SimPal-D310

GSM Door Opener

User Manual

version1.0

SimPal-D310 GSM Door Opener

Thank you for purchasing the SimPal-D310

SimPal-D310 GSM Door Opener work with GSM SIM card, can be remotely open your electricity gate or door. Also can be used to control other electricity equipment. Two lines control, each line max 16A 3500W loading.

Work with TEM-020-D temperature sensor, SimPal-D310 can report temperature by SMS when temperature reach the setting range, can be work as thermostat by connecting heater power or heater signal onto SimPal-D310

One wired sensor support, it will send SMS alarm when wired sensor trigger. NO/NC type wired water leak sensor, PIR motion detector or door sensor support.
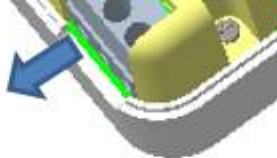
All services and functions need to be supported by the GSM network and a SIM card.

This brochure suits for **SimPal-D310** model.

Details of the functioning and advanced operation of this device are described in this instruction manual.

Line 2
NO
COM
NC

Ch

For your safety

- Before using this product, make sure that the mobile phones can be used well in the area, otherwise, do not put this product into operation.
- The power consumption of the appliances connected with the product cannot exceed 3500W and the current cannot exceed 16A.
- The product doesn't guarantee safe power source disconnection, only functional switching of power is performed.
- The product must be mounted inside a suitable enclosure providing environmental protection.
- The product contains no serviceable parts, or internal adjustments. No attempt must be made to repair this product. Faulty units must be returned to supplier for repair. Improper use, disassembling or product modification causes warranty loss.
- This product must be installed by a qualified person. All electrical wiring must be carried out in accordance with the appropriate regulations for the place of installation.
- Before attempting any electrical connection work, please ensure all power sources have been cut off.
- This product is a wireless signal transmission device. Keep it away from electronic equipment likely to interfere with the wireless signals, in order to avoid signals interference.

■ Keep the product and its accessories out of the children reach.

Exception clause

1. We operate on a policy of continuous development. We reserve the right to make changes and improvements to any of the boards described in this document without prior notice.
2. For the latest device information, please visit: http://www.simpal.cn. We don't guarantee for the document veracity, reliability or any content except regulate in proper laws. Including no guarantee for product suitable market or suitable area promise.
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5. The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either expressed or implied, including, but not limited to the accuracy, reliability or contents of this document. We reserve the right to revise this document or withdraw it at any time without prior notice.

Chapter 1 Product instruction

1.1 Package contents

GSM Door Opener
（1 pcs）

Temperature sensor
（1 pcs）

Power adaptor
（1 pcs）

NC

1.2 Device instructions
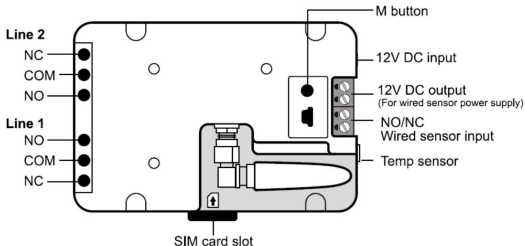
Figure 1: SimPal-D310 instructions

Figure 1: SimPal-D310 instructions

1.3 Light indicator
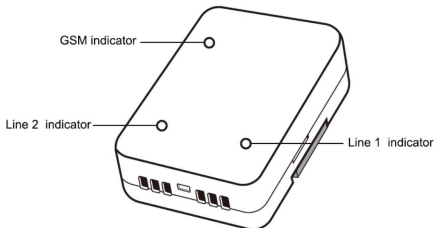
Indicator	Action	Status
GSM indicator (Blue)	Flash slowly (1 time/ second)	Register GSM network and in standby mode.
	Flash Fast (2 times/second)	■ Do not install SIM card. ■ Lost network connection.

		■ Processing SMS command
Line1/2 Status light	Constant ON	Power ON status (COM and NO terminal connected)
	Constant OFF	Power OFF status (COM and NC terminal connected)

Chapter 2 Installation

2.1 Installing the SIM card

- Put the SIM card inside card holder, ensuring that the beveled corner is inside and the golden contact area facing down.
- Firmly push the SIM card until hearing a lock sound.

⏏ **Note:**

1. Purchase a GSM SIM card from GSM network service provider and install it on the device. This SIM card number is referred as SimPal-D310 number on this brochure.

2. The user needs to activate the Caller ID Presentation function of SIM card, and deactivate PIN code of the SIM. Contact with GSM network service provider for support.

