



# 2N<sup>®</sup> EasyGate

GSM gateway



## User Manual

Version 1.1.0

[www.2n.cz](http://www.2n.cz)

The 2N TELEKOMUNIKACE a.s. joint-stock company is a Czech manufacturer and supplier of telecommunications equipment.



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



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



2N TELEKOMUNIKACE administers the FAQ database to help you quickly find information and to answer your questions about 2N products and services. On [faq.2n.cz](http://faq.2n.cz) you can find information regarding products adjustment and instructions for optimum use and procedures „What to do if...“.



#### Declaration of Conformity

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



The 2N TELEKOMUNIKACE company is a holder of the ISO 9001:2000 certificate. All development, production and distribution processes of the company are managed by this standard and guarantee a high quality and advanced technical level of and a professional approach to all of our products.

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# 1

# Product Overview

In this section, we introduce the **2N<sup>®</sup> EasyGate** 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:

- Product Description
- Associated Products
- Manual changes description
- Abbreviations, Terms and Pictograms Used.

# 1.1 Product Description

## Basic Features

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

## Advantages of 2N<sup>®</sup> EasyGate use

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

## Safety Precautions

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Do not switch on 2N<sup>®</sup> EasyGate in the vicinity of medical apparatuses to avoid interference. The minimum distance of the antenna and pacemakers should be 0.5m.



Do not switch on 2N<sup>®</sup> EasyGate aboard of a plane.



Do not switch on 2N<sup>®</sup> EasyGate near petrol stations, chemical facilities or sites where explosives are used.



Any mobile telephone use prohibition based on RF energy radiation applies to 2N<sup>®</sup> EasyGate too.



2N<sup>®</sup> EasyGate may disturb the function of TV sets, radio sets and PCs.



Warning! 2N<sup>®</sup> 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 2N<sup>®</sup> EasyGate to another power supply, make sure that the voltage value is in the acceptable range.



When your 2N<sup>®</sup> 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 EasyGate FW Version 1.00D.
1.01	New parameter for dial tone setting. LED indications updated. The User Manual applies to EasyGate FW Version 1.00E
1.02	Default setting for dial tone is continuous tone now. The User Manual applies to EasyGate FW Version 1.00F
1.03	New function: tariff metering with 16 or 12 kHz pulses. New function: call connect and disconnect signaling by 16 or 12 kHz pulses. The User Manual applies to EasyGate FW Version 1.00G
1.04	Continuous dial tone. Chapter 0 modified. SMS input parameters added.
1.05	GSM gateway name modification.
1.06	Analogue FAX support. (optionally)
1.07	Analogue Modem support, Network directing services support, Quadband ver.
1.10	New design of manual



### Cautions

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

# 1.3 Terms and Symbols Used

## Manual Symbols

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### 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 2N® EasyGate , which will be supported in the future.



# 2

## Description and Installation

This section describes the **2N<sup>®</sup> EasyGate** product and its installation.

Here is what you can find in this section:

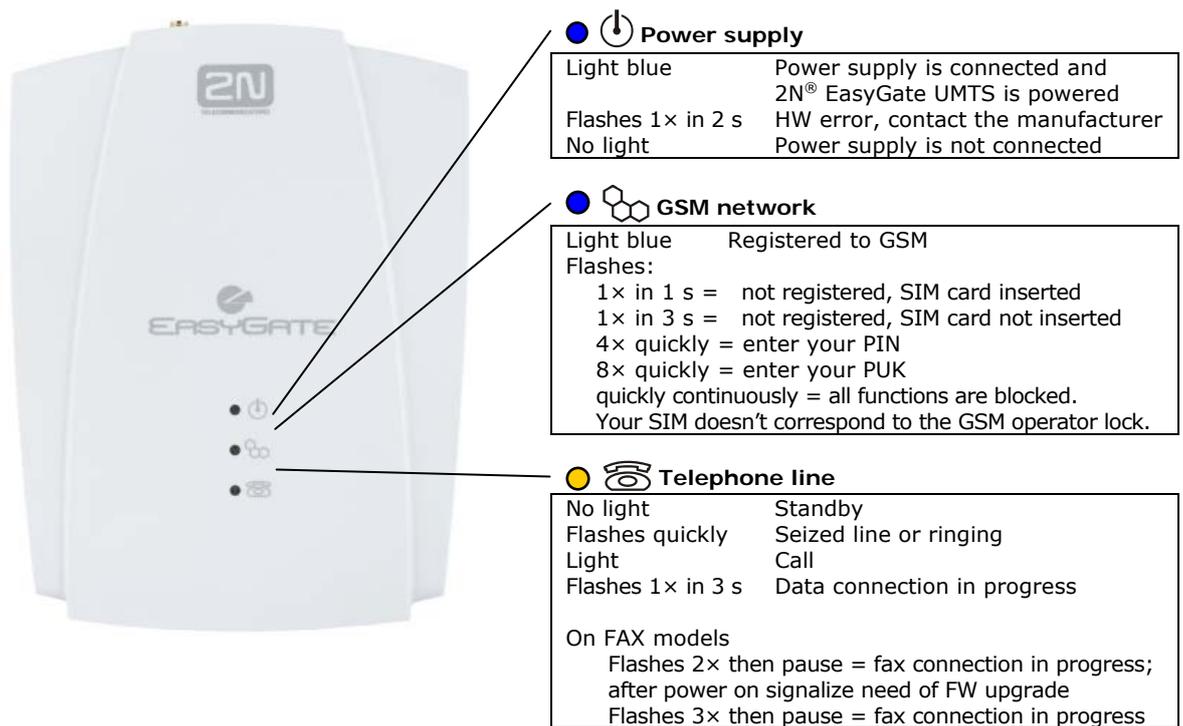
- Product Description
- Before You Start
- Mounting
- Telephone line connection

