

# gemino IoT

Communicator 4G-LTE/IP

## Installation guide



### INTRODUCTION

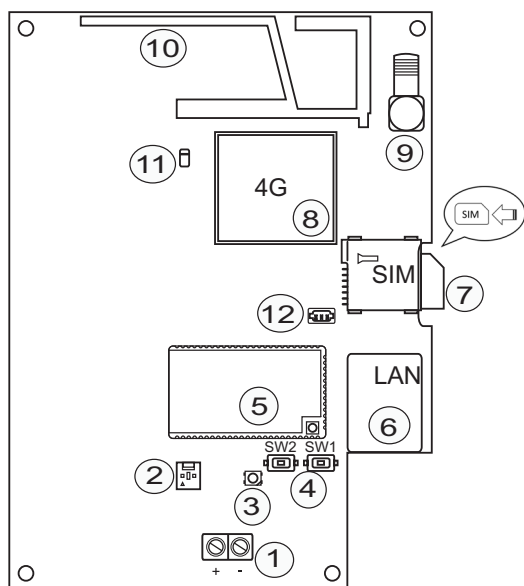
gemino IoT is an IP Communicator that increases the communication capabilities of the lares 4.0 IoT platform on two transmission channels: Ethernet/IP (with proprietary protocol) and 4G data network (with reception also on 2G/GPRS bands). gemino IoT allows lares 4.0 IoT platforms, installed on sites that do not have sufficient GSM coverage, to be reachable from 4G data network or via Internet, in a completely transparent way for the installer and end-user as well. Also it provides a high-speed data channel (up to 10Mbit/s in download) able to offer a complete back-up of communication network in the event of failure or temporary lack of coverage, from the 4G network to the IP-LAN network and vice versa, ensuring a total communications and data security.

It can also be used as a ROUTER in the absence of a wired internet connection, in that way gemino IoT implements a DHCP server that assigns IP addresses to devices connected on the same network that make request of them. Also, it allows them to connect to Internet through the connection data ensured by the GSM module, in 4G technology or in EDGE or 2G.

### MAIN FEATURES

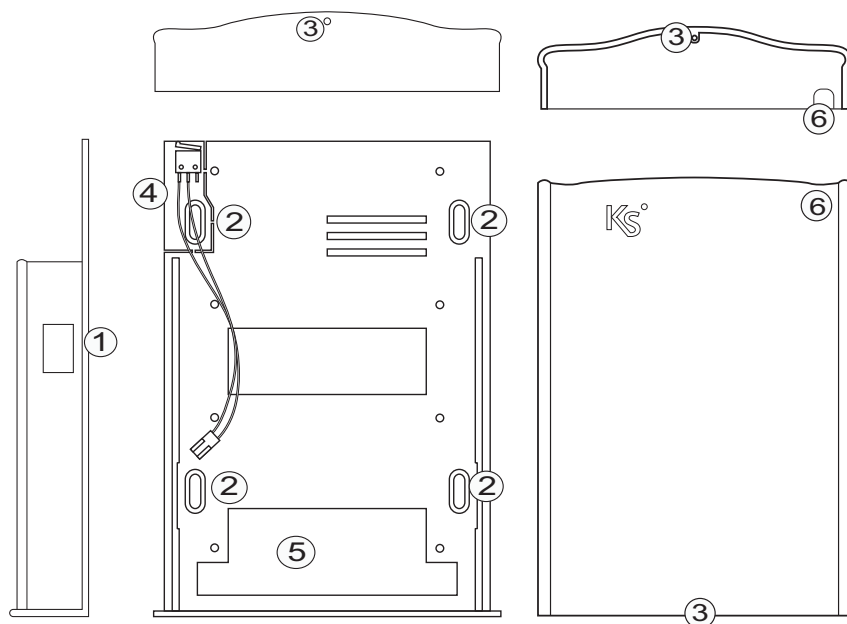
- Programming and management of the lares 4.0 IoT platform;
- Push notifications when events occur;
- Sending of signals with SIA DC09 digital protocol, with channel and receiver supervision (dual-path)
- Video-verification of IP cameras connected to the local network where lares 4.0 resides;
- Easy management and fast synchronization of voice messaging (TTS Loquendo® di Nuance Communication®);
- Supervision and the sending of voice, SMS and Contact ID reports when any of the events programmed occur;
- Remote control of the system through vocal menu-driven;
- Router operation can be activated and used in the absence of a wired internet connection and of another router;
- Power supply PoE 13W or 12 VDC.

