



User's manual

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This product has been especially designed for easy operation. It has been manufactured with perfect workmanship using suitable materials for long-lasting performance.

All Esse-ti products are subjected to extensive reliability and operational testing in our laboratories in order to provide total guarantee for the user.

Esse-ti reserves the right to modify the product characteristics at any time without prior notice.

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GENERAL INSTALLATION INSTRUCTIONS

GENERAL NOTES

Carefully read the notes contained in this section as they provide important information on safe correct installation, use and maintenance of the product.

- The product must be **EXCLUSIVELY** used for the purpose it was designed for. Esse-ti shall not be responsible for damages arising from improper use.
- The product has been designed in compliance with the regulations in force and must be installed in systems that comply with the provisions of law.
- Always disconnect power supply before performing internal or external operations on the product (cleaning, maintenance, etc.).
- Always refer to an authorized service centre for repair.
- The device must be installed in a ventilated place, making sure that the ventilation slots are never obstructed.
- Do not install the product in environments with risk of explosion.
- Make sure that the product has been installed as required.
- Do not introduce objects, liquids or powders inside the product. Do not use sprays inside the product.
- Packing components (such as plastic bags, foam polystyrene, etc.) must be kept out of the reach of children because potentially dangerous.

MAKING THE INSTALLATION

Internal telephone installations must be carried out by specialised personnel. The installation and connection of telephone terminals to the telecommunications network that do not comply with the regulations in force is not permitted.

DESCRIPTION

4G.evox is a 4G telephone gateway designed to be used in conjunction with the **LifTrack** monitoring system.

Connected to LifTrack via CAN-bus, 4G.evox forwards the information collected and processed by LifTrack sensors and inputs, via data, to an Esse-ti server.

Real-time consultation of the acquired data is allowed by the *e-stant web* application.

Equipped with an internal back-up battery to ensure operation even in the event of a power failure, 4G.evox also enables fixed telephones, autodialers or other telephone devices, connected to the TEL input, to send and receive calls over the 4G LTE/UMTS/GSM network.

For correct operation the 4G.evox needs a SIM card enabled for voice/SMS/data traffic.

Main features

Hardware

- Module: LTE Cat 1 Penta-Band / UMTS HSPA+ Dual-Band / GSM Dual-Band
- Frequency bands: LTE (700/800/900/1800/2100 MHz) / UMTS HSPA+ (900/2100 MHz) / GSM (900/1800 MHz)
- Speed: LTE Cat 1 download max. 10,2 Mbps / upload max. 5,2 Mbps
- 3G / 2G fallback
- Automatic reboot under prolonged mobile signal absence
- FXS port (TEL terminal blocks)
- Terminal blocks for data transmission in CAN-bus standard
- Micro USB A/B port for PC connection
- SIM card slot: 2FF
- Device status indicator LED
- Data transmission indicator LED
- Power supply status indicator LED
- 4G LTE/UMTS/GSM signal indicator LED
- Line status indicator LED
- Antenna connector: SMA/f
- 100-240 Vac 12 Vdc external adapter input
- NiMH 800 mAh 7,2 V back up battery
- 11-26 Vdc power supply input
- Firmware update OTA

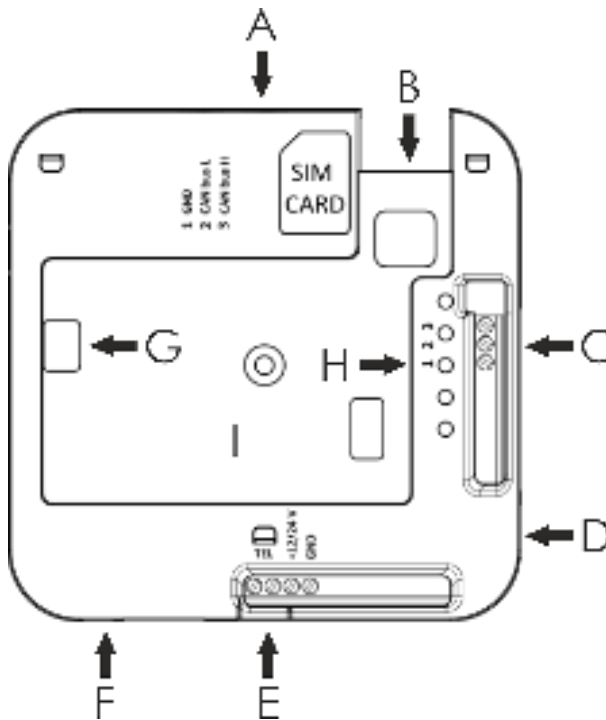
Package contents

- 4G.evox
- Magnetic base antenna with cable (L= 2 m)
- External adapter (input 100-240 Vac 50-60 Hz; output 12 Vdc 500 mA; CE mark)
- Mounting screw
- User manual

