

User manual

EN

GSM alarm with remote control.

TGSM2 module



GSM-BOX panel



ⓘ WARNINGS

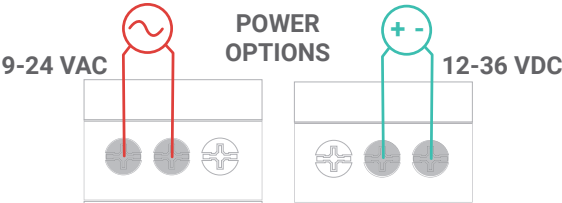
This manual contains necessary information regarding personal safety as well as for the prevention of material damage. Information for your personal safety is highlighted with a warning triangle; information to avoid only material damage is not marked with a warning triangle. According to the degree of danger, the instructions are represented, from greater to lesser danger, as follows. **DANGER** It means that failure to take adequate preventive measures will result in death or serious bodily injury. **WARNING** It means that failure to take adequate preventive measures can result in death or serious bodily injury. **CAUTION** with a warning triangle means that if appropriate preventive measures are not taken, personal injury may occur. **CAUTION** no warning triangle means that if appropriate preventive measures are not taken, material damage may occur. **ATTENTION** means that an undesired result or state may occur if the corresponding safety instruction is not observed. If there are several levels of danger, the most stringent safety instruction is always used in each case. If a safety setpoint with a warning triangle alerts to possible personal injury, the same setpoint may also contain a warning about possible material damage. Qualified personnel The product/system described in this documentation may only be operated or handled by qualified personnel for the intended purpose and in compliance with the relevant documentation, in particular the safety instructions and warnings contained herein. Due to their training and experience, qualified personnel are able to recognise risks resulting from the handling or manipulation of these products/systems and to avoid possible dangers. Intended use or Toscano products. Consider the following: **WARNING** Toscano's products should only be used for the application situations foreseen in the catalogue and the associated technical documentation. If third-party products and components are used, they must be recommended or approved by Toscano. The correct and safe operation of the products requires that they have been transported, stored, installed, assembled, handled and maintained correctly. The permitted environmental conditions must be respected. The instructions and warnings in the associated documentation must also be followed. Trademarks All names are trademarks of Toscano Linea Elettronica. Other names and designations contained herein may be trademarks whose use by third parties for their own purposes may violate the rights of their owners. Disclaimer We have checked the contents of this publication for compliance with the hardware and software described. However, as it is impossible to exclude deviations, we cannot be held responsible for full compliance. The contents of this publication are periodically reviewed; if necessary, possible corrections are included in the next edition.

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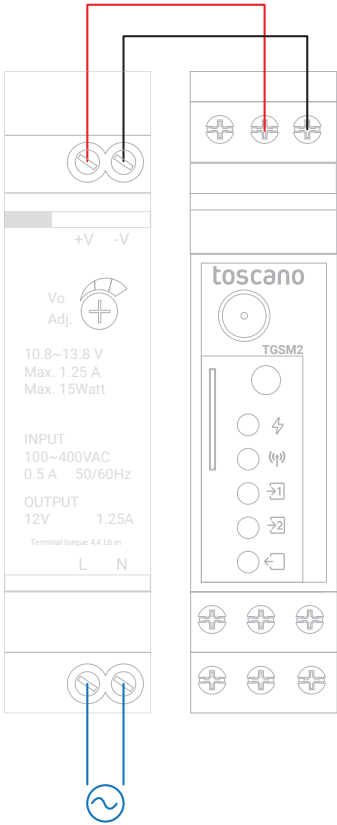
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1.CONNECTIONS