## 2.1 Description

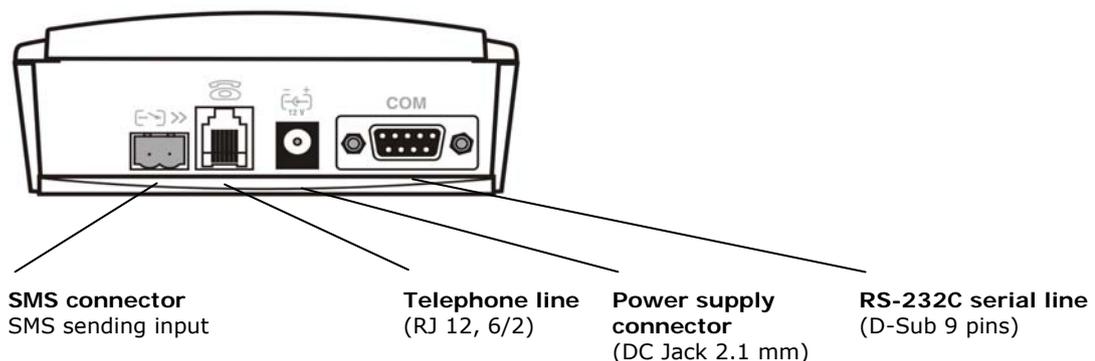
2N<sup>®</sup> EasyGate consists of GSM gateway in white plastic cover, removable antenna and cables for connecting to phone set and PC

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

**Figure 2.1**  
2N<sup>®</sup> EasyGate  
LED indicators



**Figure 2.2**  
2N<sup>®</sup> EasyGate  
Connectors



## Telephone Line Tones – Operational Tones

---

The GSM gateway sends tones to the telephone line to indicate the line status. The tone frequency is 425 Hz.

### Dial tone

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

### Ringing tone

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

### Busy tone

- - - - - -

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

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

### Dialing end signaling

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

### PIN tone

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

## PUK tone

- -----
- Enter the PUK code.
- This tone is transmitted upon repeated wrong PIN entering attempts. SIM card is blocked.

## 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

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Check the product for completeness before installation please:

- 1× 2N® EasyGate
- 1× Antenna for direct connection<sup>1)</sup>
- 1× Magnetic Antenna with coax cable<sup>1)</sup>
- 1× Supply adapter
- 1× Telephone Cable
- 1× PC-connection serial cable
- 1× SMS sending input connector
- 2× Dowel
- 2× Bolt
- 1× CD-ROM with User Manual and software<sup>2)</sup>
- 1× Quick Installation Guide + mounting pattern



#### Note

- 1) **The delivery includes an antenna** to be connected directly to the EasyGate SMA connector. An antenna with a cable should be used when UMTS/GSM signal is poor or in case of interference with other devices
- 2) **Enclosed software:**
  - EasyGate PCManager
  - EasyGate SMSgateway for easy SMS sending and receiving
  - EasyGate Driver for PC
  - User Manual in format PDF
  - Lists of AT Commands for SIEMENS GSM modules used

### Installation requirements

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- EasyGate is designed for vertical mounting on suspension holes (use the mounting pattern). This position is the best for signal reception because a vertical antenna is used. EasyGate can be operated in the horizontal position too where the GSM signal is good.
- Install EasyGate with respect to the GSM signal strength – check the signal strength using the PCManager.
- Place EasyGate out of range of sensitive devices and human bodies for electromagnetic interference reasons.
- For the allowed range of operating temperatures refer to the “Technical Parameters”.