Functions

- Local programming via telephone (DTMF tones)
- Remote programming via SMS
- Reading of programming codes via SMS
- Data transmission through standard CAN-bus
- Voice calls
- Data connection and voice call simultaneously
- Display of caller identification
- Automatic country setting
- Clock setting
- CLIR
- Roaming setting
- SIM card expiration control
- Battery check
- External power failure control
- SMS notifications (SIM card expiration, low-battery, dead battery, replaced battery, external power failure/restore, mobile network restore)
- Data notifications (battery, external power failure/restore, acquired data by LifTrack) on the web-app *e-stant web*
- Measurement of 4G LTE/UMTS/GSM signal level
- Automatic converter of selected telephone number
- Receiver and transmitter gain adjustment
- Remote reboot function

Hardware description



- A Antenna cable connector
- B SIM CARD housing
- C Terminal blocks for CAN-bus data transmission
- D Micro USB A/B port for PC connection
- E Main terminal blocks
- F 100-240 Vac 12 Vdc external adapter input
- G Backup battery connector
- H LED indicating device operation status (red), LED indicating data transmission (yellow), LED indicating power supply status (blue), LED indicating signal strength (green), LED indicating line status (white)
- I Battery compartment

MAIN TERMINAL BLOCKS

TEL	Telephone line output for telephone set connection or autodialer/PABX analogue line connection
+12/24 V	11-26 Vdc power supply terminal block
GND	Negative

CAN-BUS TERMINAL BLOCKS

1	GND
2	CAN bus L
3	CAN bus H

LEDs



Red LED: Device status indicator LED



Yellow LED: Data transmission indicator LED



Blue LED: Power supply status indicator LED



Green LED: 4G LTE/UMTS/GSM signal indicator LED



White LED: Line status indicator LED

LEDs flashing is described at chapter “Signals” (see page 31).

INSTALLATION

Installation recommendations

- 4G.evox must be installed in a location where the radio signal allows for using the 4G LTE/UMTS/GSM system.
- It is advisable to leave plenty of space around 4G.evox for maintenance operations.
- Do not install 4G.evox outdoors, since it lacks protection devices against weather conditions that can damage 4G.evox (water, humidity, etc.).
- Do not install 4G.evox near magnetic devices.
- Do not install 4G.evox near electronic devices (radio or TV sets, Personal Computers, wired radio systems, etc.) that could be subjected to RF interference from 4G.evox; recommended distance from the antenna is min. 2,5 m.
- Do not install 4G.evox near medical devices. E.g. its operation may cause damage to hearing aids or pacemakers.
- Always make sure that 4G.evox operation is permitted in the place of installation (e.g. installation is not allowed in hospitals, airplanes, etc.).

Inserting the SIM card

Before inserting or replacing the SIM card, always make sure that 4G.evox has been disconnected from the mains and that no electrostatic discharge is present in order to avoid damaging it.

- Carefully slide the SIM card into its housing cover.

WARNING

The SIM card PIN must be DISABLED. If the PIN is enabled, it must be disabled through a mobile phone.

Inserting the antenna

- Screw the supplied antenna cable into the antenna connector (A in the picture at page 8).

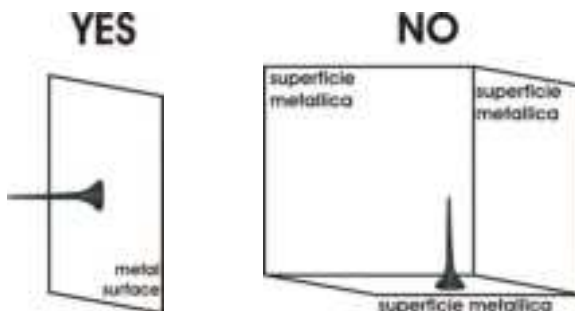
WARNING

NEVER connect 4G.evov without having previously installed the antenna. 4G.evov may get damaged.

WARNING

Do not install the product near other electric or electronic devices that were not especially designed to be used with it. They could be subjected to RF interference from the module.

- Position the antenna with magnetic base so that any metal surfaces do not block the signal.

