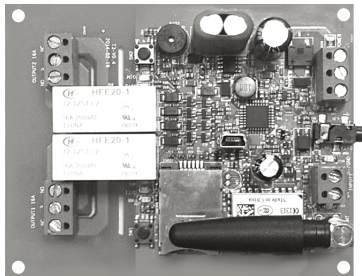# SimPal-T3
GSM Control Board

User Manual

Manual version 2.0

SimPal-T3 GSM Control Board

Thank you for purchasing the SimPal-T3.

SimPal-T3 GSM Control Board work with GSM SIM card, can be remotely control power output or switch control signal. Can be widely use for gate opener, water pump, heater etc appliances. Max support 3500W loading.

Work with temperature sensor, SimPal-T3 can report temperature by SMS when temperature reach the setting range, can be work as thermostat by connecting heater power onto SimPal-T3.

Can be connect one wired sensor, auto turn on/off power or switch control signal when wired sensor trigger.

All services and functions need to be supported by the GSM network and a SIM card.

This brochure suits for **SimPal-T3** model.

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

CONTENT

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 3000W and the current cannot exceed 16A.
- The electrical appliance which power consumption is higher than 1500W must be grounded.
- 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 supplies are switched 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.
3. We hold no responsibility for the illegal use of this socket.
4. We hold no responsibility for any loss of income or any special, incidental, consequential or indirect damages howsoever caused.
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
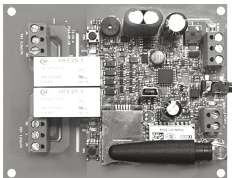
GSM power socket

（1 unit）

Temperature sensor

（1 unit）
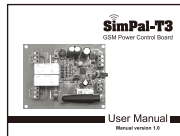
User manual

（1 unit）

1.2 Device instructions
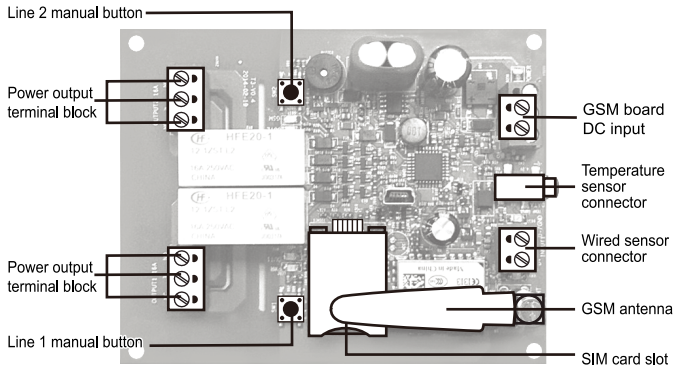
Figure 1: SimPal-T3 instructions

1.3 Light indicator

Power Indicator

Line 2 Status LED

Line 1 Status LED

GSM indicator

Temp sensor LED

Wired sensor LED
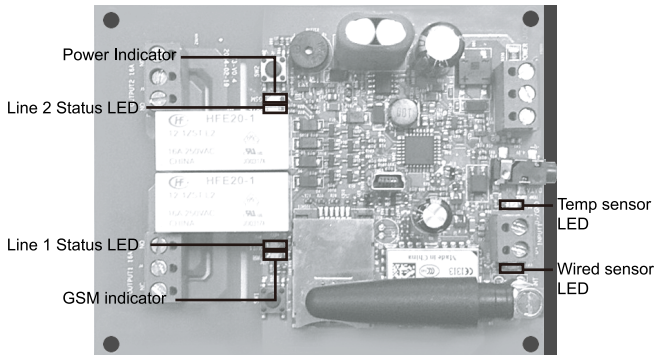
Indicator	Action	Status
Power (Green) light	Turning off	No power supply input
	Constant light	Power connected
GSM (Green) light	Constant light	Not installed SIM card, or do not recognize SIM card.
	Flash slowly (1 time/ second)	Register GSM network and in standby mode.
	Flash Fast (2 times/second)	Processing SMS command or sending SMS.
Line1/2 Status light	Constant light	NO mode (middle terminal connected with NO terminal)
	Turning off	NC mode (middle terminal connected with NC terminal)

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.
- To remove SIM from the socket, repeat the same steps.

