

# GSM4ACCESS

## Manual

Version	Change	Author
1.0	First version	Søren Due

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# GSM4ACCESS

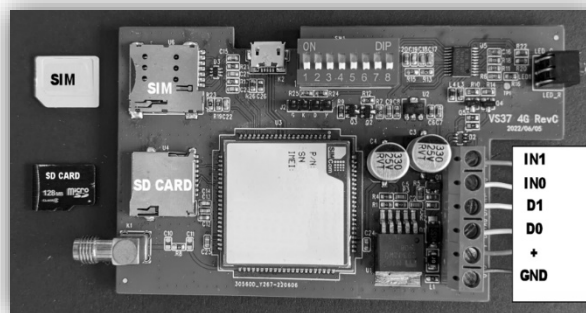
The GSM4ACCES is a Mobile to Wiegand device converting Phone numbers to card numbers and keys presses on the phone into keypresses send through Wiegand. There is also support for handling SMS/TEXTS for access. This device emulates a normal card reader but uses a phone as the card and keypad.

## 1: Disassembling the unit

To take the unit apart to attach wires, SIM-card, SD-card, and setup functionality on the Dipswitches, 4 screws are removed. This can be done in either end of the unit, but it's recommended to do this in the end where the wires go into the unit. The complete board can then easily be removed from the casing.



## 2: Board Layout



Inside the unit there is a terminal block for connecting the unit to the controller, a dipswitch for setting up the unit, a SIM card tray, and a SD card tray.

## 3: Terminal block

Terminal	Function
1	OV
2	12V
3	Data 0
4	Data 1
5	IN 0
6	IN 1

***NOX Specific Tip:***

***Please make sure not to use PIN 1 on the CMU to supply the unit. The unit can have a high peak current when calls are initiated. On the CMU you can use the BUS supply voltage, or an external supply.***

If an external power supply is used, please remember to connect ground on the Wiegand controller with the external supply's ground to make sure the Wiegand signals work correctly.

## 4: DIP-Switch Settings

All DIP-Switch settings can be changed while the unit is running and will go into effect as soon as it has been changed. So, unit does not need to power cycle making changes.

Switch	OFF	ON
1	Listening mode OFF	Listening mode ON
2	32bit Wiegand Output	50bit Wiegand Output
3	8bit burst for keypress	4bit Bust for keypress
4	SMS access disabled	SMS access enabled
5	Normal use	Message recording enable
6	Not Used	Not Used
7	Not Used	Not Used
8	Not Used	Not Used

### 4.1: Listening Mode switch (1)

**OFF:**

When the unit receives a call, it hangs up the call and sends the incoming phone number on the Wiegand bus

**ON:**

When Listening mode is ON the call will be answered and the welcome message is played.

The user can then input keys and finish by hitting the # key

The unit will play a message depending on the state of IN0 and IN1.

If the unit does not see a # key it will timeout with a message and hang up.

### 4.2: Wiegand Format switch (2)

**OFF:**

When the switch is off the unit will output the cardnumber in 32bit format.

A special function can be set to specify the max length the cardnumber can have. Default the unit will limit the cardnumber to maximum 9 digits to ensure it can be included in 32bit. If a limit is set higher than 9 digits the unit will ignore the Wiegand format set by the dipswitch and output in 56bit format. See SD-Card section for more details.

**ON:**

When switch is on the unit will output cardnumber in 50bit format. The cardnumber is from bit 1 to 32. Bit 0 and 49 are parity bits and bit 33-48 are Facility code fixed to 1001 DEC (0x03E9)

### 4.3: Keypad format switch (3)

**OFF:**

When the switch if OFF the device will use 8bit burst (Dorado) format for keypresses on the Wiegand output.

**ON:**

When the switch is ON the device will use 4bit burst format for the keypresses on the Wiegand output.



#### 4.4: SMS Access switch (4)

**OFF:**

All incoming SMS to the device will be ignored

**ON:**

Incoming SMS to the device will be analyzed. If no code/digits are in the SMS body the unit will just output the phone number on the Wiegand output. If digits are detected in the body the device will output the phone number followed by the detected code/digits in the specified format followed by a #

Note : The message can't contain any smileys/graphical characters

#### 4.5: Message recording enable switch (5)

**OFF:**

Device is in normal operation mode.

**ON:**

Device is in message recording mode. In this mode it will be possible to call up the device and make/edit custom voice messages for the device. The device has 5 default messages that will never be overwritten. The end user can make their own custom recording if needed. This option makes it possible to call up the device and record these custom voice messages (alternatively, they can be uploaded using SD card).

When device is in this mode the signal strength will always be shown but blinking in RED instead of GREEN.

When Prompt Recording mode is on the device will respond with a special voice response when dialing up the unit. Here the unit ask the caller to select what recording they want to change.

After the tone the caller can make the new message and confirm with # (pound key).