TGSM2 module



GSM-BOX panel

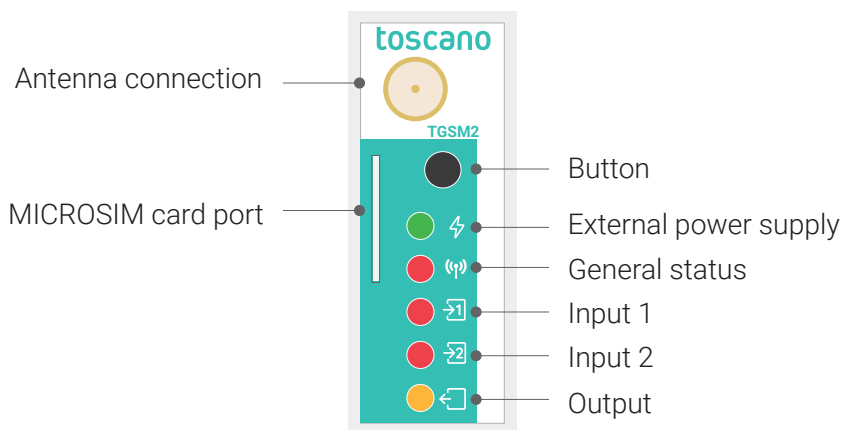


OUTPUT INPUTS

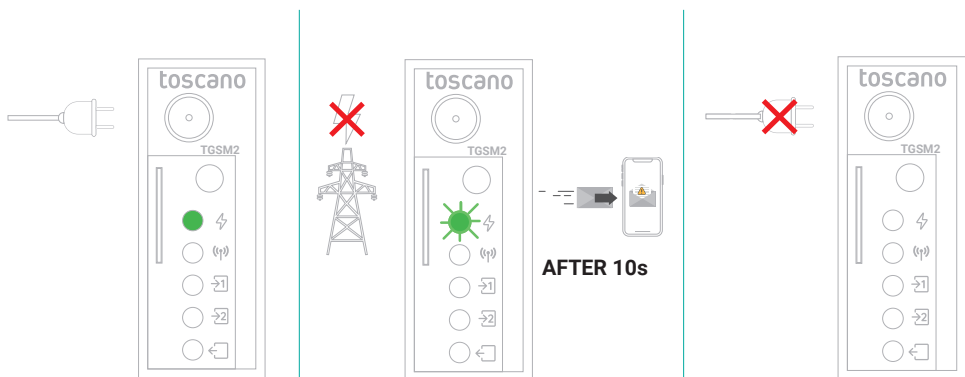
CONTROL CONNECTIONS

100 - 240 VAC
Supply the panel as shown in the diagram

2.LED SIGNALS



2.1. External power supply



Switched on

This LED will light up when your TGSM2 is receiving external power.

Status change

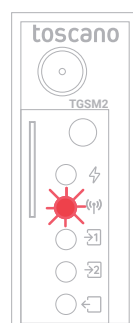
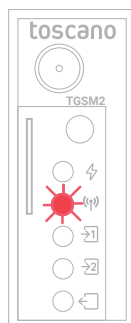
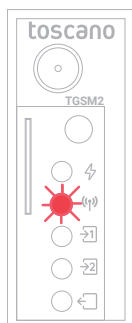
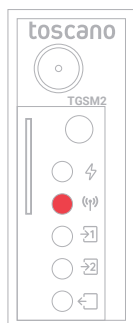
When there is a change in the status of the external power supply, the LED will flash for 10 seconds and **if the situation remains unchanged after 10 seconds, an alarm message will be sent.** All alarm messages are customisable.

Switched off

This LED will switch off when there is an external power failure.

- **2.2. General status**

The flash pattern of this LED identifies the operating status of the equipment.



1s  1s  1s  ...

2s  2s  2s  ...



General error

If you the light stays on **constantly**, this indicates that **there is an error.**

No connection

It blinks every second indicating that it is **not connected** to the GSM network.

Connected

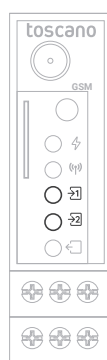
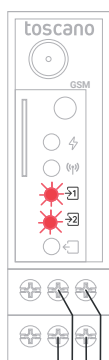
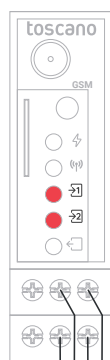
It blinks every two seconds indicating that it is **connected** to the GSM network.

Communicating

It blinks very quickly indicating that it is **communicating with the GSM network**.

- 2.3. Input 1 and 2

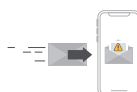
The LED will remain on while input 1 or 2 is active and will remain off when the input is deactivated indicating the STATUS of input 1 or 2. The LED will flash for 10 seconds with the input status, activated or deactivated, and if after these 10 seconds the situation remains, an alarm message will be sent.



The status of I1
or I2 has changed

I1 I2
ON

I1 I2
OFF



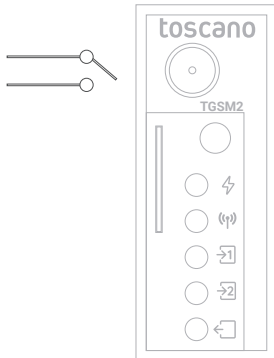
AFTER 10s

● 2.4. Output

This output can be activated and deactivated by:

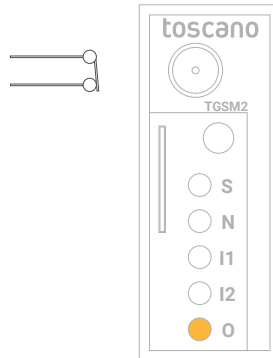
- **SMS message.**
- **the front button.**
- **bluetooth connection (optional).**

Pressing the button momentarily changes the status of the output.



Switched off

When the output is deactivated.

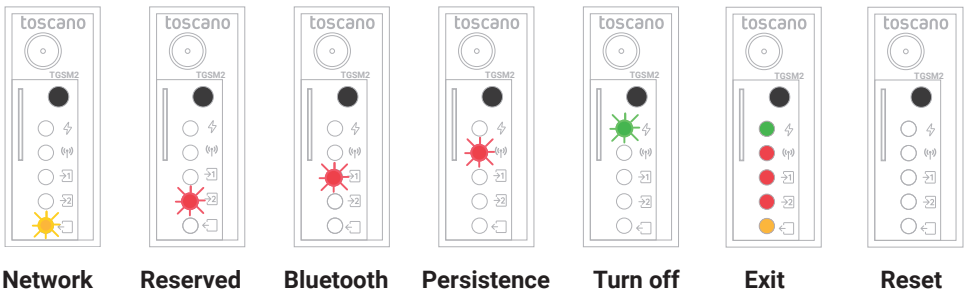


Switched on

When the output is activated.
It will remain on as long as the output is activated.