⌂ **Note:**

1. Purchase a GSM SIM card (mobile phone card) from GSM network service provider and install it in the socket. This SIM card number is referred as SimPal-T3 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 Outputs signal wiring

▪ Each output terminal block has three pins.
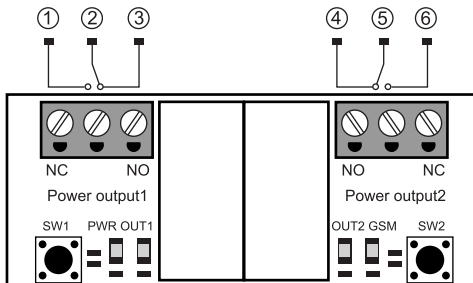
Both lines output turn ON (NO mode)

- Line 1: Wired input to terminal ② (middle) and wired output lines to terminal ③ (NO). Terminal ③ (NO) and terminal ② (middle) close when set in NO mode , terminal ① (NC) and terminal ② close when set in NC mode.

- Line 2: Wired input to terminal ⑤ (middle) and wired output lines to terminal ④ (NO). Terminal ④ (NO) and terminal ⑤ (Middle) close when set in NO mode , terminal ⑥ (NC) and terminal ⑤ close when set in NC mode.

△ **Note:**

The maximum current rating of outputs – 16A for resistive loads. Do not overload your SimPal-T3.

2.3 GSM Power inputs wiring

12V power supply input   Temperature sensor input   Wired Sensor input
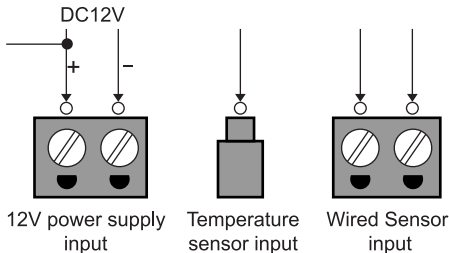
- **12V power supply input**: two terminal for 12V DC input.

🔔 Note:

1. Device only working with 12V DC, if connected 5V DC, GSM can working, but can not drive the relay, it will caused device can not working.
2. Suggest to connect 12V, 500mA power, smaller power input may cause device no working.

- **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.

2.4   GSM Power on

Power on:

1. Upon completion of wiring and installation, apply power via an external power supply.

2. You can verify operation by observing the LED indicators:
- When power is applied, all LED indicators will blink three times as internal diagnostics are performed. If diagnostic tests are successful, the PWR LED, located near Output1 terminal block, will turn solid Red.
- While searching for a GSM network, the GSM LED will blink green approximately once per second. When the device has successfully connected to a GSM network, the GSM LED will blink slowly, approximately once every three seconds.
- When SIM card PIN code active, it can not register GSM network, the GSM LED will flash fast.

Your SimPal-T3 is now ready for use.

The default state of the socket outlet is no power supply output.

🔔 Note:

1. If the GSM indicator light is not constant lights, which imply the SIM card working abnormally, all functions of this socket are invalid.
2. Check GSM network signal of the using place. The GSM network's signal strength may affect the socket feature. Therefore, before using, the user should ensure that SimPal-T3 is used in an area with a strong GSM network signal.

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-T3 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 edit and send following SMS to:

Add a master number to the socket: #00#

3.2 Add other user number

Max allow 10 users and 1 Master to control the device, other user number only can be add by Master number. Send following SMS command to add user umber:

Add user number: #06#number#

Check user number list: #06#

Delete user number: #15#number#

Delete all user number: #15#

Note: phone number length max sixteen digits.