- It is impossible to operate EasyGate on sites exposed to direct solar radiation or near heat sources.
- EasyGate is designed for indoor use. It may not be exposed to rain, flowing water, condensed moisture, fog, etc.
- EasyGate may not be exposed to aggressive gas, acid vapours, solvents, etc.
- EasyGate is not designed for environments with high vibrations such as means of transport, machine rooms, etc



### Caution

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

## 2.3 Mounting

### External Antenna Connection

Screw the antenna enclosed into the SMA antenna connector.



#### Caution

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



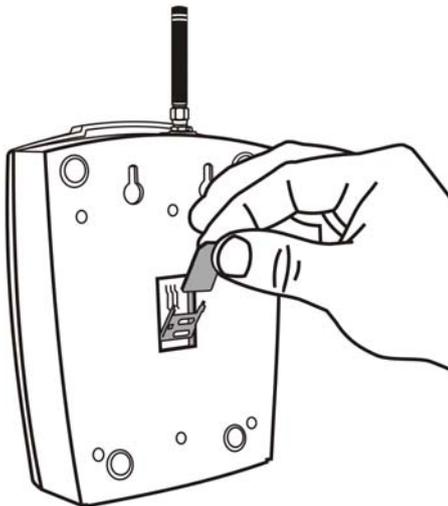
#### Note

- The antenna enclosed has a sufficient gain for trouble-free operation in normal conditions. If the UMTS 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 and cable parameters see the “*Technical Parameters*”.

### SIM Card Installation

Open the SIM card holder on EasyGate 's backside, insert the SIM card and close it.

Figure 2.3  
SIM Card  
Installation



#### Cautions

- Make sure that the GSM provider's SIM card is compatible with the GSM network supported by your EasyGate version.
- Select the required UMTS provider and SIM card services, such as call forwarding, call barring, preferred networks, SMS service centre, etc. in your mobile phone before inserting your SIM card in EasyGate .

## Wall mounting

2N® EasyGate is equipped with two hangings on the back side for wall mounting. For drilling holes to the wall could be used drill pattern in QuickStart.

Figure 2.4  
Zavěšení  
2N® EasyGate  
na zed



## Power Supply Connection

2N® EasyGate is fed with 10-16V DC. Where a source other than the included power supply adapter is used, the voltage range and polarity shown on the EasyGate power supply connector have to be maintained.



### Warning

- **Do not activate the power supply** until the antenna is connected to 2N® EasyGate to avoid the GSM module damage.

## 2.4 Telephone line connection

### PBX Connection

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Connect 2N<sup>®</sup> EasyGate to a free CO line of your PBX. Configure your PBX in such a manner that GSM outgoing calls are routed to 2N<sup>®</sup> EasyGate.

**Tip**

- 2N<sup>®</sup> 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**

- 2N<sup>®</sup> EasyGate is equipped with the FSK-based CLIP and so it is advantageous to connect a terminal that is able to display the CLIP.

## 2.5 SMS Sending Input Connection

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

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

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

# 3

## Configuration 2N<sup>®</sup> EasyGate

This section describes configuration of the product **2N<sup>®</sup> EasyGate**.

Here is what you can find in this section:

- PC Connection to 2N<sup>®</sup> EasyGate
- EasyGate Parameter Programming
- Table of Parameters.

## 3.1 2N® EasyGate parameters configuration

### PC Connection

---

You have got a serial cable for PC connection. It is a modem cable where all of the 9 pins are 1:1 interconnected – in case you wanted to use another, longer cable.



#### Caution

- Make sure that a longer cable works properly to avoid errors at high transmission rates.

### EasyGate Parameter Programming

---

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

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

### Telephone Line based Programming

---

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

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

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

**Example:**

Dial	Confirmation	Description
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 serial cable and make sure that the EasyGate PCManager is installed. Programming is intuitive and easy. All steps are accompanied with texts hints above all items you point at with the mouse.