## PARTS IDENTIFICATION



### LEGEND

1. Connection terminals for external power supply
2. Connector for microswitch tamper
3. Led RGB
4. SW1 = reset switch  
SW2 = toggle switch: normal or router operation
5. Microprocessor
6. RJ45 Port
7. SIM card slot
8. 4G Module
9. Connector for auxiliary antenna
10. Integrated antenna area
11. Signaling led for GSM network connection  
(normal activity= green steady ON)
12. Serial connector for authorized personnel only



### LEGEND

#### PLASTIC CASE

1. Opening for SIM card installation
2. Fixing holes (DIN 503 compatible box)
3. Closing screw (provided)
4. Microswitch tamper
5. Opening for cable entry
6. Pre-opening for auxiliary antenna connection

## TECHNICAL DATA

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- Power supply: PoE 13W or 12VDC
- Current consumption: PoE class 3 (12.95W) / 80mA stand-by, 250mA max
- GSM band: GSM 4G Module Ublox
- Maximum data rate: 10 Mbit/s in download, 5 Mbit/s in upload
- Maximum transmission time of vocal alarm: 10 sec.
- Alarm transmission system: SP2 - SP4 - DP3
- Operating temperature: -10 +55°C
- Humidity: 95%
- External antenna connector type: SMA
- PCBA dimensions: 92x113x20 mm (hxlxp)
- Maximum overall dimensions: 140x102x30 mm (hxlxp)
- Weight: 190 gr

Technical data, appearance, functionality and other product characteristics may change without notice.

## TYPE OF COMMUNICATIONS

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The device can be programmed to send the following communications:

- Pre-recorded vocal messages
- SMS
- Contact ID with SIA-DC03 protocol
- Signaling via GPRS SIA-DC09 protocol with encryption

## INSTALLATION

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### IMPORTANT!

- gemino IoT Communicator must be installed only by QUALIFIED PERSONNEL, indoor in a safe, dry place, away from radio-transmitters.
  - Carefully choose the installation location of gemino IoT Communicator so as to ensure a good GSM signal coverage.
1. Open the plastic case by sliding the lid upwards;
  2. remove the PCBA by sliding it upwards;
  3. fix the base of the plastic case to the wall using 5mm diameter screws or mount it on a DIN503 box;
  4. pass PoE Ethernet cable through the opening on the base (see Plastic case parts identification), if Ethernet cable is not PoE, also pass the connecting cables for external power supply;
  5. replace the PCBA card in its housing by sliding it downwards and block at mid-travel;
  6. connect ETH cable to RJ45 port (see PCBA parts identification);
  7. (just in case ETH cable is NOT PoE) connect the cables for external power supply to the connection terminals (see PCBA parts identification);
  8. slide the PCBA card until the end of stroke;
  9. insert the SIM card into the "SIM" card slot (see PCBA parts identification);

10. (just in case external antenna is present) connect the auxiliary external antenna to the connector (see PCBA parts identification);
11. check the following:
  - a) Green signaling led for GSM network connection: if steady on the registration to mobile network occurred correctly, if blinking it is still looking for the network;
  - b) the LEDs of the ETH port are lit on;
12. replace the lid to close the plastic case.

*For further information, please consult "lares 4.0 IoT platform - Installation manual".*

## **ROUTER MODE**

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### **Overview**

Depending on the firmware version of gemino IoT, it is possible to use the device as a router in the absence of wired internet connection.

In this mode, gemino IoT implements a DHCP server that automatically provides and assigns IP addresses to each device on the same network. Moreover, it allows them to connect to internet network through the data connection guaranteed by the GSM module: it can establish connection via 4G technology if available (up to 10 Mbps in download and 5 Mbps in upload) or in EDGE (or 2G).

Router mode must be used in the absence of another router (or ADSL modem/router) on the same network to avoid IP address conflicts (since both of them assign IP addresses on their network, that could be different, with the result that some clients can accept addresses from one server and other clients from the other server).

In order to function as a router, gemino IoT does not need to be configured in the lares 4.0 control panel: if it is not configured, the control panel is connected to the internet network via LAN (as if you were using a normal home modem/router).

In the following, we assume that gemino IoT is configured in the control panel.

When the gemino IoT functions as router, it ignores the IP address and DHCP parameters that may be present in the configuration and it uses the static IP address 192.168.100.1. All other configurations remain valid and voice calls and SMS work regularly.

### **Router mode activation**

The easier and immediate procedure is the following:

1. Connect gemino IoT to a switch and power it on.  
Do not switch on or connect the lares 4.0 control panel to the switch.
2. When the led of gemino IoT flashes GREEN, press and hold the button 2 (SW2 on the PCB) until the led itself turns RED and then release the button: almost immediately the led starts flashing BLUE (with the same frequency that it had previously with the green flashing, see Note 1). At this point, the device is configured as ROUTER and the DHCP server enabled with the following parameters:
  - a. IP address of gemino IoT is 192.168.100.1, subnet mask 255.255.255.0. As soon as the mobile data connection is available, the default gateway becomes the IP address of data connection, it routes all the traffic to internet.

