GSM RELAY type GSM R1 ZAS

1. Introduction

GSM R1 ZAS (GSM RELAY for short) is a device for a remote control of one electrical appliance via SMS in a GSM network. GSM RELAY is a device which is easy to install and operate. Just plug the GSM RELAY into the power outlet (230 V$_{AC}$), connect your electrical appliance and send SMS to switch ON or OFF the output power outlet on the GSM RELAY. GSM RELAY has more useful functions like temperature regulation using an external temperature sensor, remote ON and OFF switching of the connected appliance just by ringing from your mobile phone, GSM RELAY can send an alarm SMS when temperature limit is exceeded.

1) 230 V$_{AC}$ mains inlet
2) 230 V$_{AC}$ mains outlet (10 A, 2300 W)
3) Indication LEDs and "ON/OFF" pushbutton
4) Connector for an external temperature sensor *)
5) SIM card holder

2. Package content

1 pc   **GSM R1 ZAS** (order code GSM-R1-ZAS-EN)
1 pc   connector ETB4702G00
1 pc   printed documentation

*) External temperature sensor is not part of a package and has to be ordered separately. The recommended type is GSM-C-T2. For more information see www.seapraha.cz

3. Installation

1. To operate the GSM RELAY a SIM card of any GSM operator is necessary. SIM card must be functional, active and must have PIN code turned off. Also some credit is necessary in case SIM card is pre-paid. If you have SIM card supplied with device, continue to paragraph 3.

> **Before inserting the SIM card into the GSM RELAY device, it is necessary to turn off setting of the "PIN code"!**
>
> Insert the active SIM card (= at least one call was made) to any mobile telephone and turn off the requirement of setting the PIN. On most mobile telephones, this option can be found in menu "Setting the telephone protection". or "Setup -> Security -> PIN control".

2. Insert this prepared SIM card into the GSM RELAY device. The SIM card holder is located on the down side of the device. To slide out the SIM card, press on the SIM card.

3. Now you can plug the GSM RELAY into a standard single-phase 230 V$_{AC}$ wall socket. If the power supply is correct, green LED diode **POWER SUPPLY** goes on. Simultaneously, GSM blue LED flash several times and then after about **1 minute**, blue LED diode **GSM** starts flashing with a period of 3 sec.

4. Now plug the 230 V$_{AC}$ electrical appliance, you want to control, into the 230 V$_{AC}$ outlet on GSM RELAY.

5. If you want to switch off the 230 V$_{AC}$ outlet locally, just press pushbutton **ON/OFF** button on the GSM RELAY. The output is switched off and the green LED diode **OUTPUT** goes off. You can switch the output again by another press on **ON/OFF** button.

6. To make the first test of the device, use your mobile telephone you want to use to control the appliance and send a SMS text message **1234 ON** to the telephone number of the SIM card inserted into the GSM RELAY. This will switch on the plugged appliance. The ON status is indicated by means of the green LED diode OUTPUT that is permanently on. Simultaneously, the device automatically sends a confirmation message on performing the operation. To change the password 1234, insert the SIM card into any mobile telephone and in the directory on the SIM card in field "Names" for name **xCode** change the telephone number 1234 to a number you select. The device reacts to the SMS text message from any telephone as long as the access password matches. The very first one (the sender of the message) will be remembered as master and will receive message about events on GSM RELAY. This user can also switch the 230 V$_{AC}$ outlet by "ringing" on the device.

7. Try "ringing" on device. You can make a pulse on the outlet for 4 seconds (with factory setting). The device hangs up the call and makes pulse. This can be used for example for opening entrance gate. You have to use the same phone number as was in the very first SMS sent to the device. For more information see chapter List of All Parameters at the end of this document, parameter "xRemUser".

8. Try temperature regulation. You can send SMS in form of **1234 TEMP25** to command device to maintain temperature to 25 °C. Range of regulation is from 0 °C to +55 °C. Regulation is interrupted by SMS with command **1234 OFF**. For more information see chapter List of All Parameters at the end of this document, parameter "xReg".