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

**Figure 3.1**  
EasyGate  
PC Manager  
basic screen



## Basic Programming Instructions

1. Run the PCManager and select the language for displaying texts on the right-hand side.
2. Click on the CD-ROM icon for data handling on the left-hand side.
3. Load data from EasyGate – if EasyGate is not in its special programming mode, you are invited to switch EasyGate off and on again.
4. Click on the programming table icon on the left-hand side.
5. The parameters are arranged according to their functions in the tables. Set all parameters you want to change. If you point at a parameter with the mouse, help is displayed.
6. Click on the CD-ROM icon again for handling data.
7. Save data into EasyGate – if EasyGate is not in its special programming mode, you are invited to switch EasyGate off and on again.

## Further Data Handling Options

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



### Caution

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



### Caution

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



### Caution

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

## Monitoring

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

**This simple informative function helps you identify:**

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

**Figure 3.**  
EasyGate  
PC Manager  
monitor



## Other control buttons

In the bottom of PC Manager window there can be found buttons for closing the application, minimizing into the tray and showing information about application. You can change the COM port for communication with EasyGate with button Setup. The chosen port must be the same with which is EasyGate connected to PC.

The hardware version setting must conform to hardware version of connected gateway. There are two hardware versions of EasyGate: A or B. Version A is the older one, it is not produced currently, this setting is only for reverse compatibility. Version B is equipped with more memory and offers more functionality. You can recognize version of your EasyGate after loading parameters from EasyGate in table Service. For hardware version A can be used only formware 1.00x, for version B only 2.00x. When EasyGate is connected to, PCManager checks the correct setting, when the setting is wrong, it advises you for change.

## Firmware Upgrade

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Firmware actualization of EasyGate is done using PCManager in following steps:

### Upgrading procedure:

1. Run the PCManager, select the language for displaying texts on the right-hand side.
2. Click on the CD-ROM icon for data handling on the left-hand side.
3. Click on the upgrade – if EasyGate is not in its special programming mode, you are invited to switch EasyGate off and on again.
4. The upgrade takes place automatically. **Do not switch your PC or EasyGate off during the process of upgrading!**



#### Caution

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



#### Caution

- The manufacturer responds to clients' requirements with periodical firmware updating. The current EasyGate firmware, PCManager and User Manual are available on [www.2n.cz](http://www.2n.cz).

## 3.2 Table of Parameters

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

### Telephone Line Parameters

---

#### Dialing parameters

---

<b>Type of dialing</b>	<b>Function No.:</b> -
Select the dialing type to be received by EasyGate from the PBX or telephone set. EasyGate accepts only the selected type of dialing, ignoring the others.	
<i>Setting options:</i>	<i>DTMF -EasyGate receives tone dialing only.</i>
	<i>Pulse -EasyGate receives pulse dialing only</i>
<i>Default setting:</i>	<i>DTMF</i>
<b>Time to dial [s]</b>	<b>Function No.:</b> -
Timeout during which EasyGate waits for further digits to be dialed. It starts to establish connection when this timeout passes.	
<i>Setting options:</i>	<i>1-15 s</i>
<i>Setting step:</i>	<i>1 s</i>
<i>Default setting:</i>	<i>5 s</i>
<b>Minimal On Hook [ms]</b>	<b>Function No.:</b> -
The minimum line current discontinuation that EasyGate evaluates as hang-up.	
<i>Setting options:</i>	<i>100-1500 ms</i>
<i>Setting step:</i>	<i>100 ms</i>
<i>Default setting:</i>	<i>500 ms</i>
<b>Beep after dialing end</b>	<b>Function No.:</b> -
Select a beep to signal the end of dialing (beginning of outgoing call establishing).	
<i>Setting options:</i>	<i>YES/NO</i>
<i>Default setting:</i>	<i>YES</i>

---

## Signaling

---

### Line reversal indication for call in progress Function No.: -

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

*Setting options:* YES/NO

*Default setting:* NO

### Tariff pulse when call starts/ends Function No.: -

Signaling of call start or end by tariff pulse.

*Setting options:* None -EasyGate doesn't send tariff pulse as signaling of call start/end.

Call end -EasyGate sends tariff pulse when call ends.

Call start -EasyGate sends tariff pulse when call starts.

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

*Default setting:* None

### Tariff pulse frequency Function No.: -

Tariff pulse frequency setting.

