# UP100-GSM

## GSM based intercom and access control

### Installation and user manual
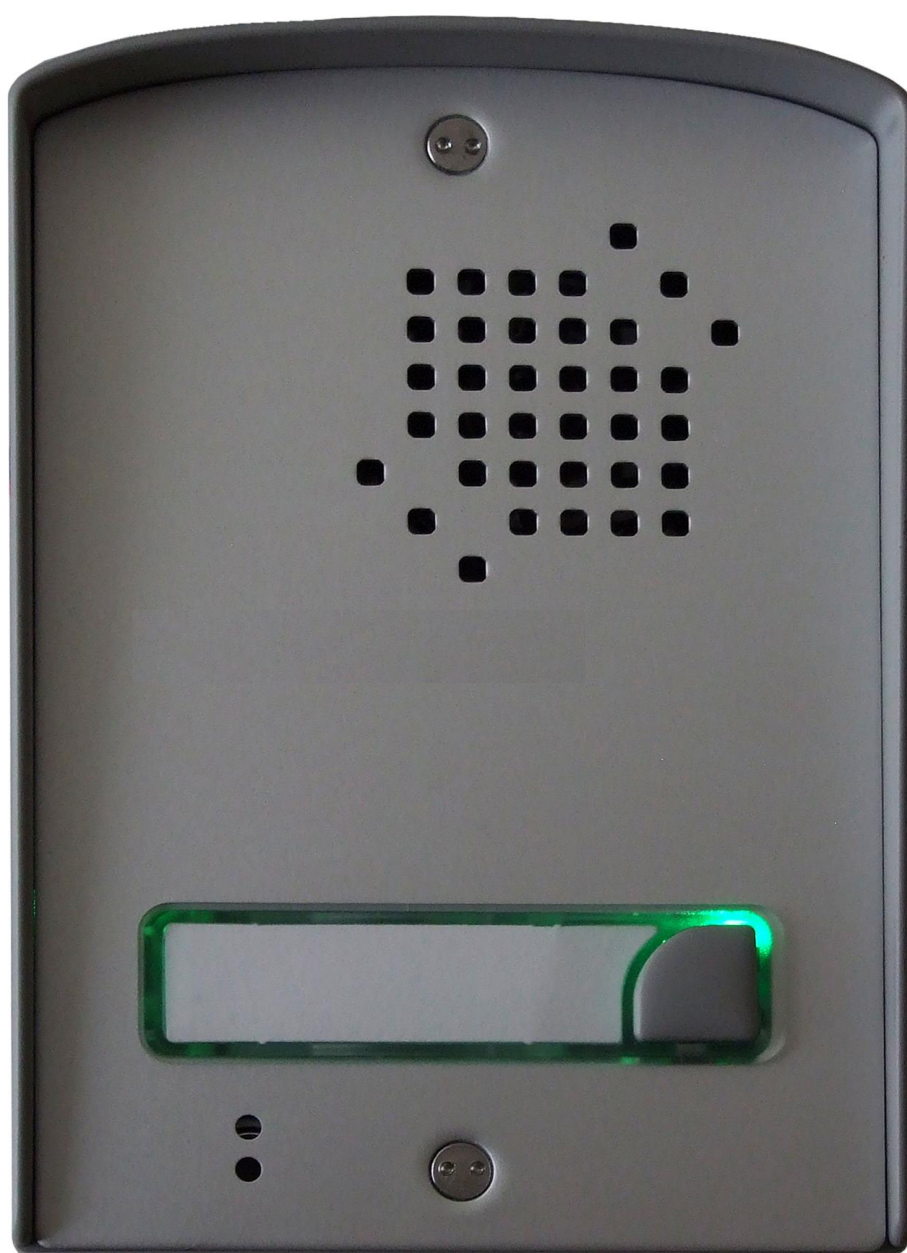
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The **UP100-GSM** is an intercom unit which as a cell phone can call the owner's mobile or landline phone. By pressing the call button on the intercom, it makes the voice connection in a few seconds, just like when talking via a conventional intercom system. This way it makes possible for the owner to receive the visitor's calls and talk to them at anytime and anywhere, even when not at home.