4. Technical specifications

Parameter		Symbol	MIN.	TYP.	MAX.	Unit
Dimensions	Width	W		65		mm
	Length	L		140		mm
	Depth	D		95		mm
Supply	Voltage	VCC	210	230	250	V$_{AC}$
Digital output	Mains OUTLET – output no. 0 (power relay)					
	Voltage	VOUT	210	230	250	V$_{AC}$
	Current (resistor type load)	IOUTmax			10	A
Analog input	Internal and external temperature sensor GSM-C-T2 Accuracy in range 0 to 30 °C..............1 °C					
	Temperature		-30		+55	°C
Temperature	Storage	tSTG	-40		+85	°C
	Operational	tA	-20		+40	°C
Humidity		RHmax			90	%

Use GSM R1 ZAS inside of building only!

5. Hardware

The GSM RELAY contains 230 V$_{AC}$ power inlet and outlet, SIM card reader, a set of status indicating LED diodes located on a front panel, a pushbutton for local switching ON and OFF and two connectors, one 2pin for connecting external temperature sensor GSM-C-T2.

5.1 LED diodes

The front panel of a GSM RELAY contains status indication LEDs and a pushbutton for local switch ON/OFF of connected appliance

LED	COLOR	Meaning
POWER	green	The GSM RELAY is powered
GSM	blue	GSM RELAY status: *Blinking 1:1* … GSM RELAY is starting up *dim* … GSM RELAY is starting up (reading phone book about 40 sec) *short blink once per 3 second* … GSM RELAY is ready and in an operational state
OUTLET	green	Power supply (230 V$_{AC}$) for a connected electrical appliance is ON

5.2 Pushbutton ON/OFF for local power control

Press pushbutton for a short time to change a state of the output power relay, which supplies connected electrical appliance. Press pushbutton for a long time to switch off all of the outputs.

5.3 Connectors

GSM RELAY enables to connect one external temperature sensor KTY 81-210.

The line length of a connected external temperature sensor is not limited but the wire has a certain resistance which influences the measured temperature (16 Ω means 1 °C).

6. Configuration

Operating parameters of a GSM RELAY are stored in a SIM card phone book. The phone book contains a pairs <name, number>. After Power On of GSM RELAY this phone book is searched for the names in a following table: (Names are not case sensitive, xcode = xCODE)

If any parameter is not present, the default value for this parameter will be used. All phone numbers must be in an international form: + (Country code) (phone number) e.g. +420777777497.

Tip: Use your mobile phone to make changes in parameters of GSM RELAY: Insert the SIM card from the GSM RELAY into your mobile phone. Make necessary changes of parameters in a phone book of a SIM card and put the SIM card into GSM RELAY again.

The first person who sends valid SMS to GSM RELAY with a "clear" SIM card inserted became a main user (master) of the device.

In all following examples we suppose the GSM RELAY is already fully functioning with a SIM card. (See chapter **Installation**).

6.1 Remote heating control in a cottage (without temperature regulation)

The electrical heating system is connected to GSM RELAY 230 V_{AC} mains outlet; the function of a "temperature regulation" is suppressed

Example of parameters on a SIM card:

xCode	1234
xReg	0
xRegOut	0
xRemCall	0

The following SMS message will switch ON the el. power to a heating:

```
1234 ON
```

6.2 Remote heating control in a cottage (with temperature regulation)

Remote **setting of requested temperature of heating control.** The electrical heating system is connected via relay to an 230 V_{AC} mains outlet, the function of a "temperature regulation" is enabled.