3.BUTTON OPERATION

On your TGSM2 the button is multi-functional and will allow you to change the output status or modify different operating options according to the duration of pressing. A short press (less than three seconds) will change the output status. If you keep it pressed for more than three seconds, the lower LED will start to flash, if you keep the button pressed, after another three seconds, the next LED up will flash (corresponding to input 2) and so on until you reach the top LED, after which, if you keep the button pressed, all the LEDs will be switched on at the same time. Depending on which LED is flashing when you release the button, it will select a function to perform:



Network: Indicates the GSM network coverage level (see page 7).

Reserved: Reserved for future use.

Bluetooth (optional): Turns Bluetooth connectivity on or off. When you release the button on this option, it will remain on to indicate that Bluetooth connectivity has been activated or it will flash faster to indicate that it has been deactivated. After enabling or disabling Bluetooth connectivity, your TGSM2 will restart.

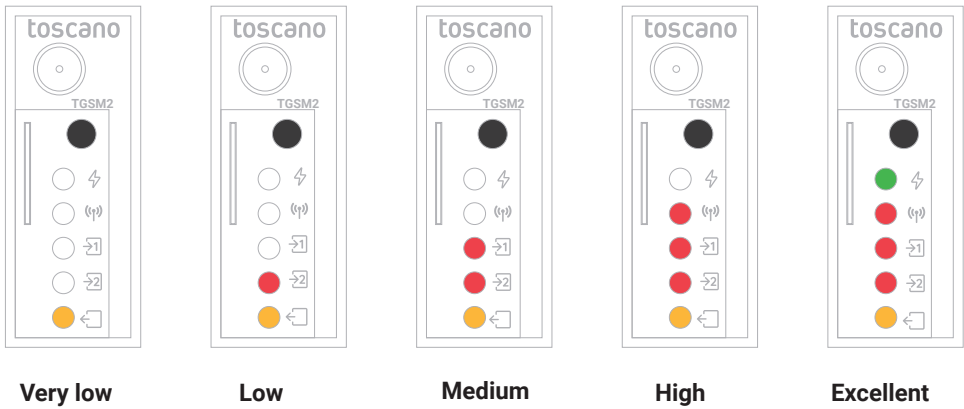
Persistence: Remembers the output status after power cuts, shutdown or reset. If the output is activated when any of these conditions occur, when you turn your unit back on, the output will be activated again. When the button is released in this option, it will remain on to indicate that output persistence has been activated or will flash rapidly to indicate that it has been deactivated.

Shut down: Shuts down the unit.

Exit menu: If you wish to exit the menu, you must hold the button down until all the LEDs are on and then release the button. Your unit will return to normal operation without changing any configuration parameters.

Reset: Keep pressing the button once all the LEDs are on, when they are off, your unit will reset.

● 3.1. Network coverage level

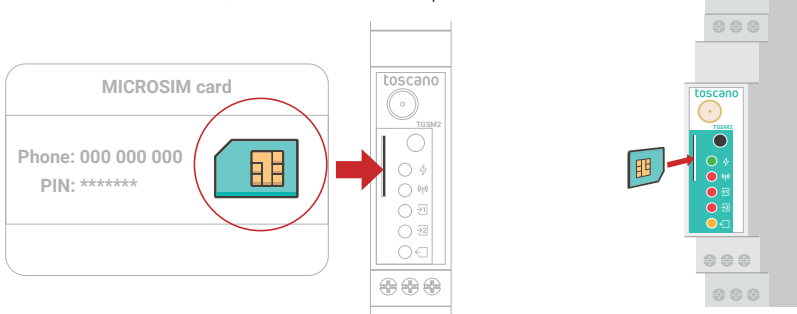


Factory configuration: To clear all stored settings and reset your unit to its factory default, you must hold the button down while your unit is being powered up. For example, you can reset your unit and keep the button pressed until the start sequence has been completed, at which time all the LEDs will turn off, release the button and after a few seconds your unit will turn on again. All settings will have been deleted and returned to the initial factory settings.

4.CONFIGURATION VIA SMS MESSAGES

To perform an installation from scratch via SMS messages, the MICROSIM card must be unlocked. To do this, insert the MICROSIM card into a mobile phone and enter the settings for unlocking it. The steps to follow in the settings will depend on the brand of the phone or the installed operating system.

1. Insert the unlocked MICROSIM card into the left slot of the module and then record the phone on the card in the mobile. Once connected, send an SMS to that phone.