3.3   Switching output status

The output of both line 1 and line 2 can be controlled switching on/off by three methods.

Method1 : By pressing M button manually

- Keep pressing **M** buttons located near to the output terminal blocks on the SimPal-T3 for one second. The red OUTPUT indicator will light constantly or turn off to indicate that the relay output is switching on or off.

When the output is switching on, it will work on NO mode, middle terminal COM and terminal NO closed; when relay output is switching off, it work on NC mode, middle terminal COM and terminal NC closed.

Method2 : By free phone calling

Master or user call the device phone number, the socket output will be switched on or cut off automatically when the user hears the ring tone in the phone. The calling will be hung up automatically.

Behavior of SimPal-T3 to incoming calls must be configured in advance by using the commands as following table:

Feature	Command
Calling to switching both lines status (default)	#10#1#
Calling to switch line 1 status	#10#2#
Calling to switch line 2 status	#10#3#
Calling to turn on both lines some seconds	#10#4#time#
Calling to turn on line 1 some seconds	#10#5#time#
Calling to turn on line 2 some seconds	#10#6#time#
Disable switching on/off by calling	#10#0#

The time parameter range is 1-600, it means 1-600 seconds.

Method3 : By SMS command

Feature	Command
Turn on line 1	#01#1#
Turn off line 1	#01#2#
Turn on line 2	#02#1#
Turn off line 2	#02#2#

3.4 Restarting output

When the relay output restarted, if it was switching on, it will be switched off for 5 seconds and then be switched on automatically; otherwise, if it was switching off, it will be switched on for 5 seconds and then be switched off automatically.

Send following SMS command to restart two lines output:

Feature	Command
Restarting line 1	#01#3#
Restarting line 2	#02#3#

3.5   Delay control

3.5.1 Delay turn on output

- SimPal-T3 can be set to auto turn on/off after some minutes.
- When the "delay control" function is applied, it will deactivate schedule control and thermostat control function.

Master sends following SMS message:

Feature	Command
Turn on line 1 output after * minutes.	#11#1#***Minutes***#
Turn on line 2 after * minutes.	#11#2#***Minutes***#
Turn on both line 1 and 2 after * minutes.	#11#3#***Minutes***#

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

3.5.2 Delay change output status

Master sends following SMS message:

Feature	Command
Change line 1 status after * minutes.	#12#1#*Minutes*#
Change line 2 status after * minutes.	#12#2#*Minutes*#
Change both relay 1 and 2 status after * minutes.	#12#3#*Minutes*#

3.6   Schedule control

3.6.1 Configure schedule control parameter

- SimPal-T3 can be set to auto turn on/off according setting schedule.
- After successful setting of time duration to switch on the socket output, the schedule parameter will be saved on the socket until SimPal-T3 is reset to factory settings. But the "Schedule control" only work when this function activate.
- If output status changed manually, schedule control function will disable immediately.

Master sends following SMS message to set schedule control parameters:

Feature	Command
Set time period	#20#***WorkDay#StartTime#EndTime#***

- ***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#1#0000#2130# , 0000 means time 00:00AM, 2130 means time 9:30PM.

Feature	Command
Set both line 1 and 2 schedule control	#19#1#
Set line 1 work in schedule control	#19#2#
Set line 2 work in schedule control	#19#3#

After these settings, SimPal-T3 will keep switching on or off the output automatically according to the schedule settings.

3.6.2 Schedule reboot output

It can set both output auto reboot power output when it reach setting time point.

Feature	Command
Set both line 1 and 2 reboot output	#19#4#
Set line 1 reboot output	#19#5#
Set line 2 reboot output	#19#6#

Refer to chapter 3.7.2 "Set time period". The socket output will restarting two times at the **StartTime** and **EndTime** on the **WorkDay**.

3.6.3 Disable schedule control

Master send SMS command to turn off schedule control function.