2.2 Control signal wiring

■ The device can be support two lines signal control, each line have three terminal. The middle terminal COM is public terminal, when power ON, it will make COM terminal connect with NO terminal, when power OFF, it will make COM terminal connect with NC terminal.

🔔 **Warning:** IF wired 220V power onto COM terminal, when set device power ON, terminal NO will have power output; when set device power OFF, terminal NC will have power output.
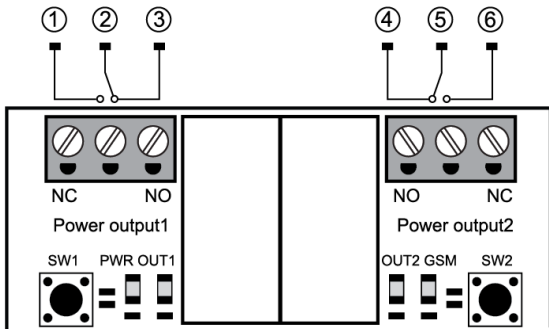
Both lines in NO mode (Com and NO terminal connected)

- Line 1: When set line 1 power ON, it will connect terminal ② (COM) and terminal ③(NO). When set line 1 power OFF, it will connect terminal ② (COM) and terminal ① (NC).

■ Line 2: When set line 2 power ON, it will connect terminal ⑤ (COM) and terminal ④(NO). When set line 1 power OFF, it will connect terminal ⑤ (COM) and terminal ⑥ (NC).

🔔 **Note:**

The maximum current rating of outputs – 16A for resistive loads. Do not overload.

2.3 GSM Power inputs wiring

12V power supply input   Temperature sensor input   Wired Sensor input
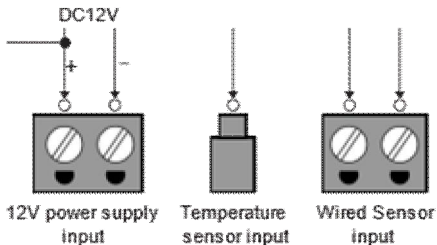
-
- **GSM board power adaptor: 12V DC input.**
- **Temperature sensor input:** audio jack connector, the temperature sensor included in the product package.
- **Wired sensor input:** two terminal input for wired sensor. Support NO/NC mode wired sensor.
- **12V DC output:** two terminal 12V DC output. It can use for wired sensor power supply.

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2.4 GSM Power on

Power on:
1. Upon completion of wiring and installation, plug power adaptor to 220V AC power sources.
2. You can verify operation by observing the LED indicators:
- When power on, the GSM LED will flash to search network, after GSM network registered, it will beep and GSM LED flash slowly.

Your SimPal-D310 is now ready for use.
The default status of two lines output is power OFF (NC).

🔔 **Note:**

> 1. If the GSM indicator always flash fast, which imply the SIM card working abnormally, all functions of the device are invalid.
> 2. Check GSM network signal of the using place. The GSM network's signal strength may affect the device performance.

Chapter 3 Start to use

3.1 Register Master number

All settings are program by sending SMS to device SIM card number, the SMS command format is: #code#content#.

When SimPal-D310 is being used for the first time, or it has been reset to factory settings, need to register Master number for this device.

Method: The user send following SMS to:

Feature	Command
Register Master number:	#00#

3.2 Add other user number

Max allow 204 users and 1 Master to control the device, there are two methods to register user number.   Method 1: Master send SMS to add user number, the numbers registered by Master have authorization to receive alarm SMS and

calling control device; Method 2: Master send SMS to make device work on register user number status, unregistered user calling the device number, device will store incoming number as User number and allow these number calling control device.

Master sends following SMS command to add user number:

Feature	Command
Add user numbers	#06#number1#number2#number3#
Check user number list	#06#
User number learning mode - ON	#06#1#
User number leaning mode – OFF	#06#0#
Delete user number	#15#number#
Delete all user number	#15#
Allow any number calling control – ON	#31#1#
Allow any number calling control – OFF (Default)	#31#0#

Note: phone number length max sixteen digits.

Max allow register 4 users by master and 200 users by calling in. When user send SMS #06#1# to make device learning user number status, it will last 60 minutes from last user number registered. When more than 60 minutes do not user call in to register, device will auto exist number learning mode.

3.3 Calling to open door

Both line 1 and line 2 can be control by calling to open door. It will turn ON for three seconds, then turn OFF. If only need to control one line or need longer or shorter power on time, it can send SMS to change the settings.

For door open button which request turn OFF power to open, it can install the wired onto COM and NC terminal, in this way, calling will turn OFF power for some seconds, then turn ON.

