GSM DOOR PHONE / GATE OPENER

GSM DoorPhone is an intercommunication device which calls to your mobile phone. *GSM GateOpener* is exactly the same device as *GSM DoorPhone* but without the outdoor unit.

The device has two relays, controlled using DTMF signals, to operate for example door locks and garage doors. The device utilizes separate units for the GSM module and user interface (*GSM DoorPhone* device only). Installing the GSM unit indoors, makes the device much more secure, compared to the devices where the lock controlling relays are inside the outdoor unit.

Two different outdoor units are available. An elegant and tiny user interface unit with a size of only 84 x 67 mm. It is possible to install this unit to very space limited places. The other option is a four button unit with an LED background lighting.

POWER

The device is powered using an external 6-24 volts DC power supply. The power supply should be capable of providing 12 W of power. Suitable power supplies are thus for example supplies with the following voltage/current characteristics 6V/2A, 12V/1A or 24V/0.5A.

CONNECTING THE DEVICE TO COMPUTER

Connect the device to your computer and wait for Windows to find the device. The *GSM DoorPhone* is a HID (Human Interface Device) device, such as mouse or keyboard, so no special drivers are required.

CONFIGURATION USING THE WINDOWS SOFTWARE

The *GSM DoorPhone* can be configured using the Windows software *DoorPhone.exe*. Before reading the present values or sending any new settings, wait for the red LED of the device to switch off. When the red LED has switched off and the green LED is blinking, the device is initialized and ready for operating. The features of the software are described below:

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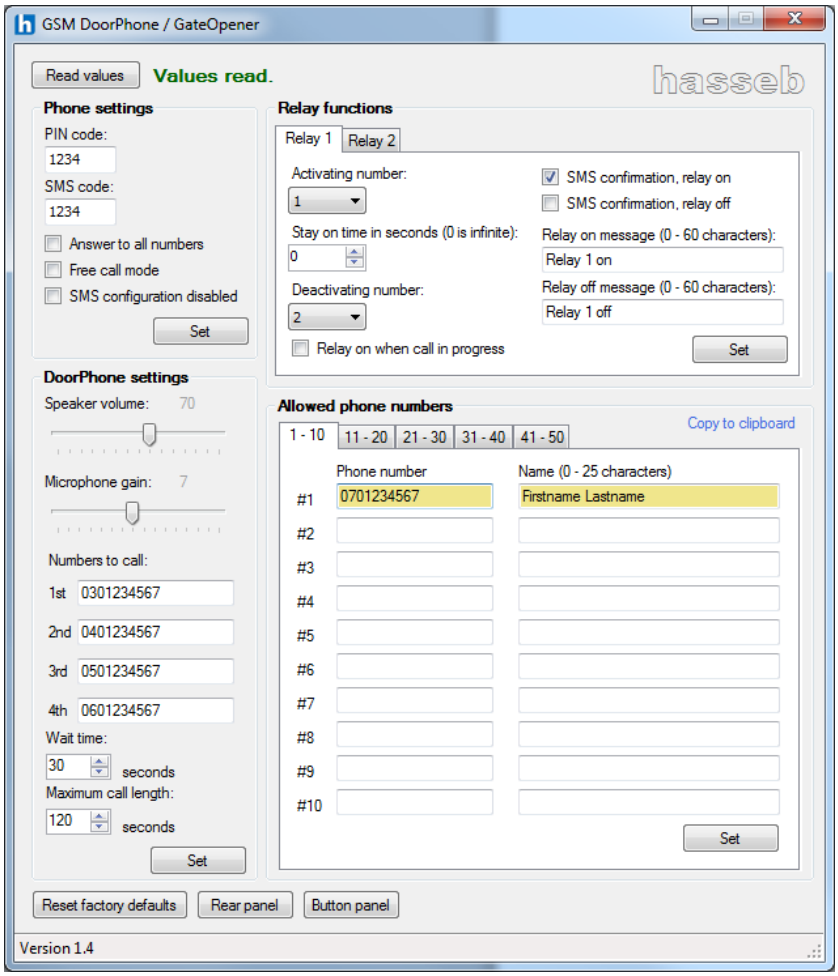


Figure 1: The *DoorPhone.exe* software is used to configure the device.