2. Below are the different options that can be carried out via sms.

● **PASSWORD change message:** !CCCC,P,NNNN,<language>



The password 0000 is set at the factory and must be changed on the first use, by sending this message, to gain access to all functions. The phone that changes the password for the first time will be the administrator phone and will be the only one that has access to all functions and will be able to add and remove other phone numbers.

To change password, it should be understood that CCCC represents the current device password and NNNN the new password. Once the SMS has been sent, the TGSM2 will reply with the new password.

Optionally you can indicate the language of the messages, adding the language code after the new password:

S → Spanish

E → **English**

F → French

This way the default messages and status messages will be in the indicated language. If no code is indicated, Spanish is selected by default.

Example:

User: !0000,P,1234,E

TGSM2: OK,0000,P,1234,E

current password

!CCCC,P,NNNN,E

**new
password**

PASSWORD

English



IMPORTANT: SMS messages must be sent without any spaces between characters. In case of error using the «!» symbol, the following symbols can also be used # \$ = ? -.

● **Message to ADD an AUTHORISED PHONE number:** !CCCC,C,<telephone> ,<alarms>



Add an authorised phone number. The <alarms> are optional, if they are not added all the alarms for that phone number will be activated. If you want to activate only some alarms, you can indicate which ones provided that they are separated by commas (,) the alarm codes are:

- I1:** Activate alarms on input I1
- I2:** Activate alarms on input I2
- S:** Activate external power alarms

Example:

User: !1234,C,678876678,I1,S

GSM: OK,C,678876678

● **Message to DELETE an AUTHORISED PHONE number:** !CCCC,D,<telephone>



Remove one of the authorised phones.

Example:

User: !1234,D,678876678

GSM: OK,D,678876678

● **LIST of REGISTERED TELEPHONES and ENABLED ALARMS message:** !CCCC,L



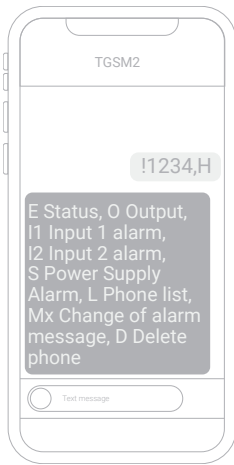
It replies with a message containing the registered phones (10 max.) and the active alarms for each of them.

Example:

User: !1234,L

GSM: 678876678,I1,I2,S
678678678,I2,S
678876876,S

● **HELP message:** !CCCC,H



Returns a message with the available control messages.

Example:

User: !cccc,h

TGSM2: **E** Status, **O** Output, **I1** Input 1 alarm, **I2** Input 2 alarm, **S** Power Supply Alarm, **L** Phone list, **Mx** Change of alarm message, **C** Add phone, **D** Delete phone.

● **STATUS Message:** !CCCC,E



It replies with a message with the general status of your TGSM2 (inputs, output, battery percentage, coverage and whether it is powered externally).

Example:

User: !1234,E

TGSM2: Toscana TGSM2, Power supply restored, Input 1 disabled, Input 2 enabled, Output enabled, Battery 90%, Coverage 75%

● **OUTPUT ACTIVATION message:** !CCCC,O,ON



Connects the output, replying with a message indicating the general status of your TGSM2, (the same as when sending the status message).

Example:

User: !1234,O,ON

TGSM2: Toscana TGSM2, active output

- **OUTPUT DEACTIVATION message:** !CCCC,O,OFF



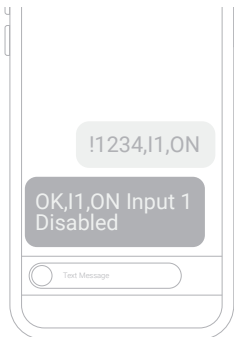
Disconnects the output, replying with a message indicating the general status of your TGSM2, (same as when sending the status message).

Example:

User: !1234,O,OFF

TGSM2: Toscano TGSM2, Output deactivated

- **Input 1 ALARM ACTIVATION message:** !CCCC,I1,ON



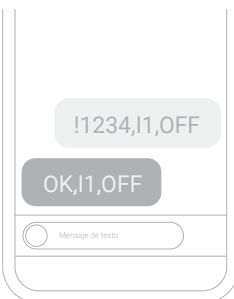
Enables input 1 using the phone from which the message is sent. Replies with a message containing the activated alarms for the phone from which the message is sent.

Example:

User: !1234,I1,ON

TGSM2: OK,I1,ON Input 1 Disabled

- **Input 1 ALARM DEACTIVATION message:** !CCCC,I1,OFF



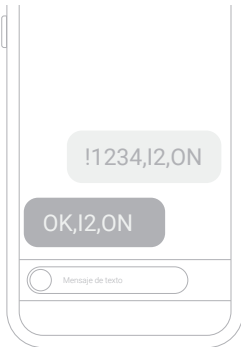
Disables the alarm at input 1 using the phone from which the message is sent. Replies with a message containing the activated alarms for the phone from which the message is sent and sends the current input status.

Example:

User: !1234,I1,OFF

TGSM2: OK,I1,OFF

● **Input 2 ALARM ACTIVATION message: !CCCC,I2,ON**



Activates the alarm at input 2 for the phone from which the message is sent. Replies with a message containing the activated alarms for the phone from which the message is sent and, sends the current input status.

