16 characters (0-9)

Default setting: blank

P100 retrying Function No.: 975

Not implemented in EasyGate!

Specify number of retrying in case of unsuccessful attempt of P100 connection.

Setting options: 0-10 (0 = no retry)

Default setting: 0

Multiple Lift1 on FXS line Function No.: 966

You can connect up to 3 Lift1 on one phone line. This feature is licensed, please contact technical support.

Setting options: Disabled/Enabled

Default setting: Disabled

Checking SMS [Days] Function No.: 967

You can specify, how often gateway sends Checking SMS. 0 means no checking SMS. If this feature is switched on, you will get SMS after gateway start, in case of SIM switch on dual SIM gateway and then after specified number of days.

Setting options: 0-10 (0 = no checking SMS)

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, not here.

SIP parameters (optional)

These functions are not implemented.

Voice over LTE - VoLTE (optional)

APN pro IMS Function No.: 721(SIM2-771)

APN (Access Point Name) of operator's IMS. Leave it blank in most cases, it will be filled from selected profile file.

Setting options: 0-40 characters

Default setting: blank

APN pro SOS Function No.: 722(SIM2-772)

APN (Access Point Name) for SOS functions. Leave it blank in most cases, it will be filled from selected profile file.

Setting options: 0-40 characters

Default setting: blank

IP stack (optional)

Authentication type Function No.: 802(SIM2-812)

Specify authentication type for PPP stack. It relates to APN filled in Network & SIM table.

Setting options: None

PAP

CHAP

PAP or CHAP

Default setting: None

Username Function No.: 803(SIM2-813)

Fill in username for PPP stack if PAP / PAP or CHAP authentication is selected.

Setting options: 0-40 characters

Default setting: blank

Password Function No.: 804(SIM2-814)

Fill in password for PPP stack if PAP / CHAP / PAP or CHAP authentication is selected.

Setting options: 0-40 characters

Default setting: blank

IP address/Domain name Function No.: 800

Fill in IP address of TCP server to be connected to. Use standard format with dots. You can fill in domain name instead of IP address. Common for SIM1 and SIM2.

Setting options: 0-40 characters

Default setting: blank

Port Function No.: 801

Fill in port of TCP server to be connected to. Common for SIM1 and SIM2.

Setting options: blank / 0-65535

Default setting: blank

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

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

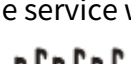
EasyGate provides some of network services to improve possibility of usage. The configuration is done by standard Star-Hash codes you can know from mobile phones.
To configure these services:

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 #

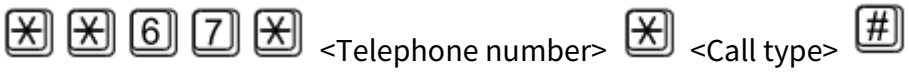
Call forwarding if busy

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:

 <Telephone number>

Activation for selected call type:

 <Telephone number> <Call type>

Deactivation:

Status check:

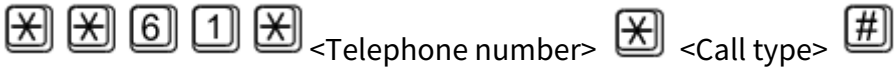
Call forwarding if no answer

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.

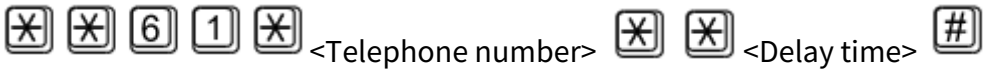
Activation for all call types:

 <Telephone number>

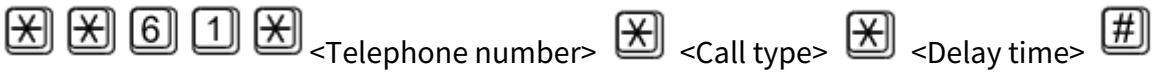
Activation for selected call type:

 <Telephone number> <Call type>

Activation for all call types and specified delay time:

 <Telephone number> <Delay time>

Activation for selected call type and specified delay time:

 <Telephone number> <Call type> <Delay time>

Deactivation:

Status check:

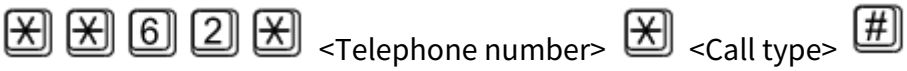
Call forwarding if not accessible

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:

 <Telephone number>

Activation for selected call type:

 <Telephone number> <Call type>

Deactivation:

Status check:

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:

Deactivation:

Status check:

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:

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

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:

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

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

4.2 FAX and Data Function

Only EasyGate GSM with fax converter supports fax and data functions. Fax converter is available for GSM versions of EasyGate only.

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 (UMTS, LTE)

When connected device is able to send CNG tone (1100 Hz for fax 1300 Hz 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 multinumberig 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 9,6 kbps. 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 -90 dBm.

Supported data protocols

The gateway supports connection of analogue modem using protocols V.90, V.34, V.32bis, V.32, V.22bis, V.22, V21, 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 14,4 kbps.

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.

Connection using IP stack

Function IP stack is available on special versions of EasyGate only. It is dedicated for connection of device with embedded analogue modem to defined server on internet public address. The connection must be initialized by connected device with embedded analogue modem by special dialing prefix *02*. EasyGate will establish data channel to preset server by TCP connection.

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.

SMS input isn't available on EasyGate UMTS versions without battery backup. If is this input needed, use the battery version.

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

The EasyGate device is equipped with a virtual serial port that simulates the standard COM port in a PC according to specification RS-232C. The installation is described in Subs. 3.1 "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 remains 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 the GSM module is used by the EasyGate central processor. During this time the communication with the module is impossible. The communication is blocked by setting of the signals for flow control on the 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 the 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.

Internet Data Connection

The GSM version of Easy Gate is equipped with a Cinterion MC55i-w GSM module. This module supports data connection GPRS, the maximum speed is 85.6 kbps (download). This connection is suitable for smaller amounts of data transmitted or an occasional access to internet. The UMTS dual band version of Easy Gate is equipped with a Simcom SIM5320E (SIM5320A or SIM5320J for non-European versions) or Gemalto PHS8-P UMTS module. These modules support data connection GPRS, EDGE, WCDMA and HSPA, the maximum speed is 3.6 Mbps for Simcom or 14.4 Mbps for Gemalto (download). When the HSPA technology is accessible in the place, the gateway can be used for standard PC connection to the Internet. The LTE version of EasyGate is equipped with a Quectel EC21 LTE module supporting LTE cat1 data connection. Special versions of EasyGate UMTS do not support high speed data connection.

USB Driver Installation

For communication over USB port of EasyGate, it is necessary to install a USB driver. The installation is usually automatic after connection to the USB port by the delivered USB cable. Refer to Subs. 3.1 – “Installation and Setting of EasyGate PCManager” for connection details.

Internet Connection

You can use the provider’s installation wizard in case it supports the module used in the gateway (Cinterion MC55i-w for GSM version, Simcom SIM5320E (A, J) or PHS8-P for UMTS version). When this wizard is not available, you have to use the manual setting according to the following instructions.

Module Driver Installation

For communication using a module, it is necessary to install a modem driver available for download at www.2n.com.

The driver for MC55i-w is named "mdm2n_vx.x.inf, x“ (x – driver version) in the downloaded file. The drivers for SIM5320 and PHS8-P are available in the 32-bit Windows version and for the 64-bit Windows version they are placed in respective directories in the downloaded file.

APN Setting

For internet connection, it is necessary to set the APN of your mobile provider. It could be set in the gateway using PCManager (GSM&SIM – GPRS APN) or in the modem extra settings in the PC:

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

The APN name must be received from your mobile provider, the example shows the APN of T-Mobile Czech Republic used.