Read values:	Read the current configuration parameters from the device.
Set:	Write the new configuration parameters to the device. Only the parameters inside the same group box with the “Set” button are send to the device.
PIN code:	The PIN code of the inserted SIM card. The factory default pin code is 1234.
SMS code:	The SMS is required in every SMS message to configure the device using SMS messages. The factory default code is 1234.
Answer to all numbers:	If checked, the *DoorPhone* will answer to every call received.
Free call mode:	Switch the free call mode on/off. In free call mode the device does not answer to any calls. When a call is received from one of the allowed numbers the device

	activates the relay 1 for the stay on time and toggles the state of the relay 2.
SMS configuration disabled:	Disable the device configuration through SMS. By default the SMS configuration is enabled.
Speaker volume:	Volume level of the speaker of the outdoor unit. The minimum level is 30 to ensure the operation of DTMF tones controlling the relays.
Microphone gain:	The gain level of the microphone of the outdoor unit.
Numbers to call:	The numbers to call when the button of the outdoor unit is pressed. If the 1st number does not answer or hangs the call, the 2nd number will be tried. If the 2nd number does not answer or hangs the call, the 3rd number will be tried. If the 3rd number does not answer or hangs the call, the 4th number will be tried.
Wait time:	The time in seconds to wait for an answer between successive calls. The time can be adjusted between 10 and 250 seconds.
Maximum call length:	The maximum call length in seconds after which the device hangs the call. The time can be adjusted between 0 and 255 seconds, 0 seconds meaning infinite call length.
Reset factory defaults:	Load the factory defaults configurations to the device.
Rear panel:	Options to configure the rear panel connector inputs and outputs.
Button panel:	Options to configure multibutton outdoor units.
Activating number:	Pressing the corresponding number in your mobile phone keypad will activate the relay. The default activation number for the relay 1 is 1. For the relay 2, the default activation number is 2. Symbols # and * are not selectable. Pressing # will activate and pressing * deactivate the audio amplifier of the device.
Stay on time:	The stay on time for the relay. After the stay on time the relay will be switched off. 0 stay on time will keep the relay on until deactivating button is pressed, hanging the call will not deactivate the relay. The maximum stay on time in seconds is 65 535.
Deactivating number:	By pressing the corresponding number in your mobile phone keypad will deactivate the relay. The relay will be switched off after the stay on time has expired or

	by pressing the deactivating number in your keypad. The default deactivation number for the relay 1 is 3. For the relay 2, the default activation number is 4. Symbols # and * are not selectable. Pressing # will activate and pressing * deactivate the audio amplifier of the device.
SMS confirmation:	By selecting the SMS confirmation check box, a corresponding confirmation text message will be sent to the allowed phone number #1 (text boxes with khaki background color), when relay status is changed. If you have defined a relay stay on time other than 0 seconds, a relay off confirmation text message will not be sent when the relay is auto switched off.
Relay on message:	The message which will be sent to the allowed phone number #1, when the relay is switched on. The maximum length for the message is 60 characters.
Relay off message:	The message which will be sent to the allowed phone number #1, when the relay is switched off. The maximum length for the message is 60 characters.
Allowed phone numbers:	The *GSM DoorPhone* device will answer to these phone numbers.

CONFIGURATION USING SMS MESSAGES

The *GSM DoorPhone* can be configures also by sending SMS messages to the device. To prevent unauthorized configuration of the device, an SMS code is required in every configuration message. The default code is 1234. Below are listed the configuration messages and examples of the use. The configuration message has to be started and terminated with # mark. The SMS code is followed after the configuration word, separated with # marks.

Table 1: Codes to configure the device remotely using SMS messages.

Message	Description	Example
#A1SET#	1st phone number to call	#A1SET#1234#0501234567#
#A2SET#	2nd phone number to call	#A2SET#1234#0501234568#
#A3SET#	3rd phone number to call	#A3SET#1234#0501234569#
#A4SET#	4th phone number to call	#A4SET#1234#0501234570#
#BSET#	Pin code	#BSET#1234#1234#
#CSET#	Volume level between 30-100	#CSET#1234#70#
#DSET#	Relay 1 activating number (0 – 9)	#DSET#1234#1#
#ESET#	Relay 1 stay on time in seconds	#ESET#1234#5#
#FSET#	Relay 1 deactivating number (0 – 9)	#FSET#1234#2#
#GSET#	Relay 1 SMS confirmation, relay on (0 - off, 1 – on)	#GSET#1234#0#