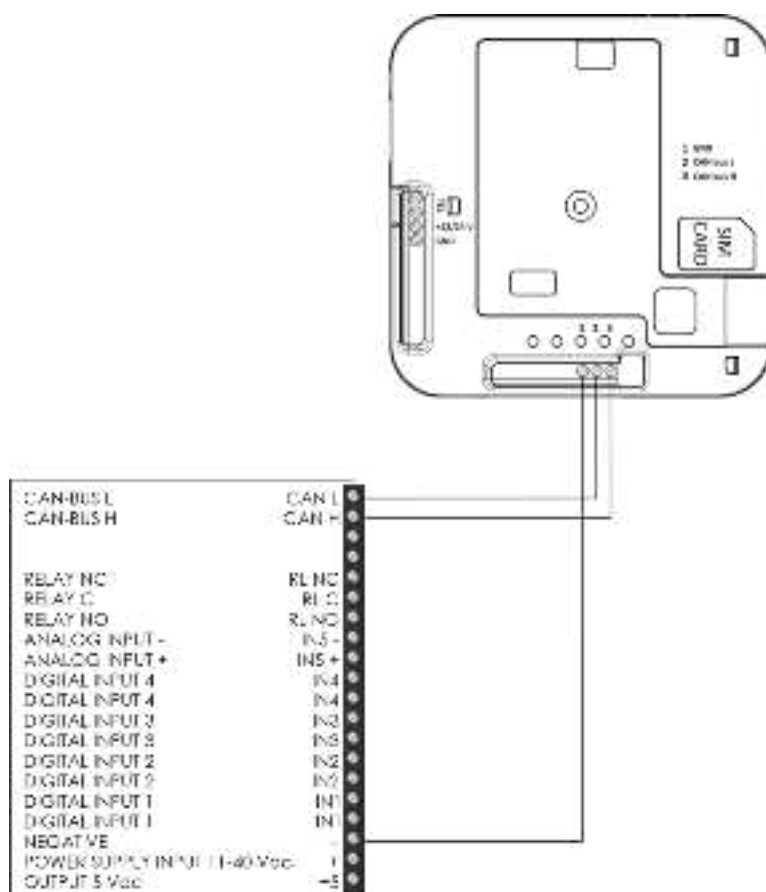


Connection to the telephone line

- Connect 4G.evov to a standard telephone or to the PSTN input terminals of a PABX or autodialer using the TEL terminals (E in the picture at page 8).

Connection to the LifTrack

- Connect 4G.evox to the LifTrack monitoring system following the diagram shown below:



Connection to the power supply

Power supply via 100-240 Vac external adapter

- Connect the backup battery to the dedicated input (G in the picture at page 8).
- Connect the external adapter to the specific input (F in the picture at page 8).

or

12-24 Vdc power supply

- Connect the backup battery to the dedicated input (G in the picture at page 8).
- Connect the power supply cable to the +12/24 V and GND terminals (E in the picture at page 8) taking care to respect the polarity.

Absorption chart		
Power supply	12 Vdc	12 Vdc
	battery not connected	battery connected
Stand-by	160 mA	180 mA
Conversation	260 mA	280 mA

Note: the max voltage to be supplied to the +12/24 V terminal is 26 Vdc.

Note: the min voltage required to supply 4G.evox by the +12/24 V terminal is 11 Vdc.

Note: a protection cut-out switch must be installed upstream to interrupt power supply in case of fault.

Turning 4G.evox on

- Power 4G.evox.
- Wait 45 seconds after power-up to give time to 4G.evox to register correctly with the 4G LTE/UMTS/GSM network.
- Make sure the red LED (device status) flashes as shown in chapter "Signals" (see page 31).

If the red LED stays lit permanently, 4G.evox has not properly registered with the 4G LTE/UMTS/GSM provider:

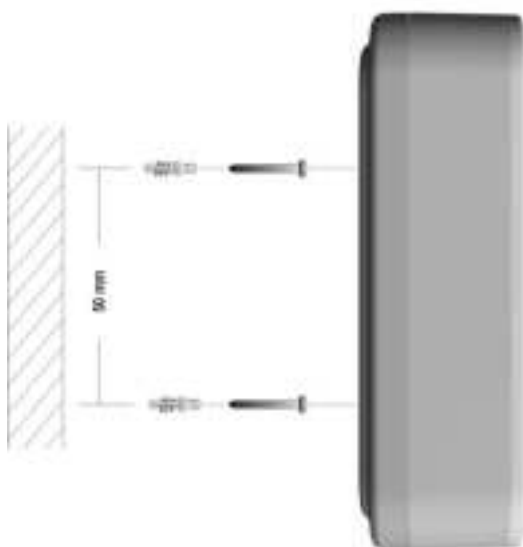
- Disconnect 4G.evox and make sure the SIM card is inserted correctly and that the PIN is not locking it.
- See chapter "Problem-detection guide" (page 34).