Example:

User: !1234,I2,ON

TGSM2: OK,I2,ON Input 2 Deactivated

● **Input 2 ALARM DEACTIVATION message: !CCCC,I2,OFF**



Disables the alarm at input 2 using the phone from which the message is sent. Replies with a message containing the activated alarms for the phone from which the message is sent.

Example:

User: !1234,I2,OFF

TGSM2: OK,I2,OFF

● **Message to ENABLE the ELECTRICAL SUPPLY CUT-OFF ALARM: !CCCC,S,ON**



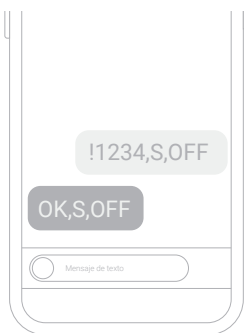
Enables a message to be sent when the power supply to the phone from which the message is sent is cut off or restored, and sends the current status of the power supply.

Example:

User: !1234,S,ON

TGSM:2 OK,S,ON Power supply restored

● **Message to DISABLE the ELECTRICAL SUPPLY ALARM: !CCCC,S,OFF**



Disables the power failure/reset alarm for the phone from which it sends the message.

Example:

User: !1234,S,OFF

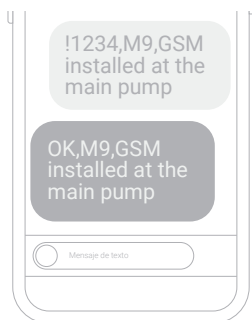
TGSM2: OK,S,OFF

● **Message to change the alarm messages: !CCCC,Mx,<message>**

* In the field <message> you must enter the message you want the TGSM2 to send when any of the alarms are detected and to indicate the general status of the device.

The code **Mx** represents the various alarm messages which are identified in the table below, along with the default recorded messages.

M1	Input 1 activation alarm.	Input 1 activated
M2	Input 1 deactivation alarm.	Input 1 deactivated
M3	Input 2 activation alarm.	Input 2 activated
M4	Input 2 deactivation alarm.	Input 2 deactivated
M5	Power Restoration Alarm.	Established power supply
M6	Power failure alarm.	Interrupted power supply
M7	Output activation message.	Active output
M8	Exit deactivation message.	Inactive output
M9	Message identifying your TGSM2	Toscano TGSM2

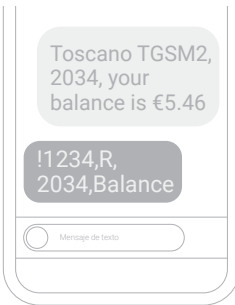


Example:

User: !1234,M9,GSM installed at the main pump

TGSM2: OK,M9,GSM installed at the main pump

● **Resend message:** !CCCC,R,<number>,<message>



This message is used when you want to send a message from your TGSM2 card, for example to disable the answering machine, check the card balance or any other message addressed to your operator.

Example:

User: !1234,R,2034,Balance

TGSM2: Toscano TGSM2, 2034, your balance is €5.46

! **Notes:** If when sending any message you include * at the end of the message, TGSM2 will perform the action indicated in the message but **will not return any confirmation message after the action is performed.**

5. ALARM MESSAGES

● Input 1 or input 2 activation message



When input 1 or input 2 changes from inactive to active, the TGSM2 module will send an SMS indicating so, accompanied by the time at which it occurred.

Example:

TGSM2: Toscano TGSM2, 16:12 input 1 activated.

● Input 1 or input 2 deactivation message

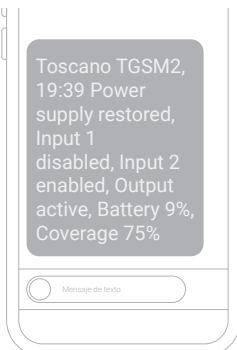


When input 1 or input 2 changes from active to inactive, the TGSM2 module will send an SMS indicating so, accompanied by the time at which it occurred.

Example:

TGSM2: Toscano TGSM2, 10:48 input 2 deactivated.

● Low battery message



When the battery of the TGSM module falls below 10%, it will send a SMS indicating the time, followed by the status of the module.

Example:

TGSM2: Toscano TGSM2, 19:39 Power supply restored, Input 1 disabled, Input 2 enabled, Output active, Battery 9%, Coverage 75%

● Interrupted power supply



When a power failure occurs in the module, it will send an SMS indicating so, along with the time it occurred.

Example:

TGSM2: Toscano TGSM2, 03:04 Interrupted power supply

● Established power supply



When the power supply returns to normal, the TGSM2 module will send an SMS indicating so, along with the time of the event.

Example:

TGSM2: Toscano TGSM2, 05:10 Power supply restored

● Pulse limit exceeded



If the pulse counter option is activated (see page 19) and the established pulse limit is exceeded, the module will send an SMS indicating so and the time at which it occurred.