The commands to change Calling Control function as following table:

Feature	Command
Turn on both lines for few seconds	#10#0#time#
Turn on Line-1 for few seconds	#10#1#time#
Turn on Line-2 for few seconds	#10#2#time#
Disable both lines calling control function	#10#0#
Disable Line-1 calling control function	#10#1#
Disable Line-2 calling control function	#10#2#
Check calling control settings	#10#

3.4 Turn on/off power by SMS

It can send SMS to turn ON/OFF two lines power, device will reply confirm SMS when operation success.

Master or User number send following SMS to set:

Feature	Command
Both lines power - ON	#01#
Line-1 power - ON	#01#1#

Feature	Command
Line-2 power - ON	#01#2#
Both lines power - OFF	#02#
Line-1 power - OFF	#02#1#
Line-2 power - OFF	#02#2#

The SMS reply from device will included power ON/OFF status, automatically control status. When Delay Control in running, it will display character "-D", when Schedule Control in running, it will display character "-S", when Thermostat Control in running, it will display character "-T".

For example:

    Line 1: OFF   -S-T

    Line 2: OFF   -T

It means Line-1 power status is OFF, Schedule Control and Thermostat Control in running. Line-2 power status is OFF, Thermostat Control in running. Auto control will turn ON/OFF the power when it reaches next operation point.

3.5 Delay control

3.5.1 Delay turn on output

- SimPal-D310 can be set to turn on/off power after some minutes.
- Delay control have highest priority in all auto control, it will ignore thermostat control and schedule control while delay control in running.

Master sends following SMS message:

Feature	Command
Turn on both lines after few minutes	#11#0#1#*Minutes*#
Turn on Line-1 after few minutes	#11#1#1#*Minutes*#
Turn on Line-2 after few minutes	#11#2#1#*Minutes*#
Turn off both lines after few minutes	#11#0#2#*Minutes*#
Turn off Line-1 after few minutes	#11#1#2#*Minutes*#
Turn off Line-2 after few minutes	#11#2#2#*Minutes*#
Set both lines delay control - OFF	#11#0#

Feature	Command
Set Line-1 delay control - OFF	#11#1#
Set Line-2 delay control - OFF	#11#2#
Check delay control status	#11#

- *Minutes* are time parameters, its range is 1-720,

3.6 Schedule control

3.6.1 Configure schedule control parameter

- SimPal-D310 can be set to auto turn on/off at setting time point.
- When device in schedule control, it can allow send SMS or calling to temporary change power status, it will process schedule control again when reach time point.
- Schedule control has lower priority than Delay control, but higher priority than Thermostat control. While Delay control in running, it will ignore schedule control operation.

Master sends following SMS message to set schedule control parameters:

Feature	Command
Set both lines Schedule Control - ON	#20#0#*WorkDay*#*StartTime*#*EndTime*#
Set Line-1 Schedule Control - ON	#20#1#*WorkDay*#*StartTime*#*EndTime*#
Set Line-2 Schedule Control - ON	#20#2#*WorkDay*#*StartTime*#*EndTime*#
Set both lines Schedule Control – OFF (Default)	#20#0#
Set Line-1 Schedule Control - OFF	#20#1#
Set Line-2 Schedule Control - OFF	#20#2#
Check Schedule Control settings	#20#

- *WorkDay*: one digit, the values lie in the range of "0" to "8".

The following table contains the descriptions of each value:

Value	Corresponding day
0	Everyday
1	Monday
2	Tuesday
3	Wednesday
4	Thursday
5	Friday
6	Saturday
7	Sunday
8	Monday to Friday
9	Weekend

- *StartTime* and *EndTime*: Be consists of 4 digits (hh:mm) and works on a 24 hour clock. The *StartTime* and *EndTime* should be in the same day, and the *EndTime* must be later than *StartTime*.
- The socket output will switch on at the *StartTime* and cut off at the *EndTime*.
- For example: #20#0#0#0800-1800# , it means make both lines in schedule control, everyday turn on power at 08:00, turn off power at 18:00.

3.7 Thermostat control

3.7.1 Set thermostat control

- Connected temperature sensor onto SimPal-D310 device. It can be auto turn on/off power according temperature. Can be connected heater power with SimPal-D310, then it can be control heater on/off according temperature value.
- Thermostat Control has lower priority than Delay control and Schedule Control. When device set both schedule control and thermostat control, it will process thermostat control when schedule turn on power. It do not operate thermostat control when schedule make power turn off.
- It will allow send SMS temporary turn on/off power, it will check thermostat control again when temperature cross the setting point.