4G.evox mounting operations

- Check the 4G LTE/UMTS/GSM signal strength through the green indicator LED (see chapter "Signals", page 33) and identify an area where the signal is strong enough.

Note: the signal strength may vary according to the telephone provider.

- Drill two holes with 5 mm diameter on the wall at a distance of 50 mm.
- Insert the 2 wall plugs and screws down until the screws are at a 5 mm distance from the wall.
- Place 4G.evox onto the two screws through the two back slots.



PROGRAMMING

It is possible to configure 4G.evox locally via a multi-frequency telephone or remotely via SMS.

PROGRAMMING VIA TELEPHONE

- Connect 4G.evox to a multi-frequency telephone using TEL terminals (E in the picture at page 8).
- Lift the handset and dial the desired programming code (see table "Programming via telephone").

Note: at the end of each programming carried out correctly, you will hear a confirmation tone, while an error tone will be heard in case of error. In any case, the dialling tone will follow, after which you can proceed with the programming or make a call.

Note: during programming, the inter-digit dialling time must not exceed 5 seconds (see programming "Inter-digit dialling time"). Once 5 seconds has elapsed without digits you will hear the dissuasion tone and you will have to wait the dialling tone or to hang up.

Note: programming can be carried out even if the signal is absent. After the confirmation or the error tones, the dissuasion tone will follow, after which you can proceed with programming or hang up.

*Note: in the table "Programming via telephone" factory default values are highlighted in **bold**.*

PROGRAMMING VIA TELEPHONE		
TELEPHONE LINE VOLTAGE (TEL TERMINALS)	**61*X#	X: option, from 0 to 3 0= 36 Vdc 1= 52 Vdc 2= 36 Vdc with line polarity reversal 3= 52 Vdc with line polarity reversal
USE MODE	**2X#	X: option, from 1 to 2 1= mobile network line tones 2= line tones generated by 4G.evox (mode recommended for autodialers or other devices effecting tone detection over the line)
INTER-DIGIT DIALLING TIME	**8*X#	X: seconds, from 1 to 9; 0=10 seconds 5 factory default
CLOCK SETTING	**7*1*GGMMAA*HHMM#	Activation GG: day, MM: month, AA: year; HH: hour, MM: minutes
	**7*0#	Deactivation
	Default: disabled	
CLIR SETTING	**6*X#	X: option, from 0 to 2 0= the sending of your number to the called user depends on the settings of the telephone operator 1= your number is not sent to the called user 2= your number is sent to the called user
	**16#	Your number is not sent for a single call
	**17#	Your number is sent for a single call
ROAMING SETTING	**5*1#	Enabling
	**5*0*XXX*Y...Y#	Disabling XXX: MCC of your telephone operator Y...Y: MNC of your telephone operator (in case 4G.evox registers with a different provider than the programmed, it is not possible to make or receive any calls)
	Default: roaming enabled	
LIFTRACK DATA NOTIFICATIONS ON E-STANT WEB	**0061*XX#	Notification frequency XX: option from 00 to 99 00= notifications disabled, 01= 15 minutes, 02= 30 minutes, 03= 45 minutes, 04= 1 hour, etc. 96 (= 1 day) factory default

PROGRAMMING VIA TELEPHONE		
DATA NOTIFICATIONS OF BATTERY / EXTERNAL POWER ON E-STANT WEB	**02*X#	X: option, from 0 to 1 0= notifications disabled 1= notifications enabled
	Instructions to use e-stant web can be downloaded at the following link: http://webshare.esse-ti.it/guide.zip	
NOTIFICATION TELEPHONE NUMBER SETTING	**40*X...X*X...X#	X...X: telephone number appointed for SMS notifications of SIM card expiration, external power failure/restore, 4G LTE/UMTS/GSM network restore, low-battery, dead battery, replaced battery
	**40#	Deleting
ADMINISTRATOR TELEPHONE NUMBER SETTING	**18*X...X*X...X#	X...X: telephone number with country code (if set, it is the only number from which programming via SMS is allowed)
	**18#	Deleting
PROGRAMMING PASSWORD SETTING	**19*X...X*Y...Y*Y...Y#	X...X: old password (max. 3 digits) Y...Y: new password0 (max. 3 digits) 0 factory default
SIM CARD EXPIRATION CONTROL ⁽¹⁾	**53*X...X#	Enabling X...X: days before SIM expiration, from 1 to 330
	**53*0#	Disabling
	Default: control disabled	
BATTERY CHECK ⁽²⁾	**5X#	X: option, from 0 to 1 0= control enabled 1= control disabled
	**52*X#	X: option, from 0 to 7 0= 7 h 1= 6 h and 30' 2= 6 h 3= 5 h and 30' 4= 4 h 5= 2 h and 30' 6= 1 h and 30' 7= 1 h (minimum number of operating hours, in idle mode, guaranteed by the battery charge; below this threshold, a notification SMS is sent out)