Example of parameters on a SIM card:

xCode	1234
xReg	1
xRegHyst	1
xRegIn	1
xRegOut	0

The following SMS will set a requested temperature to + 25 °C

```
1234 TEMP25
```

6.3 Entry gate opening by call from a mobile phone

The gate control is connected to 230 V_{AC} mains outlet

Example of parameters on a SIM card:

xCode	1234
xRemDout	0
xRemCall	1
xRemConfirm	0
xMaster	+420777111111
xRUser1 *)	+420777222222
xRUserPeter *)	+420777333333
xRUserDaughter *)	+420777444444

GSM RELAY will reject incoming call from those phone numbers and will generate pulse on 230 V_{AC} mains outlet (=open or close entrance gate)

6.4 Alarm via SMS about low temperature (below +5°C on temperature sensor)

Example of parameters on a SIM card:

xeA1+HL+SMS	+420777111111
xAIn1Level	5
xAIn1Hyst	1

(Note: Use star "*" instead of minus "-" when your mobile phone does not support minus in phone numbers, e.g. for temperatures below -15°C set *xAIn1Level = *15*)

6.5 Limit the number of alarm SMS (max. 1 SMS every 3 days)

Example of parameters on a SIM card:

xLimit	1
xLimitCount	1
xLimitTime	3

6.6 Setup credit limit on 70 CZK

Example of parameters on a SIM card: When credit drops below 70 CZK, GSM RELAY will send warning SMS message.

xCredit	1
xCreditLimit	70
xEvent8004 *)	+420777111111

(Notice about currencies: GSM RELAY does not care about currency. It cares about the number itself. So this example will be the same for USD or Pounds.)

6.7 Advanced setup

See charter List of All Parameters.

*) These parameters have to be created by user in a phone book on SIM card.

7. Event SMS Messages

Whenever any event appears on the GSM RELAY selected input or output for longer than minimum specified time, the GSM RELAY sends an SMS about this event. To increase the probability the user will read the SMS it can be followed by a voice call from GSM RELAY. See the **xe[...+...+.....]** parameters.

If you answer the phone call you will hear a voice message in a form of DTMF signals.

8. Advanced functions

8.1 Automatic Voice Call

This function is useful when the GSM operator (e.g. O2 in the Czech Republic) requests to perform at least one paid voice call during certain time period to keep the SIM card active.

This function can be "Automatic voice call" setup by **xAutoCaLL** and **xAutoCaLLint** parameters (see charter "List of All Parameters").

The GSM RELAY will call between 09:00 and 18:00 of a local time. It means you will not be wake up at night. If you will not answer the call, the GSM RELAY will repeat the call after 2 minutes again.

Example

Set your phone number to a **xAutoCaLL** parameter (e.g. +420123456789) and 2 to **xAutoCaLLint** parameter. The GSM RELAY will call you every 2 months.

8.2 Redirect of SMS without valid password

Master (parameter xMaster) can get messages sent to the GSM RELAY without valid password, for example credit warning message from provider. Every message without valid password is forwarded to phone number according to parameter xMaster, if this function is switched on.

For switch on or off this function use parameter **xRedirect** (value 1 = function on, value 0 = function off).

9. GSM RELAY Control

9.1 Pushbutton ON/OFF on the front panel

Press shortly the pushbutton "ON/OFF" on the front panel of a GSM RELAY. It will change the state of a relay inside of a device. An appliance in a 230 V_{AC} outlet will be switch on or off.

9.2 Output control by ringing

GSM RELAY is set by the manufacturer to switch ON a mains outlet (230 V_{AC}) for 4 seconds when any user from a list calls to GSM RELAY phone number. This pulse is useful for an opening of an entry gate. Test this function by a call to GSM RELAY from your mobile phone (it's important to send a valid command SMS to GSM RELAY from your mobile phone if have inserted a "new" SIM card to GSM RELAY before).

GSM RELAY rejects a call and at the same time generates a pulse on the mains outlet (230 V_{AC}).

9.3 Remote control of GSM RELAY via SMS

GSM RELAY is controlled via SMS of the GMS network. Text SMS are in form:

<PASSWORD> <COMMAND> [<RETURN COMMAND>]

Example:

```
1234 ON          ... GSM RELAY will switch on an appliance connected to the
                 mains outlet (230 VAC) and returns a confirmation SMS
1234 OFF NOBACK  ... GSM RELAY will switch of an appliance connected to the
                 mains outlet (230 VAC) and but returns no confirmation SMS.
```

Password (access code)

Password is a main security item for GSM RELAY control. Command SMS are accepted from any phone number. It means anybody who knows the password and the phone number can control the GSM RELAY. The password is a string of digits (1 to cca 20) which must be on the beginning of any command SMS. Otherwise the SMS will be ignored. A text before the password is automatically ignored. It is useful when command SMS are sent from Internet GSm gates.