Network Connection Setting

- Ask your mobile provider for Internet connection instructions because they can be different for each provider (especially the telephone number to be dialed, or the Username, Keyword, DNS, etc.). Set the phone connection in your PC using the Network connection setting and select the appropriate modem. Set the connection parameters (Username, Password, Dial number) according to the information from your mobile provider (obviously Username ‘internet’, Keyword is empty and Dial number is *99***1#). Finally, use the Dial button to establish the Internet connection.

Caution

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

Data Connection – CSD or GPRS and Other Technologies?

The CSD connection is used for data connection of two endpoints, similarly as the data connection of two modems in a fixed network. The maximum CSD transmission rate is 14400 bps. The 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.

The GPRS connection (for GSM version) or EDGE, WCDMA and HSDPA connection cannot be used for direct connection of two devices. It is dedicated for connection to the APN, usually to the Internet. Most mobile providers charge the connection according to the volume of data transmitted or by a lump sum and so the GPRS is suitable for long-time connections.

SMS Sending and Receiving

It is possible to send and receive SMS using appropriate AT commands. There are a number of PC programs that are based on this principle. For the GSM version install the Cinterion supporting SW (Siemens mobile telephone SW can also be used), for the UMTS version install the Simcom or Gemalto supporting SW. 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 connections. The GPRS connection remains active during the whole call but no data can be transmitted (EasyGate is a class-B GPRS terminal). Once the call is terminated, data transmission is recovered immediately. Data connections Edge, WCDMA and HSPA on the UMTS version of EasyGate can be active concurrently with the voice call.

List of Supported AT Commands

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

Caution

- Since the GSM (UMTS) module is primarily used by the EasyGate central processor for voice calls, use AT commands carefully. You might establish a wrong module configuration, 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 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.

4.6 Free minutes option

Basic description

With Firmware 3.5x only!

Free minutes option allows user to control amount of minutes used for four groups of operators in one month period. The user than knows, if performed calls are included in free minutes bundle, or if he has to pay extra price for it. Calls for extra price can be disabled. All setting done by customer is accessible by DTMF setting.

Setting of prefixes (operators) in four banks can be changed using PCManager. This setting, the amount of free minutes in every bank and rules for time counting are preset from factory.

Programming of parameters is done the same way like programming of all other gateway parameters. To change free minutes option parameters, you can either:

- Use the DTMF programming on a telephone line. There are parameters, which can be programmed using telephone line based programming with password access as described in part 3.1 and commands with direct access, used the same way as command for configuration of network services as described in part 4.1.
- Use a PC with the PCManager installed.

Parameters – password access

Call with empty bank permitted (Function No.: 310)

The call with empty Bank is either disabled or permitted. When the bank is empty, you hear after dial refusing tone. With call disabled is followed by Busy tone and the call can't be established. With call permitted you can hang up the call, otherwise the call is established and charged.

Setting options: 0/1 (disabled / permitted)

Default setting: 0

Date for automatic refill (Function No.: 311)

The day in month, when all four banks of free minutes will be refilled with predefined values. The refilling is done in time 00:00:01 of selected day. When the date for refill doesn't exist (31. 2.), the refill is done first day after this date (1. 3.).

Setting options: 0–31 (0 – function off)

Default setting: 0

Next automatic refill – information field

Minutes available till the end of billing period.

Free minutes (Function No.: 32x)

The number of minutes that will be used to refill banks. The selection x is 1 to 4, according to bank number.

Setting options: 0–65535

Default setting: 0

Initial time (Function No.: 33x)

Initial time interval in seconds, which is charged for every call, although the call is shorter. The selection x is 1 to 4, according to bank number.

Setting options: 0–255

Default setting: 0

Time step (Function No.: 34x)

The minimal time interval to be counted (for example 60 seconds means, that after initial call time every beginning minute will be counted). The selection x is 1 to 4, according to bank number.