Example:

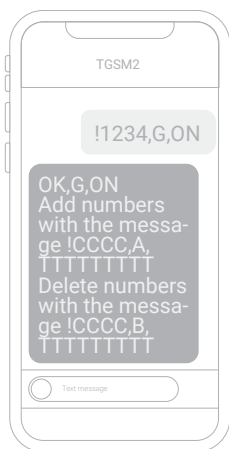
TGSM2: Toscano TGSM2,08:35,50, Pulse limit I1 exceeded

6.DOOR OPENING MODE:

TGSM2 can be configured as an opening device for doors or gates with up to 91 authorised telephone numbers, so that when a call is received from one of these telephone numbers, the output will be momentarily connected to drive a door or gate opening motor. The duration of the opening pulse is configurable through sms messages or through the configuration app.

To set the TGSM2 to **door opening mode** the following message must be sent to the door: !CCCC,G,ON. To **add phone numbers** send the message !CCCC,A,TTTTTTTTTT to **delete a phone number**, send the message !CCCC,B,TTTTTTTTTT.

● Door opening mode activation message: !CCCC,G,ON ,<time>



Activate door opening mode. Optionally you can include the time in seconds during which the output must be active, if not included the output will remain active for 10 seconds.

Example:

User: !1234,G,ON

TGSM2: OK,G,ON
Add numbers with the message !CCCC,A,TTTTTTTTTT
Delete numbers with the message !CCCC,B,TTTTTTTTTT

● Door opening mode deactivation message: !CCCC,G,OFF



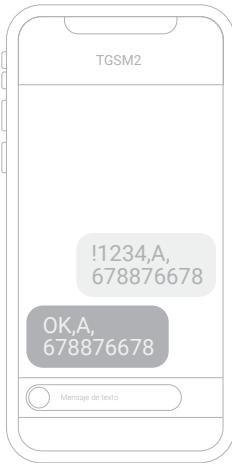
Deactivate door opening mode.

Example:

User: !1234,G,OFF

TGSM2: OK,G,OFF

● **Message to add authorised phone numbers: !CCCC,A,TTTTTTTTT**



Add a phone number to the list of phones authorised to open the door. You can type more numbers separated by commas (,) and they will be added to the list of authorised numbers.

Example:

User: !1234,A,678876678

TGSM2: OK,A,678876678

It will add the phone number 678876678 to the list of phones authorised to open the door.

● **Message to delete an authorised phone number: !CCCC,B,TTTTTTTTT**



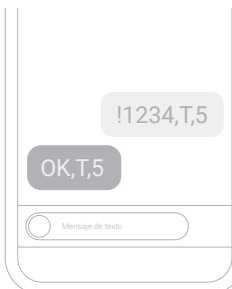
Removes phone numbers from the list of phones authorised to open the door. You can enter more numbers separated by commas (,) and they will be deleted from the list of numbers authorised to open the door.

Example:

User: !1234,B,678876678

TGSM2: OK,B,678876678

● **Message to change the activation time: !CCCC,T,<time>**



Sets the amount of time the output must be connected when receiving a call from any of the authorised numbers. <time> must be indicated in seconds.

Example:

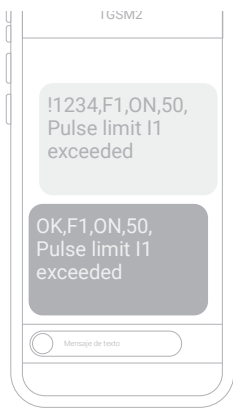
User: !1234,T,5

GSM: OK,T,5

7. PULSE-COUNTING MODE

In pulse-counting mode, input I1 or I2 will function as a counter, adding a count with each pulse received. When the number of pulses counted is equal to the set number, a message will be sent. The pulse number to be counted, the current count and the message are saved in the memory and are remembered even if there is a loss of voltage, the unit is switched off or reset.

● Message to activate pulse-counting mode: !CCCC,Fx,ON,<Pulses>,<Message>



Sending this message activates pulse-counting mode. You must indicate the input for which you want to activate this mode, with F1 as input 1 and F2 as input 2. <pulses> indicates the number of pulses to be counted. <message> is optional and will be sent when the set number of pulses is reached. The configuration of each input is independent and will not affect the other, being able to select different configurations for each one.

Example:

User: !1234,F1,ON,50,Pulse limit I1 exceeded

TGSM2: OK,F1,ON,50,Pulse limit I1 exceeded

When the count reaches 50 pulses the unit will send the message:

TGSM2: Toscano TGSM2, 08:35, 50, Pulse limit I1 exceeded

You can check the number of accounts you have registered by requesting a status message.

TGSM: Toscano TGSM2, Power supply restored, Input 2 disabled, Output disabled, Battery 85% Coverage High, Counter I1: 10/50



● Message to deactivate pulse-counting mode: !CCCC,Fx,OFF



Sending this message will deactivate the pulse-counting function at the indicated input, F1 for input 1 and F2 for input 2. The selected input will return to its normal operating mode.