The unit does not need internal handset, any special installation or complicated wiring, it needs power only and an active SIM card.

# 1 Functions

- Intercom
- Listen-in mode
- Electric door lock control via DTMF codes
- Electric gate control by free call
- SMS forwarding
- Programming through SMS message

# 2 Features

- GSM communication in full duplex mode
- 2 configurable phone number for communication
- 4 configurable phone numbers for electric gate control
- 1 relay output with independent N.O. contact, supports 1A@24V max. load
- 12V/1A voltage output with short circuit and overcurrent protection for electric lock control
- Local control of the voltage output using a separate input
- Supports prepaid SIM cards by forwarding the received balance information in SMS

# 3 Application area

- Wireless intercom
- Gate/door opener
- Emergency call device

# 4 Operation

## 4.1 Visitor mode

When the visitor pushes the call button, the device initiates a voice call to the configured phone number. If the called party accepts the call, the communication establishes for the configured duration. During the call, the connection cannot be interrupted nor by making a call to the device, nor by pressing the button again. The call is ended automatically when the configured communication time expires, or the called party can hang up the call at anytime on his/her phone. The call is ended automatically if the called party does not answer or is not available. A new call is initiated only if the button is pressed again.

A call to the second telephone number (if TEL2 is set) can be initiated (for 60 seconds) after the first call is ended, by pressing the call button on the intercom again or automatically, if AUTOCALL command is set. The maximum duration of the call is the same as in case of the first call.

## 4.2   Listen-in mode

The intercom unit can be called from any phone number but the outputs can be controlled by the pre-set TEL or TEL2 telephone numbers. At the call the unit accepts the call without ringing and the voice connection establishes. The call can be ended on the caller's phone or by pressing the call button on the unit.

*If the call is initiated from a phone number which is configured in the unit as gate opener number, the device will consider the call as a gate opening call. In this case voice connection is not established, but the relay output is activated.* To make a "listen-in" call from such phone number, use the **#31#** code in front of the number, this hides the caller's phone number (e.g.: #31#0036301234567).

## 4.3   Relay output control

Depending on application, **RELAY** control output (normally open) can be activated in the following ways:

- **control by free call:** after identifying the telephone number of the incoming call the unit disconnects the procedure and activates the relay output. e.g. gate opening for which maximum 4 user telephone numbers can be set
- **control by call button (BUTTON):** the relay gets activated for the duration of pushing the call button e.g. possibility to connect existing doorbell
- **control by the telephone's push button:** while in call, it gets activated by **2#** push button of the telephone.

## 4.4   Voltage output control

**–OUT+** (VOLTAGE OUT) output control can be activated in the following ways:

- **control by external contact**: after input control the output gets active for the duration of the set time, e.g. inside opening button for the operation of magnetic lock
- **control by the telephone's push button**: while in call, it gets controlled and stays activated by **1#** push button of the telephone for the duration of the set time, e.g. direct control of magnetic lock

Voltage output is protected against short-circuit and overcurrent, so in case of excessing current limit the output turns off, then it operates again after the termination of the fault.

## 4.5   Forwarding incoming SMS messages

The unit forwards the SMS messages received on its SIM card (e.g. balance information in case of a prepaid card) to the phone number set with the **TEL** command. After forwarding, the received message is deleted from the SIM card. If there is no phone number configured, the unit deletes the incoming messages without forwarding. A forwarded SMS message looks as follows:
**SMS forward from** „*the sender's phone number*"**:** …*the forwarded message*...

# 5   Settings

Configuration of the unit is possible by sending the appropriate commands in SMS to the module's phone number. It is possible to send more commands (settings) in the same SMS, but the length of the message must not exceed 140 characters! Each message must begin with the password using the **PWD=***password***#** command and each command must end with **#** character, else the module does not apply the modifications. The following table contains the configuring and query commands:

| Configuration commands | |
|---|---|
| **PWD=** *1234***#** | Password for programming, default setting:1234 |
| **PWC=***new password***#** | Changing the password. The password is a 4-digit number. |
| **RESET#** | Resetting the settings and the password to default. |
| **TEL=***phone number***#** | Setting the primary phone number to be called when pressing the button (in international format) |
| **TEL2=***phone number***#** | Secondary telephone number in case the first telephone number is unavailable. |
| **RINGTIME=** *duration* **#** | Ringing time of the telephone (10-100 seconds) to restrict the reach of voice mail |
| **TIME=***duration***#** | Maximal duration of the conversation. (60-600 seconds) Default setting: 60 seconds |
| **AUTOCALL=ON#** **AUTOCALL=OFF#** | Automatic call of the second telephone number if the first telephone number is unavailable |
| **RTIME=** *duration***#** | Duration of the relay output activation. (1-100 seconds) Default setting: 3 seconds |
| **VTIME=** *duration***#** | Duration of the voltage output (- OUT +) activation. (1-100 seconds). Default setting: 5 seconds |
| **RTEL=** *phone number***#** | Setting the phone numbers for relay output activation. (max. 4 user) |
| **RTEL=BUTTON#** | The relay gets activated for the duration of pushing the call button |
| **STATUS?#** | Query of the settings and the phone numbers set for relay output activation. |

Example: **PWD=***1234***#TEL=***00363012345678***#TIME=***120***#RTEL=***00363012345678***#**

## 5.1 Response SMS explanation

After sending the configuration SMS, the unit sends back two SMS messages containing the modified setting and the phone numbers set for relay output activation. It sends the same messages when querying the status with the **STATUS?#** command, as shown in the following example:

| | |
|---|---|
| *TEL: 00363012345678* | the phone number called on button pressing: *00363012345678* |
| *CALL TIME: 120* | conversation duration (limited to 120 seconds) |
| *SIGNAL: GOOD* | GSM signal (*BAD / GOOD / EXCELLENT*). If the indication is *BAD*, find a more suitable place for the unit or the GSM antenna, or a higher gain GSM antenna is necessary. |
| RTEL: *00363012345678* | phone number(s) authorized to activate the relay output. |

# 6  LED indications

| LED | Color | |
|---|---|---|
| **GSM OK** | green | Is lit if the unit is connected to the network and field strength is appropriate. Appropriate field strength: 2 (on the scale of 0-5) |
| **GSM / SIM ERROR** | red | Is lit continuously if the unit is not connected to the network. The following cases are possible: - the GSM antenna is not connected or is faulty - the SIM card is not inserted, or PIN code request is not deactivated, or the card is faulty. |
| **CALL IN PROGRESS** | green | Call or conversation is in progress. |
| **VOLTAGE OUT** | red | Voltage output activated (e.g. electric lock control) |
| **RELAY CONTROL** | red | Relay output activated (e.g. gate control) |

# 7  Installation

## 7.1  Mounting

- Measure the GSM signal with your mobile phone. It may happen that in the desired place of installation the signal strength is not satisfactory. In this case you can move the unit or the GSM antenna in a more suitable place before installation.
- Do not mount the unit where it could be affected by strong electromagnetic disturbances.
- Do not mount the unit in wet places or in places with a high degree of humidity.
- Connecting the antenna: the GSM antenna can be connected to the SMA connector. The antenna supplied with the unit provides good transmission under normal reception circumstances. In case of having signal strength problems or/and wave interference (fading), use other type of antenna or find a more suitable place for the unit.
- Inserting the SIM card: turn the SIM card with the metallic contact surface downwards towards the panel, and the cut corner should point towards the panel's center. Insert the card in this position in the socket and press until it clicks. To remove the SIM card, push it towards the socket then pull it out.

## 7.2  Putting into operation

- Disable PIN code request, voicemail and missed call notification service on the SIM card.
- Enable caller identification and caller ID sending service on the SIM card at the GSM service provider.
- Make sure the SIM card is inserted properly into its socket.
- Make sure the antenna is fixed properly into the SMA connector.
- Make sure the wiring is done as shown in the wiring diagram.
- Power up the unit (12-24V AC/ DC). Make sure the power supply is sufficient for the operation of the unit. If operating from a 16V AC transformer, the necessary current is min. 300mA (5VA).