Setting options: 0–255

Default setting: 0

Remaining minutes – information field

Minutes available till the end of billing period

Commands – direct access

Setting of the date and time

The time and date is set according to information from GSM (UMTS) network, if this service is in network supported. When the service is not accessible, the user has to set the time when the gateway is first used or switched off for longer time period (there is backup for clock, which supports correct clock for approximately 10 hours without power).

When the time is to be set, the user is informed about this fact by additional short tone before dial tone. The LED network after connecting to network shines discontinuously (short breaks in shining).

Code for setting: ***06*YYMMDDhhmm#**

Where:

YY: year

MM: month

DD: day in month

hh: hour

mm: minute

When the date is valid, the confirmation - OK is generated

otherwise there is there confirmation – bad.

Refill now

The command is intended for refilling of free minutes banks with predefined values (free minutes) manually just now. This command is to be used for initialization or for manual handling of system.

Code for setting: ***07#**

The confirmation: OK is generated

Setting of free minutes option – PCManager

All parameters, which can be set up by DTMF can be set up by PCManager too. There is page in PCManager – Call table – Free minutes bank for this setting.

Free minutes bank – PCManager only

In Call table – FXS routing table is added column “Free minutes bank”.

Called numbers can be associated to one of four groups (bank). All calls to numbers in the same bank are handled the same way according to free minutes counting rules specific for bank. This table is usually preset by supplier.

Setting options: 0–4 (0 – no bank selected, free minutes inactive)

Default setting: 0

Time setting

In Monitor you can check the actual time on PC and on Gateway

There are two commands for time setting in Monitor:

Synchronize to PC: The time in gateway is set according to actual time on PC

Manual setting: Setting date and time manually

Using Free minutes option – step by step

1. If your gateway is preset by supplier to be used with some billing scheme, you can continue with step 6.
2. Collect all information about billing scheme you use from your operator.
3. You have to set parameters by PCManager. Connect the gateway to your PC by serial cable and to power by adapter. When the gateway is connected to network, you can set it by PCManager.
4. Set the table “FXS routing table”. Prefixes for different operators and Free minutes bank should be used to divide calls to groups. The maximal amount of groups – banks is 4. The maximal number of prefixes is 20 (number of lines in table).
5. Set the table “Free minutes bank”. You have to decide, if call with empty bank will be permitted. Than fill the day, when the billing period starts. Finally fill the table with rules for free minutes bank according to your operator billing.
6. Set local prefix for fixed line, dependent on place where the gateway is used.
7. Set the actual time, either by PCManager – monitor or by DTMF direct access. When the time information is provided by network, this step is not required.
8. If you have actually full amount of free minutes, you can use command “Refill now”.
9. The gateway is now registering your calls and counting free minutes from operator.
10. When the gateway is switched off for more than 5 hours and the time information is not provided by network, you have to check, if the time is set (see setting of the date and time).
11. Information about state of used free minutes is saved in memory independent on power. This information is actualized after every call.

Warning

- The free minutes counting is intended to give information to user about the state of his free minutes account. For billing is the registration done by operator valid. When the difference between operator evidence and free minutes counting occur, the billing is done according operator accounting.

4.7 Lift Functions

Basic description

For special versions of EasyGate for Lift with Firmware 18.7.x only! These functions allows remote access to the EasyGate eventually to connected lift communicator Lift1 using SMS service.

Information SMS

Forced information SMS

Demanded by SMS in form: **EG INF 12345** (instead of '12345' actual password)

The answer of the Gateway:

EG.INF OK demand accepted

SN:00-0000-0000 serial number

FW:18.7.16 FW version

LIC:N (or Y) license for function 3 Lift1 on line

IMEI:358108071238512 IMEI

IMSI:230015011042680;230025100127093 IMSI (eventually 2. SIM)

LAI:230;01;H;3G MCC, MNC, roaming (H/R), technol.

RSSI:-77dBm Strength of signal

PWR:On Line power

BATT:Ok Battery status

EXP:730 Time to battery change (days)

Dual SIM gateway will send both IMSI, but information about network and signal strength is for active connection only.