PROGRAMMING VIA TELEPHONE		
EXTERNAL POWER FAILURE CONTROL ⁽³⁾	**81*XXYY#	XX: minutes of external power failure, from 01 to 99 YY: minutes of external power restore, from 01 to 99
	**81*0#	Disabling
	Default: control disabled	
AUTOMATIC CONVERTER OF DIALED TELEPHONE NUMBER ⁽⁴⁾	**26*X...X*Y*Z...Z*Z...Z#	ENTERING NUMBERS TO CALL X...X: programming password Y: table position, from 1 to 6 Z...Z: telephone number
	**26*X...X*Y#	DELETING NUMBER TO CALL X...X: programming password Y: table position, from 1 to 6
	**26*X...X*#	DELETING ALL NUMBERS TO CALL X...X: programming password
	**25*X...X*Y*Z...Z*Z...Z#	ENTERING DIALED NUMBERS X...X: programming password Y: table position, from 1 to 6 Z...Z: telephone number
	**25*X...X*Y#	DELETING DIALED NUMBER X...X: programming password Y: table position, from 1 to 6
	**25*X...X*#	DELETING ALL DIALED NUMBERS X...X: programming password
TRANSMITTER GAIN ADJUSTMENT	**10*X#	X: value, from 1 (min.) to 7 (max.) 4 factory default (do not change them unless it is strictly necessary)
RECEIVER GAIN ADJUSTMENT	**11*X#	X: value, from 1 (min.) to 5 (max.) 1 factory default (do not change them unless it is strictly necessary)
VOICE CALLS CODEC SETTING	**15*X...X#	X: option, from 0 to 128 0= all codecs enabled 1= FR enabled 2= EFR enabled 4= HR enabled 8= AMR-FR enabled 16= AMR-HR enabled 32= GSM-AMR-WB enabled 64= UMTS-AMR-NB enabled 128= UMTS-AMR-WB enabled
COMMUNICA- TION TECHNOLOGY SETTING	**33*X#	X: option, from 0 to 6 0= GSM 1= GSM / UMTS 2= UMTS 3= LTE 4= UMTS / LTE 5= GSM / LTE 6= GSM / UMTS / LTE

PROGRAMMING VIA TELEPHONE		
COUNTRY SETTING	**09*X...X#	X...X: country calling code of the country where the gateway is installed
	Default: automatic country setting	
RESTORING DEFAULT SETTINGS	**99#	Restoring factory default does not modify the programming password and the settings entered for the "Automatic converter of selected telephone number
RESET	**98#	Resetting the 4G.evov does not modify its programming profile

(1) SIM card expiration control

If the SIM card expiration control is enabled, when the preset days have passed, a notification SMS is sent with the following text message: "*SIM expiring*".

Note: the days internal counter stops when the 4G.evov is powered off and restarts at the next power on.

(2) Battery check

If the battery check is enabled, in case of power failure 4G.evov constantly checks the battery status. When the charge goes below the previously-programmed threshold ensuring the minimum number of operating hours in idle mode, a notification SMS is sent with the following text message: "*Low battery*". 4G.evov sends out one notification SMS only. A new SMS will be sent out if the charge status rises and goes again below the previously-set threshold.

The built-in backup batteries ensure 8 operating hours in idle mode and 2 operating hours in conversation mode.

If the battery check is enabled, every 15 days 4G.evov controls the integrity of the battery. If the battery is found dead or damaged, a notification SMS is sent with the following text message: "*Dead battery*".

If the battery check is enabled, 4G.evov detects the presence of the battery. If the battery is absent or in case of disconnection, a notification SMS is sent with the following text message: "*Dead battery*".

When the battery is reconnected (or replaced, if found damaged), a notification SMS is sent with the following text message: "*Replaced battery*".

(3) External power failure control

If the control on external power failure is enabled, 4G.evox constantly controls the external power supply (100-240 Vac or 12 Vdc). If the external power failure lasts longer than the preset time interval, a notification SMS is sent with the following text message: “*External power failure*”.

If the external power supply is restored for a time interval equal to the preset threshold a new SMS will be sent with the following text message: “*External power restored*”.

(4) Automatic converter of dialed telephone number

If the function is enabled 4G.evox, instead of calling the telephone number dialed from the connected telephone (autodialer or other telephone device), forwards the call to a previously set number.