Factory setting of a password (see chapter List of All Parameters, parameter **xCode**) is:

1234

Command

This part of a message specifies a requested action. See the following table for available commands. GSM RELAY is not a case sensitive. It's possible to use more commands in one SMS. Commands are separated by a space.

Command	Parameter	Factory	Meaning
ON EIN	-	-	The connected appliance will be switched on
OFF AUS	-	-	The connected appliance will be switched off
PULSE RESET	- -	- -	The connected appliance will be switched on for 4 second and then switched off
TEMP	0 to 55	20	Setting of a requested temperature for a temperature regulation function. Is regulated output with parameter xRegOut setup. The value is in °C.
STATUS ZUSTAND	-	-	Request of status SMS (state of inputs, outputs, temperatures, signal quality and credit).

Tip: It's possible to use more commands in one SMS. Commands are separated by a space (see an example).

Example:

1234 ON   ... an appliance connected to the 230 V$_{AC}$ outlet will be switched on

1234 OFF   ... an appliance connected to the 230 V$_{AC}$ outlet will be switched off

1234 PULSE   ... an appliance connected to the 230 V$_{AC}$ mains outlet will be switched on and then after 4 seconds will be switched off (Notes: if an output is already switched on, it will be just switched off after 4 seconds)

1234 TEMP25   ... requested temperature for the function "temperature regulation" will be set to + 25 °C

1234 OFF TEMP25   ... two commands (OFF and TEMP25) in one SMS

Confirmation SMS

If a *command message* contains a valid password (access code) the GSM RELAY returns a confirmation message which informs if a command was accepted (see chapter Status SMS). If you don't want a confirmation message (e. g. when sending a command SMS from the Internet GSM gates) add a command "NOBACK".

Example:

1234 ON NOBACK   ...connected appliance will be switched on, but no confirmation message will be send back

9.4 Remote Control via the application for OS Android

The application for OS Android called SeaControl is used for control and monitoring of GSM RELAY, you can download it for free. For detailed information and downloading the application, go to www.seapraha.cz and write GSM-CONTROL into the searchbox. This application communicates with a GSM relay via SMS.

9.5 Status message

The status message is send whenever the command message contains a valid password. The status message typical example:

Status message example	Explanation
GSM R1 ZAS: 'ON' SUCCESS	Command confirmation
Relay=on	Main relay status (230 V$_{AC}$ outlet)
Sig=58%	GSM signal level
Temp=21'C	External temperature
Credit=380.85	Credit on a prepaid SIM card

Note: Status message has maximum length of 160 characters. (Characters over the length of 160 will be lost.)

The states of input and output:

Relay: off = state L, on = state H

Temp: NONE = sensor disconnected, 20'C = 20°C

10. Warranty

General warranty period is 12 months after purchase, when eventual malfunction device will be repaired free of charge in SEA company while shipping to SEA is paid by customer and SEA pays for shipping back to customer. For SW there is 24 months warranty under following conditions:

Both CPU and PC software is sold "as is". The software was created by the best software engineers in SEA and was carefully tested both in SEA and also by SEA customers using GSM applications products made in SEA. In spite of making all possible to get error free software it can happen, that the software in CPU or PC programming SW or their mutual interaction has some error under some specific conditions. If such error is found and the description of the problem including configuration file is sent by E-mail to SEA ltd., the error is removed free of charge and SEA will send new SW by E-mail to customer.

SEA ltd. has NO RESPONSIBILITY for any damage, lost, costs and any other problems direct or inducted, caused by such SW error, by eventual device malfunction from any reason or by undelivered SMS from the device.

11. Frequently Asked Questions (FAQ)

What is necessary to use the GSM RELAY?