Master sends following SMS message:

Feature	Command
Set both lines Thermostat Control - ON	#24#0#Mode#*Low-temp*#*High-temp*#
Set Line-1 Thermostat Control - ON	#24#1#Mode#*Low-temp*#*High-temp*#
Set Line-2 Thermostat Control - ON	#24#2#Mode#*Low-temp*#*High-temp*#

Feature	Command
Set both lines Thermostat Control – OFF (Default)	#24#0#
Set Line-1 Thermostat Control - OFF	#24#1#
Set Line-2 Thermostat Control - OFF	#24#2#
Check Thermostat control settings	#24#

- Mode: it can be 1 or 2, 1 means Warming mode, 2 means Cooling mode.

- Temperature range is -30 to 100C.

After these settings, SimPal-D310 will turn on or off the output automatically according to the temperature range setting.

- For example: set commands: #24#0#1#10#20#, if the environmental temperature is 9 degrees (bellow the limitation of 10 degrees on the command), both lines output will be switched on to power heating apparatus; and if the environmental temperature is 21 degrees (above the limitation of 20 degrees in the command), the both lines output will be switched off and the heating apparatus stops working;

3.8 Temperature alarm

3.8.1 Over-temperature alarm

A range of temperature can be pre-set onto the device. When the surroundings temperature is detected out of the pre-set temperature range, device will send SMS to master's mobile phone. (Refer to Chapter 3.10.3 to choose the notification method when alarm).

Master sends following SMS message:

Feature	Command
Set temperature limits when alarm	#22#*Lower-temp*#*Higher-temp*#
Set temperature alarm - ON	#22#1#
Set temperature alarm – OFF (default)	#22#0#

- *Temperature* range -30 to 100 centigrade degree.
- Default *Lower-temp* is 15 and *Higher-temp* is 25 centigrade degree.

3.9 Open door when sensor trigger

It can set device open door when wired sensor trigger. It will turn on power for some seconds, then turn off. Default this function is OFF, need to send SMS to start this

function.

Master sends following SMS message:

Feature	Command
Set both lines turn on some seconds when sensor trigger	#09#0#time#
Set Line-1 turn on some seconds when sensor trigger	#09#1#time#
Set Line-2 turn on some seconds when sensor trigger	#09#2#time#
Set both lines sensor control power function - OFF	#09#0#
Set Line-1 sensor control power function - OFF	#09#1#
Set Line-2 sensor control power function - OFF	#09#2#
Check sensor control power settings	#09#

- ***Noted***: *It will be blocked one minutes for wired sensor alarm and sensor turn on power function. Only will process new wired sensor alarm or sensor turn on power after 1 minutes.*

3.10 SMS notification

3.10.1 SMS when power lost

SimPal-D310 default send SMS when 12V DC power lost, it only detects 12V DC power, do not detect power which wired with output terminals.

Master sends following SMS message to set:

Feature	Command
SMS when power lost - ON (Default)	#05#1#
SMS when power lost - OFF	#05#0#

3.10.2 SMS when sensor alarm

When connected wired sensor trigger, it will send SMS alarm. It can send SMS change turn off SMS alarm.

Master sends following SMS message to set:

Feature	Command
SMS when sensor alarm- ON(Default)	#17#1#
SMS when sensor alarm - OFF	#17#0#

3.10.3 SMS when weak GSM signal

When GSM signal is weak, the device may lost GSM network connection and stop working. The GSM signal level is 0-31, when value lower than 10, it can not work.

Master user sends following SMS message to set:

Feature	Command
SMS when weak GSM signal - ON	#27#1#
SMS when weak GSM signal – OFF (Default)	#27#0#
Check GSM signal	#27#

3.10.2 SMS when calling control

When user calling control the power, default do not send SMS, Master number can

send SMS command to turn on SMS reply.

Master send following SMS to set:

Feature	Command
SMS when calling control – ON:	#32#1#
SMS when calling control – OFF (Default)	#32#0#

3.10.2 SMS to User number:

Default only send alarm SMS to Master and user number registered by

SMS. Master can change the setting to make it only send SMS to Master.

Master send following SMS to set:

Feature	Command

Feature	Command
SMS to user number – ON	#12#1#
SMS to user number – OFF (Default)	#12#0#

3.11 Check status

The **Master** user sends following SMS message:

Feature	Command
Check output status	#07#

3.12 Resetting the socket

This function resets all programmed settings to their original values, including cleaning all user number, timing parameter and temperature parameter. So this function needs to be used carefully as it also erases all setting values.

If the setting status is wrong or the malfunctions can't be corrected, users can restore the socket to its original status to make it work normally.

Method 1: Press **M** button for 5 seconds.

Method 2: The **Master** user sends following SMS message:

Feature	Command
Reset to factory settings	#08#*1234*#

A long "Beep" tone (if enabled) will be heard and it means resetting the socket successfully.