#HSET#	Relay 1 SMS confirmation, relay off (0 - off, 1 – on)	#HSET#1234#0#
#ISET#	Relay 2 activating number (0 – 9)	#ISET#1234#3#
#JSET#	Relay 2 stay on time in seconds	#JSET#1234#30#
#KSET#	Relay 2 deactivating number (0 – 9)	#KSET#1234#4#
#LSET#	Relay 2 SMS confirmation, relay on (0 - off, 1 – on)	#LSET#1234#0#
#MSET#	Relay 2 SMS confirmation, relay off (0 - off, 1 – on)	#MSET#1234#0#
#NSET#	Answer mode (0 – answer to allowed numbers only, 1 – free call mode, 2 – answer to all numbers, 3 – free call mode + answer to all numbers)	#NSET#1234#0#
#OSET#	Microphone gain level between 0 - 15	#OSET#1234#7#
#PSET#	Call wait time in seconds (10 – 250 s)	#PSET#1234#40#
#QSET#	SMS configuration code	#QSET#1234#4321#
#RSET#	Maximum call length in seconds (0 – 255 s)	#RSET#1234#120#
#SSET#	Relay 1 call control (0 – no call control, 1 – on when call in progress)	#SSET#1234#1#
#TSET#	Relay 2 call control (0 – no call control, 1 – on when call in progress)	#TSET#1234#1#
#USET#	Enable the optional button panel for up to 255 buttons. (0 – disabled, 1 – enabled)	#USET#1234#1#
#AAxxSET#	White list number and name xx. Example for number and name 12.	#AA12SET#1234#0507654321,Test User#
#AAxxSET#	White list number xx. Example for number 2.	#AA2SET#1234#0507654321#
#ABxxxSET#	Multibutton outdoor unit number for button xxx. Sub numbers 1, 2, and 3 are separated with a comma. Example for button 3.	#AB3SET#1234# 0507654321,0401234567, 0309876543#
#OUT1ON#	Set output 1 to open collector	#OUT1ON#1234#
#OUT1OFF#	Set output 1 to 0 V	#OUT1OFF#1234#
#OUT2ON#	Set output 2 to open collector	#OUT2ON#1234#
#OUT2OFF#	Set output 2 to 0 V	#OUT2OFF#1234#
#RELAY1ON#	Set the relay 1 on	#RELAY1ON#1234#
#RELAY1OFF#	Set the relay 1 off	#RELAY1OFF#1234#
#RELAY2ON#	Set the relay 2 on	#RELAY2ON#1234#
#RELAY2OFF#	Set the relay 2 off	#RELAY2OFF#1234#

REAR PANEL CONNECTORS

The rear panel connector extends the features of the device.

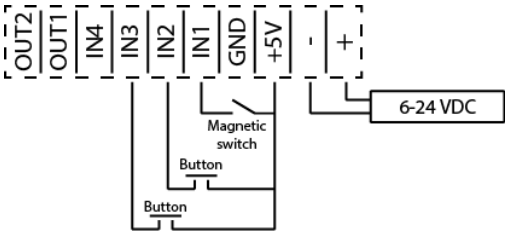


Figure 2. An example rear panel connection to attach a magnetic switch, two push buttons, and an external power supply to the device.

The device can be powered using an external 6-24 VDC power supply by connecting the power supply to the plus and minus connectors of the rear panel. The rear panel has also inputs and outputs to add signal sources or to control external devices. The input connectors accept 5 volts logic input signal. The output connectors are open collector outputs, meaning that at low level the outputs act as current sinks and at high level as open collectors.

The “Rear panel” button on the configuration software opens a dialog window to configure the inputs and outputs of the rear panel.

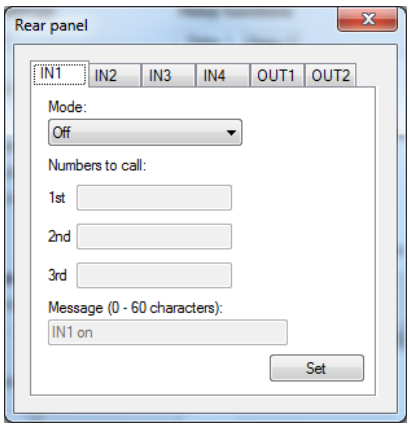


Figure 3. The rear panel settings dialog can be used to configure the inputs and outputs of the rear panel connector.

Four extra buttons similar to the *GSM DoorPhone* outdoor unit button or other signals such as magnetic switches can be connected to the inputs IN1-4. The inputs can be activated on the rising or falling edge of the signal. In addition to calling option the inputs can be configured to send an SMS message, when a signal is detected.

The outputs OUT1 and OUT2 can act as steady 0 V or open collector, or they can be controlled using SMS messages. It is also possible to set the outputs to be open collector or 0 V only when a call is in progress. At 0 V state the outputs act as a current sinks.

LEDS

The device has a multicolor LED to indicate the status of the device.

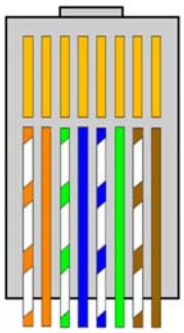
RED:	The device has not been initialized and is not ready to receive calls.
GREEN:	The green LED will blink if the device is working properly and ready to receive calls.
ORANGE:	The orange LED is on when the device is receiving a call or sending/receiving setting commands.

The device has also a blue LED to indicate the status of the network.