- Good quality GSM signal in the place where **GSM RELAY** will be used (at least 2 bars on your mobile phone)
- Sufficient credit on a prepaid SIM card
- No phone call redirection
- The user has to know to operate his mobile phone (PIN usage deactivation, Phonebook contact changing)

Problem description	Possible reason	Solution
Blue LED diode GSM, is not blinking once per 3 seconds (1 minutes after power on of GSM RELAY)	No SIM card inserted	Test the SIM card in your mobile phone. Try to make a call and receive a call from another mobile phone. Try to send a receive SMS message.
	SIM card is not functional	Switch off using PIN on a SIM card. Cancel all call redirection for a SIM card. (Ask your mobile operator for help if necessary)
	New SIM card which was not activated yet	New SIM card has to be activated. (Ask your mobile operator for help if necessary)
	Low credit on a prepaid SIM card	Check credit on a prepaid SIM card Tip: in the Czech Republic the codes are: *22# Vodafone (Oskarta); *101# T-Mobile (Twist) ; *104*# O2 (GO)
	Poor GSM signal	Test the GSM signal level with your mobile phone in the same location where you will use the GSM RELAY. For a test use a SIM card from GSM RELAY (it's important to test GSM signal of the same GSM operator). The mobile phone should show the signal level at least 2 bars.
The pulse on an output is not generated based on an incoming ring signal (e. g. for a gate opening)	The incoming phone calls for a SIM card are redirected	Cancel all phone call redirections.
The temperature from an external temperature sensor is wrong	Too long lines to an external temperature sensor	The accuracy of temperature depends on a line length to an external temperature sensor (16 Ohms means 1°C). Use thicker wires to temperature sensor.
There are not all parameters on SIM card	The phone book on a SIM card is full. (There is no place on a SIM card for parameters)	Delete some of contacts in a phone book on a SIM card (minimum 60 free places)
How to set temperatures below zero in parameters on a SIM card	Some mobile phones don't support minus in phone numbers	Use *star* "*" instead of *minus* "-" e.g. parameter $xAIn1Level = *15$ has the same meaning as $xAIn1Level = -15$

12. List of All Parameters

(This list of parameters is common for the whole GSM RELAY family and may slightly differ depending on your device, e.g. number of inputs and outputs,…)