Periodical SMS

Sending is connected by parameter 'Checking SMS'. When this parameter is set to 0, no SMS except forced SMS are sent, another setting specifies the period of information SMS sending in days and allows SMS sending in following situations:

Restart of the gateway: GW start

Changing of used SIM SIM switch

Change in power status PWR change

Periodical SMS Periodical

Line of the SMS with connection information marked as Active shows actual information, line without this mark shows last known information (important for dual SIM gateway). When the parameter 'ID text' is not filled in, the parameter 'Id number' is used, when even this parameter is empty, the serial number will be used.

SMS format is:

ID:Filled (text) or SN:xx-xxxx-xxxx Identification

Msg:GW start or another code Code of the event

SIM1:23001;Home;3G;-83dBm;Active MCC+MNC, roaming, technology, signal

SIM2:2302;Home;3G;-77dBm Dual SIM version only

Power:On Line power

Battery:Ok Battery status

Expire in:730 Time to battery change (days)

To use this function, following parameters must be set:

Checking SMS: 967

Id text: 968

Battery status SMS: 962

Power failure SMS: 963

Telephone number for service SMS: 714

SMS EasyGate programming

Special versions of EasyGate have the possibility to program parameters using SMS. When is this service allowed, the SMS receiving thru serial port is blocked. This option is available with special firmware only, information about types supporting this option are supplied by the producer.

When you program any parameter which consists of string, the text must be in brackets () and no brackets are allowed inside of the text.

Following operations can be performed using SMS. For every operation separated SMS is needed.

1. Configuration

Parameter value change (see the table of parameters below). As the separation character is used space. When the text is set, it must be closed in brackets. More parameters can be set in one SMS, the maximal length of SMS is 160 characters for 7-bit SMS, 140 characters for 8-bit SMS. When the setting out of permitted limits is demanded or other error occur, none of parameters is changed.

SMS syntax: EG CNF password parameter_number=new_value

Example: EG CNF 12345 101=10 706=(internet.t-mobile.cz)

EG CNF – declaration that this is configuration SMS for EG

12345 – password for programming, here is default value

101=10 – time to dial is set to 10 s

706=(internet.t-mobile.cz) – APN setting to T-Mobile CZ

2. Default setting

Restore default setting of EasyGate. After this operation automatic restart follows.

SMS Syntax: EG DEF password

Example: EG DEF 12345

12345 – password for programming, here is default value

3. Restart

SMS Syntax: EG RST password

Example: EG RST 12345

12345 – password for programming, here is default value

The answer to the SMS:

EG.CNF OK Correct setting

EG.DEF OK Default values restored

EG.RST OK Correct restart

EG.ERR Invalid Message Keyword EG missing

EG.ERR Unknown Command Different command than CNF, DEF, RST

EG.ERR Invalid Password Invalid Password

EG.ERR Invalid Parameters Invalid parameter in CNF command

EG.ERR Invalid Syntax Error in spaces or other syntax

Programming Lift1 communicator using EasyGate

Special version of EasyGate allows to program connected communicator Lift1 using SMS. EasyGate receives SMS with demand to program Lift1. EasyGate than establishes connection to L1 by phone line and performs programming using CPC protocol.

Supports 4 types of SMS commands

1. Config

SMS syntax: L1 CNF keyword parameter1=value parameter2=value Following example programs call numbers -. parameters 011 and 012: L1 CNF 12345 011=00420222222222 012=00420111111111

2. Default config setting

SMS syntax: L1 DEF keyword

3. Selection of profile n (when you select profile 1, the same as previous command) SMS syntax: L1 SET keyword n

4. Restart

SMS syntax: L1 RST keyword

It is not possible to combine more commands in one SMS.

We support only standard SMS, it means 7-bit SMS max 160 characters, 8-bit SMS max 140 characters.

