4G SMS Temperature Alarm

User Manual v2.4

Injektor Solutions



APP Management and Settings
SimPal GSM

Available on Google Play

Available on App Store

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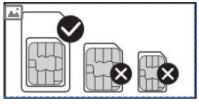
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About this manual

This manual applies to model 16-87T200 4G from Injektor Solutions.

The 16-87T200 4G SMS alarm and temperature monitor is a remote-controlled temperature alarm unit consisting of a 4G module and a built-in temperature sensor.
The device requires a 4G SIM card to operate. All settings are made by sending SMS codes from a mobile phone to the device's SIM card number, or by downloading the accompanying app.
The device has both a built-in temperature sensor and a cable temperature sensor. Both sensors are monitored continuously. As soon as the temperature goes outside the set ranges, the device automatically sends an SMS to pre-registered mobile numbers.
The device has a built-in power capacitor and sends an SMS both when the 230 V supply is interrupted and when it is restored.
The product is mainly intended for homes and offices, but can also be used in server rooms, warehouses, children's rooms and care homes for the elderly.
All services and functions require 4G LTE network coverage and an active, unlocked SIM card (without PIN code).


Use FULL-SIZE SIM cards only

For your safety:

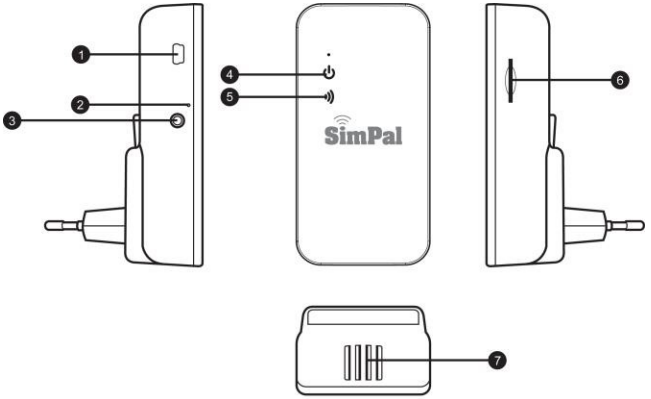
- Check that mobile phones may be used at the location before putting the device into operation. If not, the device must not be used.
- The device is intended for indoor use. Do not use it in damp, dusty or chemically aggressive environments.
- Do not open the housing except for servicing.
- Do not expose the device to shaking and do not drop it – it may be damaged.
- The SimPal-T200 communicates wirelessly. Place it away from electronic equipment that may interfere with the radio signals.
- Do not use the product in areas marked “Explosion hazard” or similar.
- Never throw the device into a fire – risk of explosion.
- Keep the device and its accessories out of the reach of children.
- The plug section must not be removed separately.

Disclaimer

1. We operate a policy of continuous product development and reserve the right to change and improve the products described in this document without prior notice.
2. We give no warranty as to the accuracy, reliability or content of this document beyond what is required by applicable law, nor any undertaking that the product is suitable for a particular market or field.
3. We accept no responsibility for illegal use of the product.
4. We accept no liability for loss of income or for any special,

incidental, consequential or indirect damages, however caused.

Chapter 1 Device description



1

1 USB port (for service only)	4 Power indicator
2 Reset button	5 GSM indicator
3 Cable sensor connector	6 SIM card slot
	7 Built-in temperature sensor

Figure 1: Device parts

LEDs and indications

Indicator	Status	Function
Power	Off	No power supply
indicator	Steady on	230 V AC connected
GSM indicator	Flashing slowly	Searching for 4G network.
	Flashing quickly	• Sending SMS • SIM card cannot be read • Cannot register on the 4G network
	Pulsing	Operating in standby mode

Chapter 2 User guide

Package contents

- 16-87T200 4G SMS alarm unit: 1 pc
- Cable temperature sensor: 1 pc
- User manual ENG: 1 pc

Quick start

Thank you for choosing the 16-87T200! Below are some brief, summarised instructions to get you started!

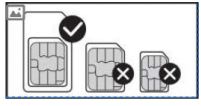
1. Use a full-size SIM card. Never insert a micro or nano SIM, as the card slot may be damaged.
2. Obtain a 4G SIM card (mobile subscription) from your operator and insert it into the device. In this manual, the SIM card's number is referred to as the SimPal-T200 number.
3. Disable the SIM card's PIN code (0000) in a mobile phone before inserting the card into the SimPal-T200.
4. Connect the cable sensor and plug the device into a wall socket.
5. Wait until the GSM indicator is pulsing.
6. Register the master user by sending #00# to the device.
7. RECOMMENDATION: Download the app for easier operation:



Detailed user description

The device uses full-size SIM cards only. Insert the SIM card into the slot with the gold contacts facing up and the bevelled corner facing the direction shown by the symbol next to the slot. *NOTE! If you insert a SIM card that is too small, it may get stuck and the warranty will not apply!*





- Press the SIM card in firmly until you hear it lock into place.
- Connect the cable temperature sensor to the 3.5 mm socket until it is firmly seated.