- b. DHCP server assigns IP addresses from a reserved dynamic range [from 192.168.100.2 to 192.168.100.100] while a reserved static range [from 192.168.100.101 to 192.168.100.254] are available to connect an device with an IP address to this static range, subnet mask 255.255.255.0, and default gateway 192.168.100.1). Lease time is fixed to 12 hours.
- 3. Connect the lares 4.0 control panel to the switch and, after few seconds, verify that it has acquired an IP address belonging to the reserved dynamic range [192.168.100.2 .... 192.168.100.100]. If the lares 4.0 control panel had been turned on before connecting it to the switch, it had assumed the default IP 192.168.2.97: if this IP address has not already been assigned to another device by the gemino IoT DHCP server, it is confirmed, otherwise it will be modified and assigned by gemino IoT.
- 4. The "Installer" software configuration indicates the Router mode in the Real Time section of gemino IoT, by means of a little blue "router" icon while the internet connection "via gemino IoT" is signaled in the Home page.
- 5. If the gemino IoT data connection is lost, the control panel will detect the loss of the data connection and will generate "Internet KO" event with the relative failure, see Note 2).
- 6. When the data connection of the gemino IoT is restored, the control panel will detect the change of status and will generate the related events (and the internet fault will be over).

The gemino IoT keeps on working in router mode even after a shut-down or a reset: to make it return to normal mode (that is, no longer be a DHCP server with a fixed address) it is necessary to press and hold the button 2 (SW2 on the PCB) again, as described in the next paragraph.

### Normal mode activation (no router)

A gemino IoT that works as a router, can go back to normal mode in the following way:

1. When the led of gemino IoT flashes BLUE, press and hold the button 2 (SW2 on the PCB) until the led itself turns RED and then release the button and wait until the led starts flashing GREEN, see note 1).
2. At this point, gemino IoT has restarted the DHCP client, so one of the following scenarios can occur:
  - a. If a fixed IP address was assigned during configuration, the gemino IoT gets that IP address as soon as it connects to the control panel.
  - b. If DHCP mode was programmed:
    - i. if a server DHCP is present in the network, gemino IoT receives automatically an IP address; otherwise
    - ii. gemino IoT gets the default IP address: 192.168.2.98.
3. Obviously, if there is a modem/router in the network, the LAN will be used to connect to the internet, otherwise the data connection of gemino IoT will be used.

### Reboot via button

Press and hold the button 1 (SW1 on the PCB) for about 3 seconds and then release the button so the PCB will reboot in a controlled mode (that is, the operating system will shut down correctly by disassembling all the file systems used on the memories).

### Note

1. It is possible that between the steady red color and the blue flashing, the LED lights up green again for a moment: the switch procedure works equally well.
2. "MOBILE to LAN switch" and "LAN to MOBILE switch" will appear in the event log, it is normal since the default gateway on the control panel LAN matches with the IP address of gemino IoT.

## CONFIGURATION

gemino IoT is programmed from the lares 4.0 control panel.

*For further information, please consult "lares 4.0 IoT platform - Programming manual".*

## SIGNALLING RGB LED

- GREEN blinking: initializing and normal operation.
- BLUE blinking: router operation.

## QUANTITY DATA

lares 4.0 models	wls 96	16	40	40 wls	140 wls	644 wls
Maximum number of gemino IoT	1	1	1	1	1	1

## COMPLIANCE

Europe - CE, RoHS  
 EN50131 Grade 3 class II  
 EN50136 Grade 3 class II



## ENVIRONMENTAL CARE

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gemino IoT has been specifically designed and manufactured for the environment respect as follows:

1. No PVC
2. Halogen-free laminates and lead-free PCBA
3. Low consumption
4. Packaging realized mainly with recycled fibers and materials

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Installation of these systems must be carried out strictly in accordance with the instructions described in this manual, and in compliance with the local laws and bylaws in force. This product has been designed and made with the highest standards of quality and performance adopted by Ksenia Security. It is recommended that the installed system should be completely tested at least once a month. Test procedures depend on the system configuration. Ask to the installer for the procedures to be followed. Ksenia Security srl shall not be responsible for damage arising from improper installation or maintenance by unauthorized personnel. The content of this guide can change without prior notice from KSENIA SECURITY.

Information for users: Disposal (WEEE-RAEE Directive)

Warning! Do not use an ordinary dustbin to dispose of this equipment. Used electrical and electronic equipment must be treated separately, in accordance with the relative legislation which requires the proper treatment, recovery and recycling of used electrical and electronic equipment. Following the implementation of directives in member states, private households within the EU may return their used electrical and electronic equipment to designated collection facilities free of charge\*. Local retailers may also accept used products free of charge if a similar product is purchased from them. If used electrical or electronic equipment has batteries or accumulators, these must be disposed of separately according to local provisions. Correct disposal of this product guarantees it undergoes the necessary treatment, recovery and recycling. This prevents any potential negative effects on both the environment and public health which may arise through the inappropriate handling of waste.

\* Please contact your local authority for further details.