Responses:

L1 CNF OK

L1 DEF OK

L1 SET OK

L1 RST OK

L1 ERR Invalid Message In front of SMS wasn't L1

L1 ERR Unknown Command Different command tham CNF, DEF, SET or RST

L1 ERR Invalid Password Wrong password

L1 ERR Invalid Parameters Wrong parameters of commands CNF a SET.

L1 ERR Invalid Syntax Error in spaces, equal signs, wrong characters etc.

L1 ERR Does not Respond Lift1 doesn't hook off either after 60s of ringing Lift1 hooks off, doesn't accept command to CPC programming Lift1 hooks on during programming Lift1 dosnt respond to communication commands (WRITE_START, WRITE_CONFIRM, CRC_REQUEST)

Error signalization

Special version of EasyGate is able to signalize following errors:

- Battery error signalization (interrupted, short circuit, time to replace)
- Network error signalization (lost signal)

Signalization methods:

- Lift1/P100* - only battery error signalization (without connection no way to send information)
- FXS line voltage break - interrupted supplying on FXS port
- Relay signalization - connected relay contact signalize error

*Sending information to call center by protocol P100, only when communicator Lift1 is used together with EasyGate , this communicator must be set to use P100 signaling. Direct communication P100 from EasyGate is not implemented, although the parameters can be set in the programming tool.

Vizual signalization

Special version of EasyGate signalize by LED following information:

- Technology of connection - LTE version only - you can easily recognize, if the module is connected by LTE, WCDMA or GSM technology by LED's, which show signal strength. LED's

shines continuously when in GSM network, it has one short break every 2 seconds in WCDMA and two short brakes every 2 seconds in LTE network.

- Battery failure is signalized by rotation of the signal strength indicator.

5. Technical Parameters

This section describes the technical parameters of the product 2N® EasyGate Pro.

GSM

- **GSM module:** MC55i-W
- **GSM bandwidth:** EGSM 850/ EGSM 900/ GSM 1800/ GSM 1900 MHz
- **Transmission power:**
  - 2 W EGSM 850 / 900 MHz,
  - 1 W 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:** 3 V or 1,8 V plug-in

UMTS version

- UMTS module: SIM5320E (A, J), PHS8-P
- GSM bandwidth: EGSM 850/ EGSM 900/ GSM 1800/ GSM 1900 MHz
- UMTS bands:
  - SIM5320E – 900/2100 MHz (European version)
  - SIM5320A – 850/1900 MHz (US version)
  - SIM5320J – 850/2100 MHz (Japanese version)
  - PHS8-P – 800/850/900/1900/2100 MHz
- **Transmission power:**
  - 2 W – EGSM 850 / 900 MHz
  - 1 W – GSM 1800 / 1900 MHz
  - 0,25 W – UMTS 800/850/900/1900/2100 MHz
- **Receiver sensitivity:** -106 to -110 dBm (typical values, depending on band and module)
- **Audio:**
  - HR+FR+EFR Half rate + Full rate + Enhanced full rate
  - Echo cancellation, Echo suppression
- **DATA:**
  - CSD max. 14.4 kbps
  - GPRS Class 12, max. 85.6 kbps (DL), 42,8 kbps (UL)
  - EDGE Class 12 max. 236,8 kbps (DL), 118 kbps (UL)
  - WCDMA max. 384 kbps (DL), 384 kbps (UL)
  - SIM5320 - HSDPA max 3,6 Mbps (DL)

    - PHS8-P – HSPA max 14,4 Mbps (DL), 5,7 Mbps (UL)
- **Antenna:**
    - 800/850/900/1800/1900/2100 MHz 50 Ω
    - SMA antenna connector
- **SIM card:** 3 V or 1,8 V plug-in