Starting the device

Starting:

Plug the SimPal-T200 into a wall socket. The device starts automatically. The power indicator lights steadily, and the GSM indicator lights for one second and then goes out for 3–4 seconds. Once the SIM card has been read, the GSM indicator flashes slowly, meaning that the device is searching for a 4G network. When the device has registered on the network, a beep is heard and the GSM indicator changes to pulsing.

Note! If the GSM indicator flashes quickly all the time, the SIM card is not working correctly and none of the device's functions are operational.

Switching off:

Unplug the device from the 230 V socket to switch it off.

Downloading the app

The device can also be controlled via an app, in which all settings can be made. The app is available on Google Play and the App Store – search for "SimPal GSM".



Defining users

Only one master user (Master) and four users (User) are authorised to access the device. SMS messages from other mobile numbers are ignored.

Points to note for SMS commands

- The "#" character must never be omitted when writing an SMS command.
- Spaces must not appear in any command.

Registering the master user's number

When the device is used for the first time, or after a factory reset, the

master user's number must be registered. Send the following SMS to the device from the phone that will become the master user:

Function	Command	No.
Register master user	#00#Your-Master-no#	(1)

Confirmation by SMS

Welcome! Master's number has been registered.

Once the master user has been registered, the authorisation can be transferred to a new number. The master user then sends the following SMS:

Function	Command	No.
Change master user	#10#New-Master-no#	(2)

New-Master-no must be the new master user number. The reply SMS is sent to the new master user.

After this, the old master user number can no longer control the device.

Function	Command	No.
Add user	#08#User-no#	(3)
Show user numbers	#08#	(4)
Delete one user number	#09#User-no#	(5)
Delete all user numbers	#09#	(6)
SMS to users – ON (default)	#05#1#	(7)
SMS to users – OFF	#05#0#	(8)

Reading the temperature

How to: The master user or a user sends the following SMS:

Function	Command	No.
Read built-in sensor	#01#	(9)
Read cable sensor	#16#	(10)

Temperature alarm

A temperature range can be preprogrammed into the device. If the measured temperature goes outside the range, the device sends an alarm SMS to the users' mobile phones.

Alarm from the built-in sensor

The master user or a user sends the following SMS:

Function	Command	No.
Alarm range for built-in sensor	#03#MinTemp#MaxTemp#	(11)
Built-in sensor alarm – ON	#02#1#	(12)
Built-in sensor alarm – OFF (default)	#02#0#	(13)

MinTemp and MaxTemp are entered as whole numbers and can be set within the range -10 to +50°C.

Alarm from the cable sensor

The master user or a user sends the following SMS:

Function	Command	No.
Alarm range for cable sensor	#17#MinTemp#MaxTemp#	(14)
Cable sensor alarm – ON	#16#1#	(15)
Cable sensor alarm – OFF (default)	#16#0#	(16)

MinTemp and MaxTemp are entered as whole numbers and can be set within the range -50 to +100°C..

Automatic temperature report

The device can be set to report the temperature automatically according to a weekly schedule. This confirms that the device is online and that the temperature is within the normal range.

How to:

The master user or a user sends the following SMS:

Function	Command	No.
Set day and time for report	#21#day#time1#time2#time3#time4#	(17)
Automatic report – ON	#21#1#	(18)
Automatic report – OFF (default)	#21#0#	(19)

- The day value can be 1–7, corresponding to Monday–Sunday. Several days can be combined, e.g. 12 for Monday and Tuesday.
- The time value is entered as four digits for hour and minute. Up to four times can be specified.
- Example: #21#1234567#1800# means an automatic temperature report Monday–Sunday at 18:00.

Rapid temperature change alarm

A time period and a temperature value can be preprogrammed into the device. If the temperature changes by more than the set value within the specified time period, an alarm SMS is sent to the user's mobile phone.

- **Difference value: the range is 3 to 20.**
- **Time: the range is 1 to 10 minutes.**
- The default values are a 5-degree difference and 3 minutes.

How to:

The master user sends the following SMS:

Function	Command	No.
Time period and temperature difference	#14#Temp#Time#	(20)
Rapid temperature change alarm – ON	#13#1#	(21)
Rapid temperature change alarm – OFF (default)	#13#0#	(22)

Power failure alarm

The device notifies the user by SMS when the external mains power is interrupted or restored. The function is on by default and can be switched off by SMS.

How to:

The master user or a user sends the following SMS:

Function	Command	No.
SMS on power failure and power restoration – ON (default)	#04#1#	(23)
SMS on power failure and power restoration – OFF	#04#0#	(24)

Allow everyone to read the 16temperature

The device can be set so that anyone may send #01# or #16# to read the temperature. Unregistered numbers can only read the temperature, not change any settings.