If you want to restart a recording during the process, push \* instead of #, and the process will start over.

After hitting # the message will be repeated, and the device will hang up.

If more messages need to be changed call the device up again.

If you want to delete all custom recordings and roll back to default English, you can hit 0 as the message number. The device will confirm when all recordings are deleted.

**Example:**

1. Set dipswitch 5 on
2. Call the device
3. Device will answer with "Welcome to GSM4ACCESS message recording. Please enter the message number."
4. Enter the number of the message you want to record (1-5). 0 can be used to clear all custom recordings.
5. Enter 1 to record or re-record message 1 (Welcome message)
6. Reply from device "Please record your message after the tone. Press pound key when done."
7. Record message
8. Enter # to end the recording. Enter \* to restart recording.

## 5: SD-Card

The SD-Card can be used to copy custom message recordings to the internal memory and/or send special setup-commands to the unit. The unit can't run in normal mode with the SD-Card inserted. After copying files, the SD card needs to be removed and the unit needs to be restarted.

### 5.1: Message recordings

There are 5 sound files needed, and they can be replaced/customized if needed.

The recordings need to be in the following format: WAV 8kHz mono 16bit PCM

When transferring the files, they should be placed on a SD card formatted in FAT32.

To control the individual recordings placement the filename should end on the number of the recording. The filename could be 'EN-01.wav' for the welcome message.

File in wav format with name ending in	Message
1	Welcome message
2	Ok message from INO
3	OK message from IN1
4	Timeout (no # key was registered)
5	Error message (No INO or IN1 signal)

### 5.2: Settings

Special settings can be controlled by putting a settings.txt file on the SD card containing the commands needed. All commands should be placed on a separate line in the settings.txt file

Supported settings

#### 5.2.1 PIN

PIN can be setup using the PIN command example:

PIN=4322

This PIN will be saved in internal mem and used if the SIM requires a PIN. No default PIN will be setup, and if PIN is used it needs to be set up.

#### 5.2.2: SSI

SSI can be used to control how the device signals during normal operation.

SSI=1

(Default setting and the LED will blink showing the signal strength)

SSI=0

(Signal strength is not shown but it blinks once every 3.5sec. An easy way to check the signal level when running in this mode is to turn on Prompt/Record mode DIP5. Here the signal strength is always on but show with RED led instead of Green)

### 5.2.3: COUNTRY

COUNTRY can be used to turn stripping COUNTRY code On and Off

Standard is stripping of the country code. If the country code is turned on you have to make sure the complete number including country code will not be limited by the NUMDIGITS setup.

COUNTRY=0

(Country code is stripped)

COUNTRY=1

(Country code is not stripped)

### 5.2.4: NUMDIGITS

NUMDIGITS=9

NUMDIGITS is used to specify how many digits is wanted as card number.

Digits can be set from 1-16

Standard Digits are set to 9 to ensure the number can be contained in 32bit matching the 50bit and 32bit standard formats.

If the Digits are set to less than 9 the number will be cropped to the specified amount and send in 50bit or 32bit format.

If the Digits are set between 10 and 16 the unit will automatically change to 56bit output format

## 6: SIM-Card operation

To inset the SIM card, push the Micro-SIM into the SIM Slot.

To remove the SIM again push the SIM card in gently until you hear a click, and the SIM will automatically be pushed out so it can be removed. Please look at the Board Layout that shows which way the SIM should turn.

## 7: LED Behavior

### 7.1: LED Startup procedure (normal use)

- 2 sec GREEN + 2 sec RED: MCU unit start up OK
- GREEN flash: GSM unit start up OK
- Every 3.5 sec green is pulsed x times to give information about signal strength
- When incoming call is detected or in a call using listening mode GREEN is permanent ON

### 7.2: LED Startup procedure with SD card inserted

- 2 sec GREEN + 2 sec RED: MCU unit start up OK
- GREEN flash: GSM unit start up OK
- Short RED + Long GREEN: SD card detected
- Short green pulses when reading a file
- Short RED + Long GREEN repeated: please remove SD and power cycle

### 7.3: LED Startup procedure no SIM card inserted

- 2 sec GREEN + 2 sec RED: MCU unit start up OK
- GREEN flash: GSM unit start up OK
- Permanent RED

### 7.4: LED Startup procedure SIM card inserted but no connection

- 2 sec GREEN + 2 sec RED: MCU unit start up OK
- GREEN flash: GSM unit start up OK
- Fast pulse 3 times RED every 3 sec
- Permanent RED (failed to register)

### 7.5: LED Startup procedure SIM card inserted but correct PIN

- 2 sec GREEN + 2 sec RED: MCU unit start up OK
- GREEN flash: GSM unit start up OK
- 2 short RED flash every 3 sec.

NOTE: If the unit is booted 3 times with wrong PIN the SIM-card will need to be unlocked using the PUK-code