LTE version

- **LTE module:**
    - EC21-E - European version
    - EC21-A - US version
    - EC21-AU - Australian version
- **GSM bandwidth:**
    - EC21-E - EGSM 900 MHz/GSM 1800 MHz
    - EC21-A - ne
    - EC21-AU - EGSM 850/900 MHz, GSM 1800/1900 MHz
- **UMTS bands:**
    - **EC21-E – 850/900/2100 MHz**
    - EC21-A – 850/1700/1900 MHz
    - EC21-AU – 850/900/1900/2100 MHz
- **LTE bands:**
    - EC21-E – B1,B3,B5,B7,B8,B20
    - EC21-A – B2, B4, B12
    - EC21-AU – B1,B3,B5,B7,B28, B40
- **Transmission power:**
    - 2 W EGSM 850 / 900 MHz,
    - 1 W GSM 1800 / 1900 MHz
    - 0,25 W UMTS 800/850/900/1900/2100 MHz
    - 0.2 W LTE all bands
- **Receiver sensitivity:**
    - -99,5 to -110,5 dBm (typical values, depending on band and module)
- **Audio:**
    - HR+FR+EFR Half rate+Full rate+Enhanced full rate Echo cancellation, Echo suppression
- **DATA:**
    - GPRS max. 107 kbps (DL), 85,6 kbps (UL)
    - EDGE max. 296 kbps (DL), 236,8 kbps (UL)
    - WCDMA max. 384 kbps (DL), 384 kbps (UL)
    - LTE FDD max. 10 Mbps (DL), 5 Mbps (UL)
    - LTE TDD max 8,96 Mbps (DL), 3,1 Mbps (UL)
- **Antenna:**
    - 800/850/900/1800/1900/2100/2600 MHz 50 SMA antenna connector

- **SIM card:**
  - 3V or 1,8V plug-in

Power Supply

- **Mains supply:** 230 / 12 V; 0.5 A adapter
- **DC power supply:** 10 to 16 V DC
- **12V consumption:**
  - Standby 90 mA
  - Call – typ. 300 mA, max. 600 mA
  - Data – typ. 200 mA, max. 400 mA
  - 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. 230 mA
  - Call – typ. 600 mA, max. 1200 mA
  - Data – typ. 350 mA, max. 800 mA
- **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. 1 kΩ
- **Open loop resistance:** min. 25 kΩ
- **Input overvoltage protection:** max. +/− 12 V

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) Description

- **501323x:** Basic version
- **501333x:** Battery backup version
- **501343x:** Analogue fax support
- **501353x:** Analogue fax support and battery backup
- **501328x:** UMTS basic version
- **501338x:** UMTS version, battery backup version
- **501358x:** UMTS special version for lift communication

Other parameters

- **Dimensions (w/o connectors):** 163 x 157 x 38 mm
- **Operating temperature:** 0 to 45 °C
- **Operating status signaling:**
    - 4 LEDs (on, GSM network, line, data)
    - LED bar graph – 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 Regulations and Directives

2N® EasyGate 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 European Parliament and of the Council of 15 December 2004 on the approximation of the laws of the Member States relating to electromagnetic compatibility and repealing Directive 89/336/EEC

■ Directive 2002/96/EC of the European Parliament and of the Council of 27 January 2003 on waste 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 2002/95/EC of the European Parliament and of the Council of 27 January 2003 on the restriction of the use of certain hazardous substances in electrical and electronic equipment

6.2 List of Figures

6.3 Troubleshooting

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

- *All signal LED lights rotate gradually on EasyGate*
  - This state indicates expired batteries if used for more than 2 years as recommended or another battery problem.
  - Battery expiration is not followed by a line voltage switch-off as the case is with other power supply errors.
  - To reset the 2-year interval, use function 60 and enter the programming password for confirmation.
    - Locally by DTMF programming
    - Programming SMS formatted as **EG CNF 12345 60=12345**
      - SMS sent at a power supply / battery error has the following format:
        - Power: On
        - Battery: Ready
        - Expire: 0
- *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 3 s 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.

6.4 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
- **UMTS** – Universal Mobile Telecommunication System – third generation of mobile network communication system
- **WCDMA** – Wideband Code Division Multiple Access – technology of wireless transmitting in UMTS network, allows higher data transmit rate than GSM technology.

6.5 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.