Chapter 5 SMS command list

Category	Functions	Command
Phone number settings	Register Master number	#00#
	Register User number	#06#number#
	Check user number	#06#
	User number learning mode - ON	#06#1#
	User number learning mode - OFF	#06#0#
	Deleted user number	#15#number#
	Deleted all user number	#15#
	Allow any number calling control – ON	#31#1#
	Allow any number calling control – OFF (Default)	#31#0#
Calling	Calling to turn on both lines power for	#10#0#time#

open door	some seconds	
	Calling to turn on Line-1 power for some seconds	#10#1#time#
	Calling to turn on Line-2 power for some seconds	#10#2#time#
	Set both lines calling control - OFF	#10#0#
	Set Line-1 calling control - OFF	#10#1#
	Set Line-2 calling control - OFF	#10#2#
	Check calling control settings	#10#
SMS control power	Both lines power - ON	#01#
	Line-1 power - ON	#01#1#
	Line-2 power - ON	#01#2#
	Both lines power - OFF	#02#
	Line-1 power - OFF	#02#1#
	Line-2 power - OFF	#02#2#
Delay	Turn on both lines after some minutes	#11#0#1#minutes#

Control	Turn on Line-1 after some minutes	#11#1#1#minutes#
	Turn on Line-2 after some minutes	#11#2#1#minutes#
	Turn off both lines after some minutes	<u>#11#0#2#***Minutes***#</u>
	Turn off Line-1 after some minutes	<u>#11#1#2#***Minutes***#</u>
	Turn off Line-2 after some minutes	<u>#11#2#2#***Minutes***#</u>
	Set both lines delay control - OFF	<u>#11#0#</u>
	Set Line-1 delay control - OFF	<u>#11#1#</u>
	Set Line-2 delay control - OFF	<u>#11#2#</u>
	Check delay control settings	<u>#11#</u>
Schedule control	Set both lines schedule control - ON	#20#0#workday#start-time#end-time#
	Set Line-1 schedule control - ON	#20#1#workday#start-time#end-time#

	Set Line-2 schedule control - ON	#20#2#workday#start-time#end-time#
	Set both lines schedule control - OFF	#20#0#
	Set Line-1 schedule control - OFF	#20#1#
	Set Line-2 schedule control - OFF	#20#2#
Thermostat control	Set both lines thermostat control - ON	#24#0#mode#Low-temp#High-temp#
	Set Line-1 thermostat control - ON	#24#1#mode#Low-temp#High-temp#
	Set Line-2 thermostat control - ON	#24#2#mode#Low-temp#High-temp#
	Set both lines thermostat control - OFF	#24#0#
	Set Line-1 thermostat control - OFF	#24#1#
	Set Line-2 thermostat control - OFF	#24#2#
	Check thermostat control settings	#24#
Temperature alarm	Set temperature alarm range	#22#Low-temp#High-temp#
	Temp alarm function - ON	#22#1#

	Temp alarm function - OFF	#22#0#
Sensor turn on power	Set both lines turn on some seconds when sensor trigger	#09#0#time#
	Set Line-1 turn on some seconds when sensor trigger	#09#1#time#
	Set Line-2 turn on some seconds when sensor trigger	#09#2#time#
	Set both lines sensor control power - OFF	#09#0#
	Set Line-1 sensor control power – OFF	#09#1#
	Set Line-2 sensor control power – OFF	#09#2#
	Check sensor control power settings	#09#
SMS notification	SMS when power lost – ON (Default)	#05#1#
	SMS when power lost - OFF	#05#0#
	SMS when sensor alarm – ON (Default)	#17#1#
	SMS when sensor alarm - OFF	#17#0#
	SMS when weak GSM signal – ON	#27#1#

	SMS when weak GSM signal – OFF (Default)	#27#0#
	Check GSM signal	#27#
	SMS when calling control - ON	#32#1#
	SMS when calling control – OFF (Default)	#32#0#
	SMS to user number – ON (Default)	#12#1#
	SMS to user number - OFF	#12#0#
	Check device status	#07#
Reset	Reset factory settings	#08#1234#

Chapter 6 Main Technical Parameters

GSM power Supply	12V AC/DC 1A
Relay type	Latching relay 16A 250V AC
Connecting type	Terminal block wiring
Operating temperature	-10□~+50□
Store temperature	-20□~+60□
Relative humidity	10-90%，without condensation
Communication protocols	GSM PHASE 2/2+ (including data operation)
Data interface	GSM SIM 1.8V/3.0V socket
External temperature sensor	-30℃~100℃
GSM working band	850/900/1800/1900Mhz

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