# 8 Wiring diagram
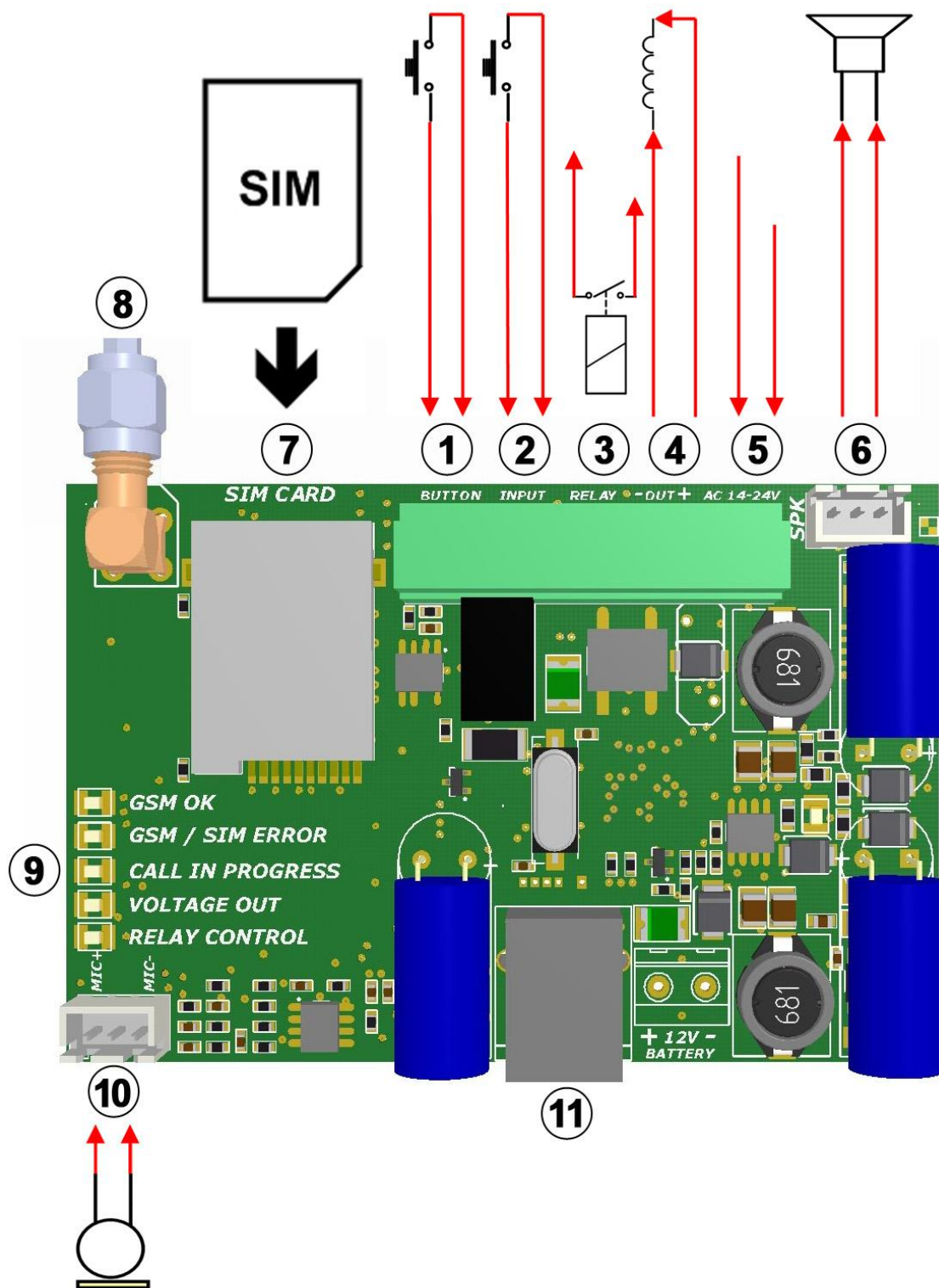


1.  **Call button input**
2.  **Local input for voltage output control**
3.  **Relay output - normally open contact (max. 24V DC/1A)**
4.  **Voltage output 12V DC/1A**
5.  **Supply voltage input 14-24V AC/DC**
6.  **Speaker output**
7.  **SIM card socket**
8.  **GSM antenna connector (SMA type)**
9.  **Status indicator LED's**
10. **Microphone input**
11. **USB connector** (only for maintenance)