Example:

User: !1234,F1,OFF

TGSM: OK,F1,OFF

When the I1 input is activated your unit will send the message:

TGSM: Toscano TGSM2, 12:05, Input I1 has been activated

8. QUICK MESSAGE GUIDE

General messages

SMS	ACTION
!CCCC,H	Help message
!CCCC,P,NNNN	Change the old password CCCC to the new password NNNN.
!CCCC,L	List of registered telephones and activated alarms message:
!CCCC,E	Status message, returns status of inputs and outputs
!CCCC,O,ON	Activates the output
!CCCC,O,OFF	Disables the output
!CCCC,S,ON	Enables power supply alarm
!CCCC,S,OFF	Disables the power supply alarm
!CCCC,I1,ON	Enables status change alarm on I1
!CCCC,I1,OFF	Disables the status change alarm on I1
!CCCC,I2,ON	Enables status change alarm on I2
!CCCC,I2,OFF	Disables the status change alarm on I2
!CCCC,C,<Telephone>	Add an authorised phone number
!CCCC,D,<Telephone>	Delete an authorised phone number
!CCCC,Mx,<Message>	Change the Mx alarm message to the custom message <Message>

M1	Input 1 activation alarm.	Input 1 activated
M2	Input 1 deactivation alarm.	Input 1 deactivated
M3	Input 2 activation alarm.	Input 2 activated
M4	Input 2 deactivation alarm.	Input 2 deactivated
M5	Power failure alarm.	Power failure
M6	Power Restoration Alarm	Power supply restored
M7	Output activation message.	Active output
M8	Exit deactivation message.	Inactive output
M9	Message identifying your TGSM2	Toscano GSM2

● Door Opening Mode Messages

SMS	ACTION
!CCCC,G,ON	Activates door opening mode
!CCCC,G,OFF	Deactivates door opening mode
!CCCC,A,<Telephone>	Add a phone number to the authorised list
!CCCC,B,<Telephone>	Remove a phone number from the authorised list
!CCCC,T,<time>	Pulse duration when opening the door

● Response Messages

SMS	MEANING
FULL MEMORY	When you try to enter more than 10 phone numbers.
OK	The instruction has been accepted correctly
ERROR	The request could not be properly addressed or the message was not understood

● Pulse counter mode messages

SMS	MEANING
!CCCC,Fx,ON,<pulses>,<messages>	Activate the pulse counter mode, count <pulses> and send <message>
!CCCC,Fx,OFF	Deactivates pulse-counter mode

9. TECHNICAL CHARACTERISTICS

2 digital inputs

1 voltage-free normally open relay output

With manual activation and deactivation of the output by button

Signals:

- GSM connection status
- External power supply
- Status of input 1
- Status of input 2
- Output status