It is possible to pre-set up to 6 telephone numbers to call, each of which can be combined, through programming and / or automatic learning procedure, a dialed number.

When dialed number is not associated with any preset number, the call will be automatically forwarded to the first preset telephone number.

Note: to enable the “Automatic converter” service, you simply need to preset one telephone number; to disable this service, all preset telephone numbers must be deleted.

*Example:
preset table:*

Position	Dialed number (code 25)	Preset number (code 26)
1	3331234567	0717506065
2	3339876543	0717506066
3	0733434343	0717506067
4	0733445566	0717506068
5	0733778899	0717506069
6	0733001122	0717506070

- when dialing the telephone number 3331234567, 4G.evox will make a call to 0717506065
- when dialing the telephone number 3339876543, 4G.evox will make a call to 0717506066
- etc.
- when dialing any number not included in the “Dialed number” column, 4G.evox will send a call to the first telephone number included in the “Preset number” column.

Manual matching procedure

- Enter the number to be called in a table location using programming code 26.
- Enter the dialed number, to be associated, in the same table location using programming code 25.

Automatic learning procedure

The auto-learning procedure allows to match automatically each preset number with the numbers dialed by the connected telephone (autodialer or other telephone device) with 4G.evov.

- Enter the number to be called using programming code 26.
- Dial a telephone number by the connected telephone (autodialer or other telephone device) with 4G.evov.

4G.evov will check if the dialed number is already matched with a preset telephone number.

If so, it will send a call to the preset number.

If not, it will match the dialed number to the first available preset number and will make a call to it.

In case there are not available preset numbers, but it's still possible to make associations, the dialed number will be automatically matched with the first preset number.

In case all 6 possible associations have been effected, the call will be sent to the first preset number.

An SMS containing the dialed number and the preset number is sent out to the administrator number (if present) upon creating any new matching. An SMS is also sent out every time a different selection from the 6 preset ones is effected.

PROGRAMMING VIA SMS

Programming via SMS is possible by any mobile phone or other device supporting SMS. In case the administrator number has been previously set, programming via SMS is only allowed from such telephone number. An SMS notifying that programming has been completed will be sent back by 4G.evovx to the same telephone number that forwarded the programming SMS.

WARNING

Programming outgoing SMS from the Internet may not be successful if the requested format is not respected.

Message format

The message format is required to be as follows:

ET-IL1*xxx#c.cc..cc..c

where:

ET-IL1 programming string start

*xxx# programming password string (default xxx = 0)

c..c programming string as per table below

PROGRAMMING / READING	CODE (C..C)
Telephone line voltage	61*X#
Reading telephone line voltage	61R
Use mode	2X#
Reading use mode	2R
Inter-digit dialling time	8*X#
Reading inter-digit dialling time	8*R
Clock enabling	7*1*GGMAA*HHMM#
Clock disabling	7*0#
Clock enable reading	7*R
CLIR permanent setting	6*X#
Reading CLIR permanent status	6*R
CLIR temporary activation	16#
CLIR temporary deactivation	17#
Enabling roaming service	5*1#
Disabling roaming service	5*0*XXXY...Y#
Reading roaming service status	5*R
LifTrack notifications on <i>e-stant web</i>	0061*XX#
Reading LifTrack notifications on <i>e-stant web</i>	0061R
Enabling battery / external power notifications on <i>e-stant web</i>	02*1#
Disabling battery / external power notifications on <i>e-stant web</i>	02*0#
Reading e-stant web battery / external power notifications status	02R
Setting telephone number for notification service	40*X...X*X...X#
Deleting notification number	40#
Reading notification number	40R
Setting administrator number	18*X...X*X...X#
Deleting administrator number	18#

PROGRAMMING / READING	CODE (C..C)
Reading administrator number	18R
Setting programming password	19*X...X*Y...Y*Y...Y#
Enabling SIM card expiration control	53*X...X#
Disabling SIM card expiration control	53*0#
Reading SIM card expiration control status	53R
Battery check enabling	50#
Battery check disabling	51#
Reading battery check status	5R
Low-battery check minimum value	52*X#
Reading low-battery minimum value	52R
External power failure control enabling	81*XXYY#
External power failure control disabling	81*0#
Reading external power failure control status	81R
Entering preset number	26*X...X*Y*Z...Z*Z...Z#
Deleting preset number	26*X...X*Y#
Deleting all preset numbers	26*X...X*#
Reading preset number	26*X...X*YR
Entering dialed number	25*X...X*Y*Z...Z*Z...Z#
Deleting dialed number	25*X...X*Y#
Deleting all dialed numbers	25*X...X*#
Reading dialed number	25*X...X*YR
Transmitter gain setting	10*X#
Reading transmitter gain	10R
Receiver gain setting	11*X#
Reading receiver gain	11R
Voice calls codec setting	15*X...X#
Reading voice calls codec	15R
Communication technology setting	33*X#
Reading communication technology	33R
Country setting	09*X...X#
Reading country setting	09R
Restoring default settings	99#
Reset	98#
Reading mobile network signal level	30#
Reading battery level	91#
Reading days to SIM card expiration	54#
Reading advanced device and radio cell parameters	90

For each programming refer to "Programming via telephone" table.