Off:	Network module is not running
64ms On/800ms Off:	The device not registered to the network.
64ms On/3000ms Off:	The device registered to the network.

SINGLE BUTTON USER INTERFACE INSTALLING

The device uses a normal RJ45 connector and Ethernet cable to connect the GSM unit and the outdoor unit. You can use a normal T568B type Ethernet cable and cut it to the required length to interconnect the indoor and outdoor units. The connection diagrams for T568B Ethernet cable and the outdoor unit are presented below, the clip of the RJ45 connector is pointing down. Check the order and color of the wires in your cable! The order must be same as in the figure below!



Color	Terminal	Function
Orange / white	1	Spk +
Orange	2	Spk -
Green	3	Mic -
Green / white	4	Mic +
Brown	5	Ground
Brown / white	6	+5 V
Blue / white	7	Button signal
Blue	-	-

Figure 4: The wire colors and the corresponding signals of T568B type Ethernet cable.

There exists an RJ45 connector at the circuit board of the outdoor unit. The simplest way to interconnect the outdoor and indoor units is to connect an Ethernet cable between. There exist also 11 screw terminals at the outdoor unit which can be used if the Ethernet cable needs to be cut. The corresponding signals as in Figure 4 are marked to circuit board of the outdoor unit. Screw terminals 1-7 are connected according to the table in Figure 4. “BTN” terminals are for the button of the outdoor unit, the polarity of the button wires has no influence. Signals “MIC+” and “MIC-“ at the outdoor unit are for the electret microphone, the polarity of the microphone wires has no influence.

There are no feed through for the Ethernet cable in the outdoor unit. You can drill a hole to the desired location of the unit depending on your installation.

The length of the cable between the indoor and outdoor units should be less than 5 meters. You can use longer cables, but the sound quality may degenerate.

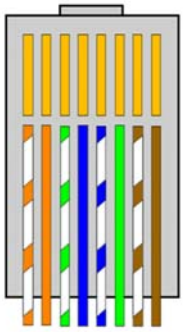
If you want to install the *GSM DoorPhone* device to a custom place, it is not mandatory to use the outdoor unit. You can customize the installation and use any 4 or 8 ohm speaker, electret microphone, and push button. The audio amplifiers are in the GSM unit, so no active electronics are required at the outdoor side.

The push button works in such a way that when you push the button, +5 volts should be provided to the blue/white wire. If you use your own system and push button (closing type), the blue/white wire and the brown wire connector should be connected to the push button.

4-BUTTON USER INTERFACE INSTALLING

The 4-button outdoor unit can be simply installed by connecting an Ethernet cable between the *GSM DoorPhone* device and the outdoor unit. If you do not want to use an Ethernet cable to interconnect the devices, you can also cut the cable. There exist screw terminals for the signal wires in the PCB of the 4-button outdoor unit. The signals and corresponding screw terminals are marked on the PCB. The signals and wire colors are shown in Figure 5.

Color	Function



Orange / white	Spk +
Orange	Spk -
Green	Mic -
Green / white	Mic +
Brown	Ground
Brown / white	+5 V
Blue / white	B
Blue	A

Figure 5: The wire colors and the corresponding signals of T568B type Ethernet cable.

Figure 6: The 4-button outdoor unit provides both screw terminals and an RJ45 connector for interconnecting the outdoor and indoor units.

The calling numbers of the 4-button outdoor unit are configured using the "Button panel" dialog of the Windows configuration software. It is mandatory to enable the button panel by checking the checkbox of the "Button panel" dialog. It also possible to configure the numbers to call using SMS messages. Refer to Table 1 for the commands.

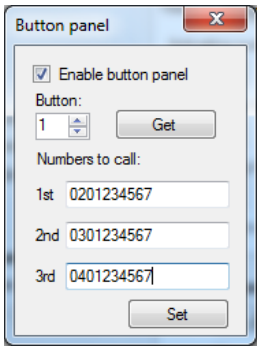


Figure 7: The calling numbers of the 4-button outdoor unit are configured using the "Button panel" dialog of the Windows configuration software.

Specifications	
Input voltage	6-24 VDC
Maximum input power	12 W
Bands	850/900/1800/1900 MHz
Antenna	SMA female, 50 Ω impedance
Operating temperature	0 – 50 °C
Relays	2 x SPST (single-pole, single-throw) max 50 V / 1 A
Maximum digital input voltage	12 V
Maximum digital output current	100 mA
Dimensions, GSM unit	130 mm x 80 mm x 30 mm
Dimensions, outdoor unit	80 mm x 70 mm x 40 mm
Weight, GSM unit	250 g
Weight, outdoor unit	100 g
IP class	21
Supported operating systems	Windows 7 / 8 / 10