*Setting options:* 16 kHz -EasyGate transmits 16 kHz tariff pulses  
12 kHz -EasyGate transmits 12 kHz tariff pulses

*Default setting:* 16 kHz

---

## Tone settings

---

### Dial tone – Double frequency tone[Hz] Function No.: -

Set for double frequency tones

*Setting options:* YES/NO

*Default setting:* NO

### Dial tone – frequency [Hz] Function No.: -

Setting of frequency/frequencies of dial tone.

*Setting options:* 5-1275 Hz

*Setting step:* 5 Hz

*Default setting:* 425 Hz

**Dial tone - cadence****Function No.:** -

This tone is generated after Off-Hook in case EasyGate is ready to accept dialing.

*Setting options:*      *Continuous*      -EasyGate generate continuous dial tone

*Morse A*      -EasyGate generate dial tone with 320/320/640/640 ms cadence

*Default setting:*      *Continuous*

**Busy tone – Double frequency tone[Hz]****Function No.:** -

Set for double frequency tones

*Setting options:*      *YES/NO*

*Default setting:*      *NO*

**Busy tone – frequency [Hz]****Function No.:** -

Setting of frequency/frequencies of busy tone.

*Setting options:*      *5-1275 Hz*

*Setting step:*      *5 Hz*

*Default setting:*      *425 Hz*

**Busy tone - cadence****Function No.:** -

Busy tone cadence setting.

*Setting options:*      *330/330 ms*      -cadence 330 ms tone, 330 ms pause  
*200/200 ms*      -cadence 200 ms tone, 200 ms pause  
*250/250 ms*      -cadence 250 ms tone, 250 ms pause  
*375/375 ms*      -cadence 375 ms tone, 375 ms pause  
*500/500 ms*      -cadence 500 ms tone, 500 ms pause

*Default setting:*      *330/330 ms*

**Tone after disconnection****Function No.:** -

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

*Setting options:*      *Busy*      -EasyGate transmits the busy tone upon call end.

*Permanent*      -EasyGate transmits the permanent tone upon call end.

*Default setting:*      *Busy tone*

## Volumes

### Transmission volume Function No.: 10

Volume setting for GSM transmission with a 4 dB step.

*Setting options:* 1-5  
*Setting step:* 1  
*Default setting:* 3 = medium volume level

### Reception volume Function No.: 11

Volume setting for GSM reception with a 4 dB step.

*Setting options:* 1-5  
*Setting step:* 1  
*Default setting:* 3 = medium volume level

## Ringing signal settings

### Ringing signal – frequency [Hz] Function No.: -

Ringing signal frequency setting.

*Setting options:* 25 / 50 Hz  
*Default setting:* 50 Hz

### Ringing signal - cadence Function No.: -

Ringing signal cadency setting.

*Setting options:* 1000/4000 ms - 1 s ring, 4 s pause  
 400/200/400/2000 ms - 400ms ring, 200ms pause,  
 400ms ring, 2s pause  
 1500/3500 ms - 1,5 s ring, 3,5 s pause  
 2000/4000 ms - 2 s ring, 4 s pause  
*Default setting:* 1000/4000 ms

### Ringing signal DATA/Fax – cadence Function No.: -

Ringing signal cadency for Data/Fax setting.

*Setting options:* 1000/4000 ms - 1 s ring, 4 s pause  
 400/200/400/2000 ms - 400ms ring, 200ms pause,  
 400ms ring, 2s pause  
 1500/3500 ms - 1,5 s ring, 3,5 s pause  
 2000/4000 ms - 2 s ring, 4 s pause  
*Default setting:* 1000/4000 ms



Every table line includes a prefix (of variable length) plus parameters that define EasyGate's behavior in case the beginning of the dialed number matches this prefix. The table can contain up to 20 different prefixes.

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

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

**Figure 3.2**  
Routing table

Row	Prefix	Enable	Length	End with #	Remove	Add	Extra tariff	Tariff [s]
1.	00	<input type="checkbox"/>	0	<input type="checkbox"/>	0		0	0
2.	00421	<input checked="" type="checkbox"/>	14	<input type="checkbox"/>	0		5	10
3.		<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	0		0	0
4.		<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	0		0	0
5.		<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	0		0	0
6.		<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	0		0	0
7.		<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	0		0	0
8.		<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	0		0	0
9.		<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	0		0	0
	Other	<input checked="" type="checkbox"/>	0	<input type="checkbox"/>	0		0	30

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

### Operator for Integra

Function No.: -

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

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

*Default setting: blank*

### Routing table enable

Function No.: 20

Enable the use of the routing table with this parameter. Disabling this parameter you put the table out of use.