Example:

it is required to enable battery check and to set the telephone number for notifications.

Outgoing message text:

*ET-IL1*0#50#40*X..X*X...X#*

Notification message format

The format of the message notifying the user or the administrator who previously sent out a programming SMS, is the same as the programming message format.

SMS notifying an accepted command

ET?IL1*xxx#c..c

SMS notifying a rejected command

ET?IL1*xxx#c..cERR

Example:

outgoing SMS to enable battery check and to set the following incoming notification number 3330123456.

Outgoing message text:

*ET-IL1*0#50#40*3330123456*3330123456#*

Message text notifying accepted command:

*ET?IL1*0#50#40*3330123456*3330123456#*

SERVICES

INCOMING CALLS

Allows you to answer incoming calls.

Upon receiving a phone call, the LED indicating the line status (white) will blink shortly 4 times every 4 seconds as described at chapter “Signals” (see page 33).

If a telephone is connected to 4G.evox, it will be ringing.

- Pick up the handset to answer the call.

The LED indicating the line status (white) will light up steadily and the communication with the calling party will be set up.

OUTGOING CALLS

Allows you to dial over the mobile network.

If 4G.evox is connected to a PABX, autodialer or other telephone device, please refer to the relevant instructions.

If 4G.evox is connected to a telephone:

- Pick up the handset.

The LED indicating the line status (white) will turn on and the dialling tone will be heard.

- Dial the telephone number to be called.

Note: once you have dialled the number, you can either press # to send the number immediately, or you can wait for the call to be automatically forwarded once the inter-digit dialling time has elapsed (by default 5 seconds).

Note: in the event you receive the dissuasion tone picking up the handset, check if the signal is present and make sure the SIM card is working correctly.

MEASURING THE SIGNAL LEVEL

This procedure allows you to check the 4G LTE/UMTS/GSM signal level through your telephone.

- Lift the handset and dial the code ****30#**.
- Wait for the signal reading.

4G.evovox will send a number of short tones corresponding to the signal level:

Tones	Quality
No signal	No signal
1 Tone	Low
2 Tones	Medium
3 Tones	Good
4 Tones	High

Since the signal can be subject to variations, we recommend repeating this procedure, 2 or 3 times a few seconds apart, in order to have a reliable measurement.

Note: in case of low signal, we recommend installing the gateway in a different area with a better signal.

Note: if you receive the “no signal” tone, it means that the gateway has not been registered correctly by the provider. We recommend trying again after a few moments, and in case of no result, make sure that the SIM card is working correctly.

READING THE BATTERY STATUS

This procedure allows you to check the battery status through your telephone.

- Lift the handset and dial the code ****91#**.
- Wait for the battery status reading.

4G.evovox will send a number of short tones corresponding to the guaranteed number of operating hours in idle mode:

Tones	Hours in idle mode
No tones	Absent or damaged battery
1 Tone	1 hour
2 Tones	2 hours
3 Tones	up to 7 hours
4 Tones	more than 7 hours

READING THE DAYS MISSING TO SIM CARD EXPIRATION

This procedure allows you to check how many days until the SIM card expiration.

- Lift the handset and dial ****54#**.
- After the confirmation tone hang up.

After receiving the request, the gateway will send an SMS to the number programmed to be alerted.

The outgoing message text is the following: *"Days to upload reminder: xxx"*.

The request will not be executed (an error tone will be received) if the SIM card expiration control is disabled, if the notification number to be alerted has not been previously entered or if the gateway is not correctly registered to the 4G LTE/UMTS/GSM network.

READING ADVANCED DEVICE AND RADIO CELL PARAMETERS

This procedure allows you to check advanced parameters of the device and the radio cell.