How to:

The master user or a user sends the following SMS:

Function	Command	No.
Allow everyone to read temperature – ON	#06#1#	(25)
Allow everyone to read temperature – OFF (default)	#06#0#	(26)

Weak 4G signal alarm

The device can send an SMS when the 4G signal is too weak. The master user or a user can enable and disable this notification.

How to:

Function	Command	No.
SMS on weak 4G signal – ON	#15#1#	(27)
SMS on weak 4G signal – OFF (default)	#15#0#	(28)

Factory reset

- This function restores all settings to their original values, including all user numbers and temperature parameters.
- If the settings are incorrect or a fault cannot be remedied, the device can be reset to its original state so that it works normally again.

Note!

Use this function with care – it deletes all settings in the device.

How to:

Method 1: Hold down the reset button for 1 second.

Method 2: The master user sends the following SMS:

Function	Command	No.
Factory reset the device	#12#1234#	(29)

Chapter 3 Troubleshooting

No.	Problem	Possible cause	Solution
1	The power indicator is off	No power supply.	Check that mains power is available.
2	The GSM indicator flashes quickly all the time	The SIM card is not found or identified.	The SIM card is incorrectly inserted: remove the card and check it again.
3	The device does not respond to any commands.	The device is not working normally.	Unplug the device from the socket, check the SIM card or perform a factory reset.
4	After start-up, the GSM indicator flashes quickly.	Weak 4G signal	The signal may be weak at the installation site. Move the device to a location with a stronger signal and try again.
		The SIM card's PIN code is active.	Disable the SIM card's PIN code.
		The SIM card is invalid.	Contact your operator to have it checked.
5	The master user number already exists.	Another master user number is already registered in the device.	Perform a factory reset to delete the old number.

Note! If the problem cannot be solved using the instructions above, contact your dealer or nearest service centre.

Repeated power-restored notifications may be caused by low signal strength in the mobile network. The signal level can be checked with the command #15# and is given on a scale from 0 to 31, where 20 corresponds to a normal level and values above 25 to a good level. If the signal level is below the threshold of 20, the 4G connection may restart, causing the device to send a power-restored message.

If the product does not have a sufficiently good signal level, it should be moved and tested at another location with a stronger signal – check the level with the command #15#.

Chapter 4 Technical data

Parameter	Value
Power supply	110–250 VAC / 12 VDC
Plug	CEE 7/7 hybrid plug (Schuko)
Operating temperature	-10°C to +50°C
Storage temperature	-20°C to +60°C
Relative humidity	10–90 %RH, non-condensing
Communication protocol	GSM PHASE 2/2+ (including data)
Data interface	GSM SIM 1.8V / 3.0V
Measuring range, built-in sensor	0°C to +50°C (±2°C)
Measuring range, cable sensor	-50°C to +100°C (±1°C)
4G bands	4G LTE Cat 1 LTE FDD: B1, B3, B5, B7, B8, B20 LTE TDD: B40
Backward compatibility	2G

Chapter 5 List of SMS commands

Function	Command
Register master user	(1) #00#
Change master user	(2) #10#New-Master-no#
Add user number	(3) #08#User-no#
Show list of user numbers	(4) #08#
Delete one user number	(5) #09#User-no#
Delete all user numbers	(6) #09#
SMS to users – ON (default)	(7) #05#1#
SMS to users – OFF	(8) #05#0#
Read built-in sensor	(9) #01#
Read cable sensor	(10) #16#
Set alarm range, built-in sensor	(11) #03#MinTemp#MaxTemp#
Built-in sensor alarm – ON	(12) #02#1#
Built-in sensor alarm – OFF (default)	(13) #02#0#
Set alarm range, cable sensor	(14) #17#MinTemp#MaxTemp#
Cable sensor alarm – ON	(15) #16#1#
Cable sensor alarm – OFF (default)	(16) #16#0#
Set day and time for automatic report	(17) #21#day#time1#time2#time3#time4#
Automatic report – ON	(18) #21#1#

List of SMS commands, continued

Function	Command
Automatic report – OFF (default)	(19) #21#0#
Set rapid temperature change alarm value	(20) #14#Difference#Time#
Rapid change alarm – ON	(21) #13#1#
Rapid change alarm – OFF (default)	(22) #13#0#
SMS on power failure – ON (default)	(23) #04#1#
SMS on power failure – OFF	(24) #04#0#
Allow everyone to read temperature – ON	(25) #06#1#
Allow everyone to read temperature – OFF (default)	(26) #06#0#
SMS on weak 4G signal – ON	(27) #15#1#
SMS on weak 4G signal – OFF (default)	(28) #15#0#
Factory reset	(29) #12#1234#