*Setting options: YES/NO*

*Default setting: NO*

<b>Prefix</b>	<b>Function No.:</b> -
A prefix identifying the call type (GSM, trunk call, free call, etc.). "Other numbers" line is used for calls with prefixes that are not included in the table.	
<i>Setting options:</i>	<i>0-14 characters (0-9, *, #)</i>
<i>Default setting:</i>	<i>blank</i>
<b>Call enable</b>	<b>Function No.:</b> -
This parameter allows/bars calls with prefixes included on the same line.	
<i>Setting options:</i>	<i>YES/NO</i>
<i>Default setting:</i>	<i>YES</i>
<b>Number length</b>	<b>Function No.:</b> -
The parameter defines the expected length of a number with a prefix included on the same line. This enables to start dialing into a GSM network immediately after the last digit is dialed. If the telephone number to be dialed is shorter, a timeout is respected. The "0" setting means that the function is disabled.	
<i>Setting options:</i>	<i>0, 3-15</i>
<i>Setting step:</i>	<i>1</i>
<i>Default setting:</i>	<i>0</i>
<b>End with #</b>	<b>Function No.:</b> -
This parameter enables to establish the call when a # is received. The # character is removed from the dialed number. If a # should be part of the dialed number, this function cannot be used for the given prefix.	
<i>Setting options:</i>	<i>YES/NO</i>
<i>Default setting:</i>	<i>NO</i>
<b>Remove</b>	<b>Function No.:</b> -
The Remove parameter is used for automatic call routing. A defined count of digits (prefix) is removed from the number beginning.	
<i>Setting options:</i>	<i>0-20</i>
<i>Setting step:</i>	<i>1</i>
<i>Default setting:</i>	<i>0</i>
<b>Add</b>	<b>Function No.:</b> -
The Add parameter is used for automatic call routing. A defined string (prefix) is added to the beginning of the number to be dialed.	
<i>Setting options:</i>	<i>0-8 characters (0-9, *, #, +)</i>
<i>Default setting:</i>	<i>blank</i>

**Extra tariff****Function No.:** -

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

*Setting options:* 0-255

*Setting step:* 1

*Default setting:* 0

**Tariff [s]****Function No.:** -

Pseudo tariff metering setting (tariff is based on call duration). The Tariff parameter sets the call cost according to call duration. Set how often in seconds do you want to transmit pulses. Smaller number means more expansive call. 0 means not to transmit pulses according to call duration.

*Setting options:* 0-255 s

*Setting step:* 1 s

*Default setting:* 0 s

## FAX/DATA routing parameters

---

Incoming FAX/DATA from GSM network can be routed to telephone line FXS or to COM (PCFax, communication software). Parameter takes place only on models with FAX converter, on other models FAX/DATA calls are routed always to COM.

**FAX from GSM network routing****Function No.:** -

FAX from GSM network is routed to selected interface

*Setting options:* FXS line/COM

*Default settings:* FXS

**DATA from GSM network routing****Function No.:** -

DATA from GSM network are routed to selected interface

*Setting options:* FXS line/COM

*Default settings:* FXS

## SMS Sending Input Parameters

---

**Telephone number for SMS****Function No.:** -

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

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

*Default setting:* blank

**SMS text** **Function No.:** -

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

*Setting options:* 0-40 characters

*Default setting:* blank

**Send if activated longer than [ms]** **Function No.:** -

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.:** -

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

*Setting options:* 0-2550 s

*Setting step:* 10 s

*Default setting:* 0 s

## GSM & SIM Parameters

---

**GSM operator lock** **Function No.:** -

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

**CLIR - incognito** **Function No.:** 41

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

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

-Activation - ID is not sent.

-Suppression - ID is always sent

*Default setting:* According to provider

**Roaming enable/disable** **Function No.: 42**

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

*Setting options:*      *-Disable*    *-The GSM module logs out of a foreign network and attempts to register again in within 5 minutes.*  
                                  *-Enable*   *-EasyGate works in any GSM network.*

*Default setting:*        *Disable*

**Incoming calls enable** **Function No.: 43**

With this parameter you can reject all incoming calls.