# Surface mounting

106
$4 \, ^3/_{16}\!''$

46
$1 \, ^{13}/_{16}\!''$

151
$5 \, ^{15}/_{16}\!''$
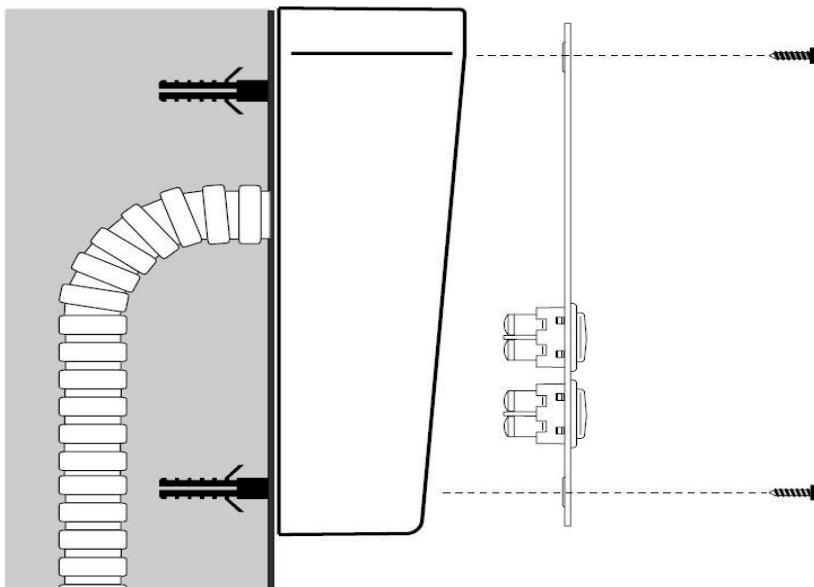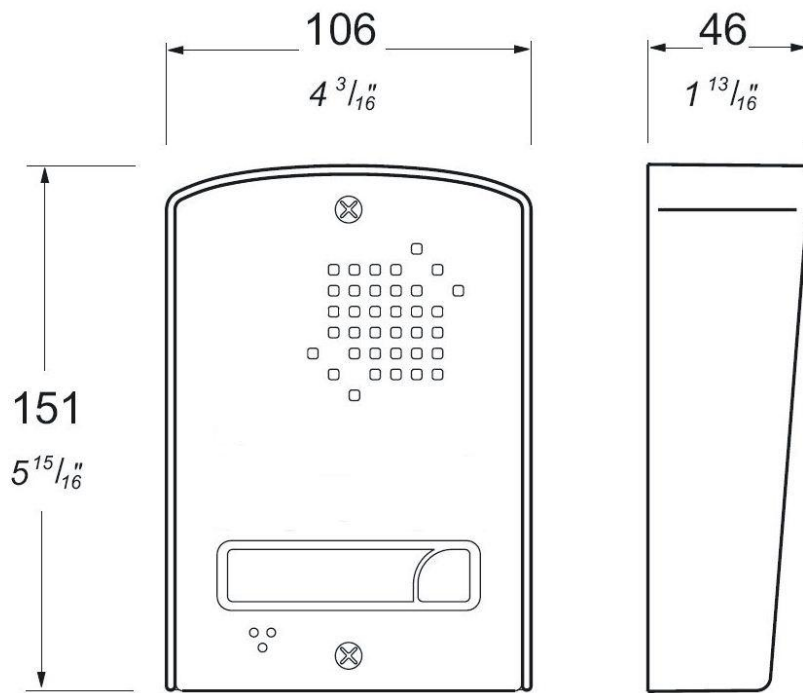
# 9  Technical specification

- Supply voltage:                          12-24V AC/DC
- Nominal consumption:             100mA
- Maximum consumption:          400mA @ 12VDC, 200mA @ 24VDC
- Max. load of the relay output:    max. 1A @ 24V DC
- Voltage output / max. load:        12V DC / max. 1A
- Operating temperature:            -30ºC - +70ºC
- Transmission frequency:           GSM 900/1800 MHz  (GSM 2G network)
- Contents of package:               UP100-GSM unit, GSM antenna, security screws
- Warranty:                               1 year