	Name	Number	
Item	**Explanation**	**Example (Range)**	**Factory**
xCode **xCodeJane *)** **xCodeGeorge *)**	Access code = Password String of digits (4 digits recommended). Every SMS has to contain a valid password, otherwise it will be ignored. If there is no item called **xCode** in a phonebook of a SIM card GSM RELAY will create this item **xCode** with a value (=password) **1234**. It's recommended to change this default password! In case there are more users of GSM RELAY it's possible to create more **xCode** items. For better readability it possible to distinguish users by adding their name behind obligatory part **xCode**. E.g **xCodeGeorge.**	84655647 (The range from 1 digit up to a count accepted by a SIM card) 456456 4321	1234
xMaster	The main (most important) user phone number. If there is no **xMaster** item present in a phonebook of a SIM card it will be created at the moment when the first valid SMS is received and will be written with the sender's phone number.	+420777777497	-
xSca *)	GSM operator's SCA service center for outgoing SMS text messages. If **xSca** parameter is not set up, GSM RELAY will use standard SCA phone number on SIM card which is usually setup by GSM operator before selling the SIM card (recommended).	+420603052000	-
xAutoCaLL	Some GSM operators request at least one paid call to be done from a SIM card in a specified time period – see chap. **Automatic voice call**. Insert proper phone number (your mobile phone number is recommended) and GSM RELAY will make phone call in requested time periods.	+420777777497	-
xAutoCaLLint	The time period (in moths) between two calls to a phone number in the **xAutoCaLL** parameter. E. g. for **xAutoCaLLint** = 3 the GSM RELAY will make a phone call to a phone number in a **xAutoCaLL** parameter evey 3 months.	3 (1 to 9)	2
xReg	Enables a function called "temperature regulation". For **xReg** parameter value 1, GSM RELAY switches on and off selected output (Power output in the factory setting) depending on requested and actual temperatures. For an actual temperature lower than requested the output is switched on. For an actual temperature higher than requested (parameter **xRegLevel**), the output is switched off. For the parameter **xReg** = 0, the function "temperature regulation" is disabled.	0 or 1	0
xRegOut	The output number for the function "temperature regulation". Usually the parameter has value 0 which means the 230V outlet socket.	0	0
xRegIn	Parameter is always set to value of 1 (T1).	1	1
xRegLevel	This parameter means a requested temperature in °C for the function "temperature regulation" (E. g: For a value 25 of the **xRegLevel** parameter the GSM RELAY will switch on and off the connected heating system to reach 25°C on a temperature sensor). This parameter can be changed by an SMS in form: 1234 TEMP25	-55 to 150	20
xRegHyst	This parameter called "hysteresis" prevents the GSM RELAY to switch on and off the heating system too often when the function "temperature regulation" is enabled. (E. g. For the parameter **xRegHyst** = 1 and requested temperature 25 °C, the heating system is switched off when the temperature reaches 26°C and switch on when the temperature decrease to 24°C.)	2	1
xRemCall	This parameter enables to generate a pulse on an output just by ringing from a phone. This pulse is generated on an output specified by the parameter **xRemDout** (the factory setting is output 6). This function is useful for a gate opening using a mobile phone. If a parameter **xRUser** is specified the pulse is generated only when the ringing is from the phone number which is set in the **xRUser** parameter. It's possible to set up more parameters of **xRUser** type which can be distinguished by adding a name e.g. **xRUserJane**.	0	1
xRemConfirm	This parameter is intended for later use. Keep this parameter **xRemConfirm** = 0.	0	0
xRemDout	This parameter specifies an output on which the pulse will be generated by ringing. E. g. For a parameter **xRemDout** = 0 than the pulse will be generated on the 230V outlet socket (factory setting).	0	0
xRUser **xRUserPetr *)**	This parameter specifies a phone number. Whenever a call comes from this phone number pulse 4 seconds long is generated on an output given by **xRemDout** parameter. The first phone number from which comes the first valid SMS to GSM RELAY with a "new" SIM card will be written as a **xRUser**. More parameters of xRUser type can be in a phone book of the SIM card. This is useful in case when an entry gate should be opened by more users. The users can be distinguished after a text (usually a name) after an obligatory text **xRUser** (e. g. xRUserPeter). If there is no parameter of **xRUser** type on the SIM card, any incoming call will generate a pulse on the 230V outlet socket (in the factory configuration). This is useful for a entry gate with many users and low level of security. Anybody who knows the proper phone number can open the gate.	+420777777497 +420777111111	-
xe[....+....+.....] **(general form)**	It's possible to set events for GSM RELAY inputs and outputs which will send so called "event SMS" or make a voice call. (It's useful to set GSM RELAY to make a voice call after an SMS. It's a higher probability you will read the SMS than.) This SMS is sent to a phone number which is in a SIM card phone book under the name of an event. See the examples how to create an event name below.		
xAIn1Level *)	This parameter means temperature level in °C for sending SMS or ring to user. Note: "*" has the same meaning as minus "-" e.g. "*15" means "-15"	(-50 to +50) *15	5
xAIn1Hyst *)	This parameter prevents the GSM RELAY to send warning SMS too often. Example: if **xAIn1Hyst** = 2 and **xAIn1Level** = 5, event SMS is generated if temperature is below 3°C (5°C-2°C), and next SMS is generated if temperature is above 7°C (5°C+2°C).	2	1
xAIn1State *)	This parameter specifies if the value of this analog input will be in the state message.	0	1
xAIn1Delay *)	This parameter specifies how many seconds has to be the value of analog input lower of higher than the level specified in **xAIn1Level** parameter.	10	1
xIO0state	This parameter specifies if a status of **0** output will be mentioned in a GSM RELAY status SMS (e. g. for **xIO0state** = 1 the status SMS will contain: "Relay=on"). Value 0 means no status information of output 0 will be mention in the status SMS.	0 or 1	1
xIO[i]pulseLen	This parameter specifies the length of a pulse on an output no **i** in seconds.	10	4

	Name		Number	
Item	**Explanation**		**Example (Range)**	**Factory**

xe[....+....+.....]
 	