*Setting options:*        *Enable*     *- Incoming calls ring on the telephone line.*  
                                  *Disable*    *- Incoming calls are rejected.*

*Default setting:*        *Enable*

**Call Handover workaround** **Function No.: -**

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*   *-Disable workaround.*  
                                  *-Enable*    *-Enable workaround.*  
                                  *-Select only when handover into a 1800/1900MHz band fails.*

*Default setting:*        *Disable*

---

**Low credit checking with prepaid SIM**


---

**Time period for low credit checking [h]** **Function No.: -**

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

*Setting options:*        *0-255 h*

*Step:*                     *1 h*

*Default setting:*        *0*

**Code for credit checking** **Function No.: -**

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

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

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

*Default setting:*        *blank*

**Minimal credit****Function No.:** -

Set minimal credit value to send warning SMS "LOW CREDIT". If credit is lower than given value, warning SMS is send 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.:** -

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

*Setting options:* 0-180

*Step:* 1

*Default setting:* 0

**Telephone number for service SMS****Function No.:** -

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

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

*Default setting:* blank

## Service Parameters

---

**Hardware version****Function No.:** -

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

**Firmware version****Function No.:** -

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

**Serial number****Function No.:** -

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

**GSM operator lock****Function No.:** -

Refer to GSM & SIM Parameters.

**COM enable** **Function No.: 50**

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 period for GGMC SMS [h]** **Function No.: -**

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

**Telephone number for service SMS** **Function No.: -**

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

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

*Default setting:* blank

## 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.

For initialization via a telephone line fill in the function number according to the type of initialization and enter the service password as the parameter.

**Telephone line initialization** **Function No.: 91**

Initialization of all parameters necessary for the telephone line function.

**Call table initialization** **Function No.: 92**

Initialization of all parameters related to dialed telephone number.

**Initialization of GSM & SIM** **Function No.: 94**

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

**SMS input initialization** **Function No.: 93**

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

**Global initialization****Function No.: 99**

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

## Security Parameters

---

**PIN - value****Function No.: 40**

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

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

*Upon full initialization:* blank

**Service password****Function No.: 90**

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

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

*Upon full initialization:* 12345



# 4

## Function and Use

This section describes the basic and extending functions of the product **2N® EasyGate**.

Here is what you can find in this section:

- Voice function
- FAX and Data function
- SMS Sending Input
- COM – Serial Interface
- SIM Card PIN protection.

## 4.1 Voice function

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

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

### Outgoing Call

---

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

### Incoming Call

---

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

### Automatic Call ("Baby Call")

---

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

dialing during the BabyCall timeout cancels this function and a standard outgoing call can be made.

## Tariff pulses 16 or 12 kHz

---

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

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

## Configuration of network services

---

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

### To configure these services:

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

### Information tones:

**Confirmation - OK:** 

- Confirms that the service was configured correctly.

**Confirmation - bad:** 

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

**Confirmation - service activated:** 

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

**Confirmation - service deactivated:** 

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

## Call forwarding

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

Description of <Call type> field codes:

Voice:

Data:

Fax:

## Call forwarding unconditional

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

Activation for all call types:

<Telephone number>

Activation for selected call type:

<Telephone number>  <Call type>

Deactivation:

Status check:

## 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

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

Activation:

**[\*]** **[4]** **[3]** **#**

Deactivation:

**#** **[4]** **[3]** **#**

Status check:

**[\*]** **#** **[4]** **[3]** **#**

## Call hold

---

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

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

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

**[R]** **[0]**

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

**[R]** **[1]**

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

**[R]** **[2]**

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

**[R]** **[3]**

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

**[R]** **[4]**

## 4.2 FAX and Data function

Only EasyGate with fax converter supports fax and data functions.

### Sending fax message or modem connection to and from GSM

---

#### GSM fax and Data connection

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

#### Sending a fax message to GSM and modem connection through GSM

It is necessary to dial before destination number code **\*01\*** for fax call or **\*02\*** for data call. This code is 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 9,6kbps. The maximal data rate is strongly dependent on line quality, which is tested on the beginning of connection, to avoid data errors. The fax service is available up to field strength -90dBm.

### Supported data protocols

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

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

## 4.3 SMS Sending Input

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

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



### Caution

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

## 4.4 COM – Serial Interface

The complete serial interface RS-232C on a 9-pin connector is identical with any external modem.