Configuration via SMS and Bluetooth LE

Coverage level indication

up to 10 phone numbers

Independently configurable alarms

Customisable alarm messages

Cortex-M4 processor

Internal Li-Ion battery 3.7V 500mAh

Power supply AC 9-24V / DC 12-36V

Single unit DIN box 92 X 17.5 X 64

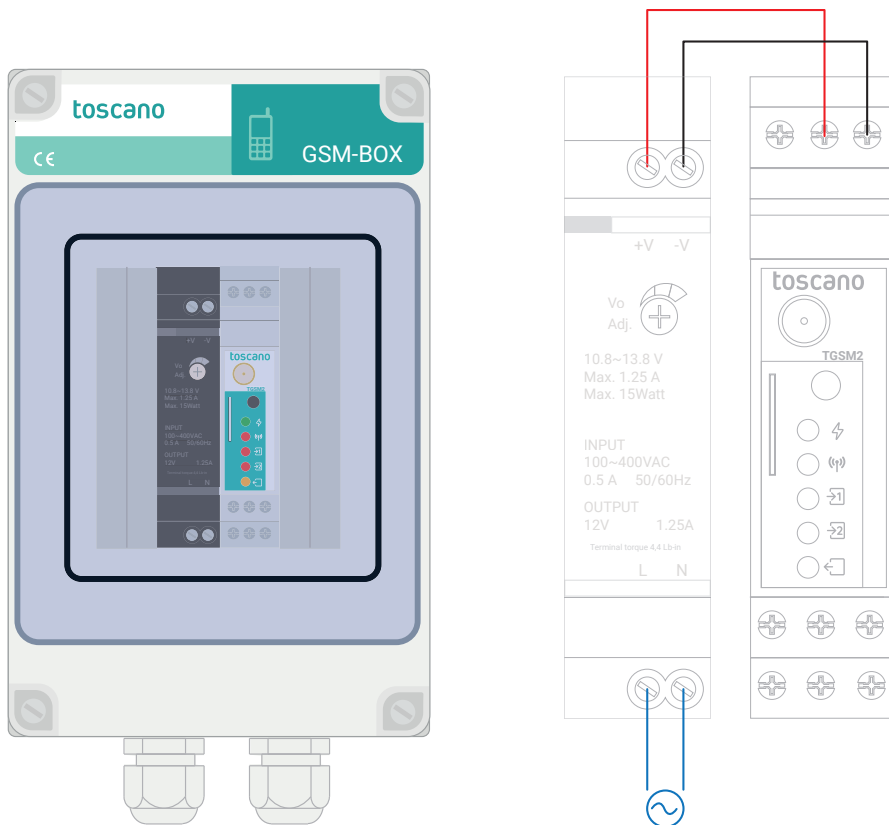
DIN rail mounting EN50022

Supply voltage	AC 9-24V / DC 12-36V
Maximum power usage	5W
Internal battery	3.7V/500mAh
Relay output	NO 5A, 250VAC / 30VDC
Operating temperature	-10...+50°C
External Antenna Connector	SMA
Antenna cable length	Direct connection (TGSM2) // 2 metres (GSM-BOX)
Indicators	External power supply (green) Network (Red) Input 1 (Red) Input 2 (Red) Output (Yellow)
Protection level	IP20

10. GSM-BOX PANEL

GSM-BOX is a compact and complete alarm and remote control system via GSM. It consists of a waterproof modular box with IP65 protection, a 12V/1.25A power supply and our TGSM2 module.

The IP65 enclosure also has additional space for two DIN-rail modules so you can extend its functionality.

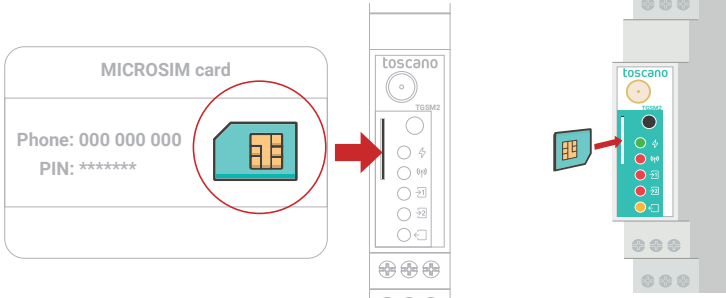


100 - 240 VAC

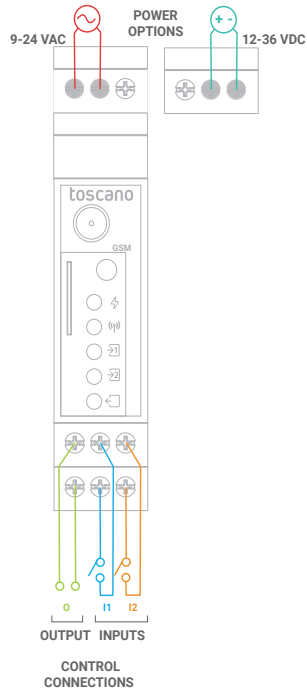
Supply the panel as shown in the diagram

11. QUICK SETUP GUIDE

1. Unlock the MICROSIM card and insert it into your TGSM2 module.

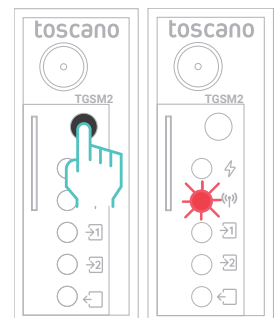


2. Make the connections as shown in the diagram and activate the power supply (ignore module supply options in GSM-BOX panel).



3. If your equipment has not been turned on, press the button to turn it on.

4. Wait for the coverage indicator to flash momentarily every two seconds.





IMPORTANT: SMS messages must be sent without any spaces between characters.

5. Send the message !0000,P,1234, where 1234 should be changed to a four number or letter password of your choice (for example: AEDC, 1d3c, 4Dg8...).



Example:

User: !0000,P,1234,E

TGSM2: OK,0000,P,1234,E

current password

!CCCC,P,NNNN,E

**new
password**

PASSWORD

English

6. Send the message !1234,O,ON when you want to activate the output and the message !1234,O,OFF when you want to deactivate the output.



Example:

User: !1234,O,ON

TGSM2: Toscana TGSM2, active output

7. If you want to customise your equipment name, send the message !1234,M9,new_name where you must replace new_name with the name you want to give to your equipment.



Example:

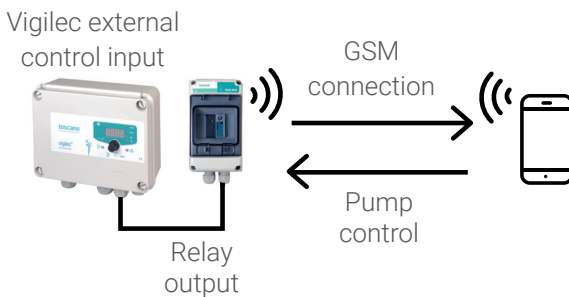
User: !1234,M9,Garage door

TGSM2: OK,Toscano TGSM2,M9,Garage Door

● Examples of common applications

GSM-BOX is a compact box designed for alarm reporting by SMS and remote control of electrical equipment (pump for example). It works via GSM network (MICROSIM card not included).

It is composed of a modular IP65 waterproof enclosure, DC power supply and our TGSM2 module.



Cod.50019542