(general form - details)
	Examples of events from inputs:
	Outputs: xeO**a**+**b**+**c**
	  a ... number of output **0**
	  b ... **LH** – change level L->H, **HL** – change level H->L
	  c ... **SMS** – send SMS, **CALL** – ring
	Example:
	xeO0+HL+SMS *) – SMS is sent when the output 0 changes level H->L.
	xeO0+LH+CALL *) – Voice call is made when the output 6 changes level L->H (GSM RELAY will call you whenever anybody is opening the gate).
	
	Temperature: xeA**a**+**b**+**c**
	  a ... number of input for temperature sensor **1**
	  b ... **LH** – temperature is above limit, **HL** – temperature is below limit (see example)
	  c ... **SMS** – send SMS, **CALL** – ring
	Example:
	xeA1+HL+SMS *) – SMS is sent when the temperature goes below the requested level (see the xAIn1Level, xAIn1State, xAIn1Delay parameters)
	xeA1+LH+CALL *) – A voice call is made when temperature raise above requested level (see the xAIn1Level, xAIn1State, xAIn1Delay parameters).
	
	It is possible to send more SMS or make more CALLS from one event. Just create another parameter in phone book with the same name (or add some name at the end for better readability, e.g. xeI1+LH+SMSGeorge).
			+420777777497	-

xCredit	This parameter enables a function "Read Credit" for a prepaid SIM card. The credit level is a part of GSM RELAY status SMS, e. g. Credit=250.48. It's possible to set the **xEvent8004** parameter and GSM RELAY will send an SMS when the credit is lower than **xCreditLimit** parameter. For **xCredit=1** the function "Read Credit" is active. For **xCredit=0** the function "Read Credit" is not active.		0 or 1	1
xCreditCode	A code for the credit reading. This code depends on a GSM operator. (Contact your GSM operator for details). GSM RELAY tries to determine this code automatically, but it works only for Czech Republic. In other countries manual correction of this parameter is needed.		*22# OSKARTA Vodafone *101# TWIST T-Mobile *104*# GO O2	-
xCreditFreq	This parameter specifies how often the credit will be read. It means how many minutes will GSM RELAY wait between reading the credit again.		300	60
xCreditLimit	Whenever credit goes below **xCreditLimit** parameter in CZK, an SMS can be send. (The **xEvent8004** parameter has to be set for this).		100	50
xEvent8004 *)	The phone number where the GSM RELAY will send an SMS to inform that a credit on a prepaid SIM card is below limit specified in **xCreditLimit** parameter.		+420777777497	-
xLimit	**xLimit** parameter activates a function which limits the number of SMS/voice calls per time period specified by a **xLimitTime** parameter. For **xLimit=1** the function is active. For **xLimit=0** the function is not active.		0 or 1	1
xLimitCount	This parameter specifies the count of SMS/voice calls per a time period (see **xLimitTime**).		10	30
xLimitTime	Time period in days for the function of count of SMS/voice call limit. (See parameter **xLimit**).		1	7
xEvent8003 *)	The phone number to inform that the "SMS count limit per specified time period" was reached. (See parameters **xLimitCount** and **xLimitTime**)		+420777777497	-
xLanguage	This parameter specifies the language of the device. Value 1 = Czech (CZE), value 3 = english (ENG)		1 or 3	Depends on operator
xRedirect	Switch on or off redirection on messages without valid password: 0=off, 1=on		1	0

*) These parameters are not created on phonebook automatically. The user has to insert them manually if change of the default value of the parameter is needed.

Factory setting after the first valid command SMS (an empty SIM card used)

After first power no with an empty SIM card, basic parameters are written on the SIM card with default values. You can edit them or add other parameters moving the SIM card in a mobile phone (**the phone number of a sender will be used**):

Name in a phonebook on the SIM card	Description	Event SMS Message
xMaster	Setup main user xMaster	
xRUserMaster	Setup user for control by ringing	