Feature	Command
Disable schedule control	#19#0#

3.7 Thermostat control

3.7.1 Set thermostat control
- Connected temperature sensor onto SimPal-T3 device. It can be auto turn on/off power according temperature. Can be connected heater power with SimPal-T3 output, then it can be control heater on/off according temperature value.
- Send SMS to set the thermostat control temperature range, and activate thermostat control function, it will auto turn on/off power according room temperature.

Master sends following SMS message:

Feature	Command
Set thermostat control temperature range	#24#*A*#*B*#

- *A* is the lower temperature value and *B* is the higher temperature value. The values can be set within the range of -10 to 50 centigrade degree. If *A* equals to *B*, constant temperature control will be activated.

Activate thermostat control by send following SMS command:

Feature	Command
When temperature lower than *A*, then relay 1 & 2 switch on, when it higher than *B*, relay 1 & 2 switch off.	#23#1#1#
When temperature lower than *A*, then relay 1 switch on, when it higher than *B*, relay 1 switch off.	#23#1#2#
When temperature lower than *A*, then relay 2 switch on, when it higher than *B*, relay 2 switch off.	#23#1#3#
When temperature higher than *B*, then relay 1 & 2 turn on, when it lower than *A*, relay 1 & 2 turn off.	#23#2#1#
When temperature higher than *B*, then relay 1 turn on, when it lower than *A*, relay 1 turn off.	#23#2#2#
When temperature higher than *B*, then relay 2 turn on, when it lower than *A*, relay 2 turn off.	#23#2#3#

After these settings, SimPal-T3 will turn on or off the output automatically according to the temperature range setting.

- Example 1: set commands: #24#10#20# and #23#1#1#, if the environmental temperature is 9 degrees (bellow the limitation of 10 degrees on the command), the socket output will be all switched on to power heating apparatus; and if the environmental temperature is 21 degrees (above the limitation of 20 degrees in the command), the socket output will be switched off and the heating apparatus stops working;

3.7.2 Disable thermostat control

Master sends following SMS message:

Feature	Command
Disable temperature control	#23#0#

3.8 Temperature alarm

3.8.1 Over-temperature alarm

A range of temperature can be pre-set onto the socket. In this case, if the surroundings temperature is detected out of the pre-set temperature range, SimPal-T3 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#*C*#*D*#
Enable over-temperature alarm	#21#1#
Disable temperature alarm	#21#0#

- *C* is the Min-temperature value and *D* is the Max-temperature value. The values can be set within the range of -10 to 50 centigrade degree.
- Default *C* is 20 and *D* is 30 centigrade degree.

3.9 Turn on output when sensor trigger

It can set device auto turn on output when wired sensor trigger, the duration can be set by SMS command.

Master send SMS to set:

Power on duration when sensor trigger: #09#1#time#

The parameter range is 0-600, when set #09#0#, it means turn off this function. When

set 1-600, it means will turn on power for 1-600 seconds when wired sensor trigger.

First parameter 1 means turn on power both lines, 2 means only turn on line 1, 3 means only turn on line 2.

Note: when output status changed by wired sensor, it will auto stop thermostat control and schedule control functions.

3.10 SMS notification

3.10.1 SMS when on/off button pressed

SimPal-T3 default send SMS when on/off button pressed, it can send SMS to disable SMS notification.

Master sends following SMS message to set:

Feature	Command
SMS when on/off button pressed – ON (Default)	#03#1#
SMS when on/off button pressed - OFF	#03#0#

3.10.2 SMS when power lost

SimPal-T3 default send SMS when 12V DC power lost, it only detect 12V DC power, do not detect power which wired with output terminals. It can send SMS to disable SMS notification.

Master sends following SMS message to set:

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

3.10.3 SMS when sensor alarm

When connected wired sensor trigger, it will auto send SMS. It can send SMS to change the settings.