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

EasyGate's central processor uses the same interface for establishing calls and so it must have the possibility to block an external serial interface-all PC SW must provide transmission hardware flow control (HW handshaking).

### COM can be used for

- Programming and monitoring;
- CSD PC-PC data transmission;
- CSD or high-speed GPRS connection to the Internet;
- SMS sending and receiving.

## Programming, Monitoring

---

Install the EasyGate PCManager software available on the included CD-ROM into your PC.

The program is designed for EasyGate parameter programming. It can read configuration data from the memory and store them in EasyGate. Moreover, all parameters can be saved in your PC file for backup or saving into another EasyGate system.

The EasyGate PCManager contains an easy monitoring tool too. With this tool you can identify the GSM provider's name, signal strength, GSM module, SIM, and so on during EasyGate operation.

## CSD PC-PC Data Transmission

---

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



### Caution

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

## CSD or High-Speed GPRS Data Connection to Internet

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To connect to the Internet, install the faxmodem driver from the EasyGate CD-ROM first. Another possibility is to use the GSM provider's installation wizard in case it supports the SIEMENS GSM module installed in EasyGate (SIEMENS MC39i, MC55, MC56 or MC55i). GPRS/faxmodem driver can be found on installation CD. The path to the driver is \\data\EasyGate\Modem driver\. Driver's filename is mdm2n\_vx.x.inf where x.x stands for the version of the driver.

The installation wizard usually configures the telephone connection of the network too. If you use manual installation, you have set it properly. Ask your GSM provider for Internet connection instructions because they can be different for each provider (especially the telephone number to be dialed, DNS, etc.). It is necessary, for example, to set the APN in modem extra settings in the GPRS mode:

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



### Caution

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

## CSD or GPRS Data Connection?

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

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

## SMS Sending and Receiving

---

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

## Combination of COM Traffic with Voice Calls

---

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

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

No voice call can be made during CSD data connection.

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

## List of Supported AT Commands

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



### Caution

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

### Do not use particularly:

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

## 4.5 SIM Card PIN protection

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

### PIN Entering by PCManager

---

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

### PIN Entering via Telephone Line

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

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

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

### Automatic PIN Entering

---

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



#### Warning

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



# 5

## Technical parameters

This section describes the technical parameters of the product **2N<sup>®</sup> EasyGate** .

# 5.1 Technical Parameters

## GSM

GSM module, GSM bandwidth	MC39i	EGSM 900 / GSM 1800
	MC55	EGSM 900 / GSM 1800 / GSM 1900
	MC56	EGSM 850 / GSM 1800 / GSM 1900
	MC55i	EGSM 850/ EGSM 900/ GSM 1800/ GSM 1900
Transmission power	2 W EGSM 850 / 900 MHz, 1W GSM 1800 / 1900 MHz	
Receiver sensitivity	-105 dBm	
Audio	HR+FR+EFR Half rate+Full rate+Enhanced full rate Echo cancellation, Echo suppression	
DATA	GPRS Class 10, 4+2 max. 85.6 kbps downlink CSD max. 14.4 kbps; Coding scheme CS 1, 2, 3, 4	
Fax	Fax Group 3 on model with fax converter	
Antenna	850/ 900/ 1800/ 1900 MHz 50 Ω SMA antenna connector	
SIM card	3V plug-in	

## Power Supply

Mains supply	230/12V; 0.5A adapter
DC power supply	10 to 16V DC
12V consumption	Standby 70mA Call/data typ. 200mA max. 300mA
Supply connector	DC Jack 2.1mm

## 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 $\Omega$
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 $\Omega$
Answer supervision	polarity reversal, 12/16 kHz pulses

## SMS Sending Input

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

## Serial interface

Interface type	RS-232C
Connector	D-Sub 9 pins
Interface transmission rate	1200 - 115200 bps (autobauding) 8N1

## Others

Dimensions (w/o connectors)	170 x 130 x 45 mm
Operating temperature	0°C to 45°C
Operating status signaling	3 LEDs (on, GSM network, line)



# 6

## Supplementary Information

This section describes supplementary information of the product.

Here is what you can find in this section:

- Regulations and directives
- List of Figures
- Troubleshooting
- List of Abbreviations.

## 6.1 Regulations and directives

2N<sup>®</sup> 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

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## 6.3 Troubleshooting



For tips for the solution of other potential problems see [faq.2n.cz](http://faq.2n.cz).

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

## 6.4 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

## 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's 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

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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 therefrom 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.



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