Master sends following SMS message to set:

Feature	Command
SMS when sensor alarm- ON(Default)	#17#1#
SMS when sensor alarm - OFF	#17#0#
Voice calling when sensor alarm – ON (Default)	#18#1#
Voice calling when sensor alarm - OFF	#18#0#

3.10.4 SMS when weak GSM signal

When GSM signal is weak, the device may lost from GSM network and can not 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#

3.11 Check status

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

Feature	Command
Check output status	#07#
Check calling control function	#10#
Check GSM signal	#27#
Check schedule control	#19#
Check temperature	#21#
Check temperature alarm	#22#
Check thermostat control	#23#

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 both **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
Register phone number	Register Master number	#00#
	Register User number	#06#number#
	Check user number	#06#
	Deleted user number	#15#number#
	Deleted all user number	#15#
Output control	Calling to switch both lines output	#10#1#
	Calling to switch line 1 output	#10#2#
	Calling to switch line 2 output	#10#3#
	Calling to turn on both lines some seconds	#10#4#time#
	Calling to turn on line 1 some seconds	#10#5#time#

	Calling to turn on line 2 some seconds	#10#6#time#
	Disable calling control function	#10#0#
	Turn on line 1	#01#1#
	Turn off line 1	#01#2#
	Turn on line 2	#02#1#
	Turn off line 2	#02#2#
	Restart line 1	#01#3#
	Restart line 2	#02#3#
Delay control	Turn on line 1 after some minutes	#11#1#minutes#
	Turn on line 2 after some minutes	#11#2#minutes#
	Turn on both lines after some minutes	#11#3#minutes#
	Change line 1 output after some minutes	#12#1#minutes#
	Change line 2 output after some minutes	#12#2#minutes#
	Change both lines output after some minutes	#12#3#minutes#

Schedule control	Set schedule parameters	#20#workday#start-time#end-time#
	Set both line work with schedule control	#19#1#
	Set line 1 work with schedule control	#19#2#
	Set line 2 work with schedule control	#19#3#
	Set both lines reboot when time reach	#19#4#
	Set line 1 reboot when time reach	#19#5#
	Set line 2 reboot when time reach	#19#6#
	Disable schedule control	#19#0#
Thermostat control	Set thermostat control temperature range	#24#A#B#
	Both lines turn on when temp lower than A, turn off when temp higher than B	#23#1#1#
	Line 1 turn on when temp lower than A, turn off when temp higher than B	#23#1#2#
	Line 2 turn on when temp lower than A, turn off when temp higher than B	#23#1#3#

	Both lines turn off when temp lower than A, turn on when temp higher than B	#23#2#1#
	Line 1 turn off when temp lower than A, turn on when temp higher than B	#23#2#2#
	Line 2 turn off when temp lower than A, turn on when temp higher than B	#23#2#3#
	Disable thermostat control	#23#0#
Temperature alarm	Set temperature range	#22#C#D#
	Activate temperature alarm function	#21#1#
	Deactivate temperature alarm function	#21#0#
Sensor turn on power	Power on duration when sensor trigger	#09#1#time#
SMS notificatoin	SMS when on/off button pressed – ON	#03#1#
	SMS when on/off button pressed – OFF	#03#0#
	SMS when power lost – ON	#05#1#
	SMS when power lost - OFF	#05#0#
	SMS when sensor alarm - ON	#17#1#

	SMS when sensor alarm - OFF	#17#0#
	Voice calling when sensor alarm – ON	#18#1#
	Voice calling when sensor alarm – OFF	#18#0#
	SMS when weak GSM signal – ON	#27#1#
	SMS when weak GSM signal - OFF	#27#0#
Check status	Check output status	#07#
	Check calling control settings	#10#
	Check GSM signal	#27#
	Check temperature	#21#
	Check temperature alarm	#22#
	Check thermostat control	#24#
	Check schedule control	#19#
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

SimPal-T3

GSM Control Board