- Send the following SMS to 4G.evox:

ET-IL1*xxx#90#

where:

ET-IL1 programming string start

*xxx# password string (default xxx = 0)

4G.evox will send one or two SMS to the number that sent the request with the following data:

String (the values shown are for illustrative purposes)	Meaning
ET?IL1*XXX#904GEVOX*	String start
311010001 Feb 17 2020 14:55:12	4G.evox software version
LE910C1-EU	Radio module
25.21.220-POF.221803MOF.220010POF.221803	Radio module data
IMEI: 355001097253180	IMEI code
ACT:4G	AcT (Access Technology)
MCC:222	MCC (Mobile Country code)
MNC:01	MNC (Mobile Network Code)
TAC:4EEC	TAC (Tracking Area Code) LAC (Location Area Code)
CELL:C44262B	CELL (Cell ID)
RSRP:-93	RSRP (Reference Signal Received Power)
RSRQ:-12	RSRQ (Reference Signal Received Quality)
POW or BATT	POW (external power supply present) BATT (external power supply absent)
ONH or OFH	ONH (line not in use) OFH (linea in use)
RM:YES or RM:NO	RM:YES (Roaming enabled) RM:NO (Roaming disabled)
VOLTE	(if present, 4G.evox connected in VoLTE)

LIFTRACK

For configuration and use of the 4G.evov in conjunction with LifTrack please refer to the guides *LifTrack* and *e-stant web* available from the following Internet address:

<http://webshare.esse-ti.it/LifTrack.zip>

SIGNALS

TONES

Dialling



It indicates that 4G.evovx is ready for dialling

Dissuasion



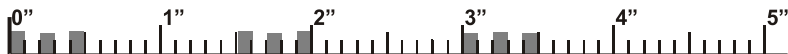
It indicates that 4G.evovx has not properly registered with the mobile provider or a delay in dialling or the end of conversation or an access to services not permitted

Busy



It indicates that the called party is busy

Confirmation



It indicates that the requested service or programming has been accepted

Error



It indicates that the requested programming has not been accepted

Roaming



Roaming disabled

4G LTE/UMTS/GSM signal level



Low signal level



Medium signal level



Good signal level



High signal level



No signal

CALLS SIGNALS



It indicates an incoming call

LED

Device status indicator LED (RED)



It may indicate that 4G.evox has not been correctly registered with the network, the SIM card is protected by the PIN code or other problems



It indicates 4G.evox is correctly registered to the network

Data transmission indicator LED (YELLOW)



It indicates data transmission in progress

Power supply status indicator LED (BLUE)



It indicates that the external power supply is connected and the battery has max capacity charge



It indicates that the external power supply is connected and the battery has good capacity charge



It indicates that the external power supply is connected and the battery has medium capacity charge



It indicates that the external power supply is connected and the battery has low capacity charge



It indicates that the external power supply is connected and the battery is either disconnected or dead



It indicates that the power supply is disconnected and the battery guarantees more than 7-hours operation in idle state



It indicates that the power supply is disconnected and the battery guarantees 7-hours operation in idle state



It indicates that the power supply is disconnected and the battery guarantees 2-hours operation in idle state



It indicates that the power supply is disconnected and the battery guarantees 1-hour operation in idle state

4G LTE/UMTS/GSM signal indicator LED (GREEN)



No signal



Low signal level (2G/3G network)



Medium signal level (2G/3G network)



Good signal level (2G/3G network)



High signal level (2G/3G network)



Low signal level (4G network)



Medium signal level (4G network)



Good signal level (4G network)



High signal level (4G network)



It indicates the SIM card is protected by the PIN code



It indicates the SIM card is protected by the PUK code

Line status indicator LED (WHITE)



It indicates that the line is in use



It indicates that the line is not in use



It indicates an incoming call

PROBLEM-DETECTION GUIDE

This section shows a list of solutions to the most commonly encountered problems.

STATE	CAUSE	SOLUTION
All LEDs are unlit	4G.evov not supplied	Check power supply
The red LED lights up all the time	SIM card not present or not correctly inserted	Correctly insert the SIM card in the dedicated location
	SIM card locked by PIN code	Disable the PIN code through your mobile phone
	SIM card expired or damaged	Check the SIM card operation on your mobile phone
	Unconnected antenna or damaged connection cable	Check the antenna connection and the correct operation of the cable
	4G LTE/UMTS/GSM signal absence	Check the signal strength by your mobile phone
	Insufficient power supply	Check the power supply
	Generic SW problem	Switch off and back on the gateway
The red LED flashes, but the green LED is unlit	4G LTE/UMTS/GSM signal level is too low to allow outgoing calls	Move the gateway and the antenna into a better position
The autodialer connected to 4G.evov does not detect the telephone line	Telephone line voltage on TEL terminals is insufficient	Increase the voltage by the programming "Telephone line voltage"
The autodialer connected to 4G.evov does not succeed in forwarding a call	The autodialer performs a tone detection over the telephone line	Set use mode 2 by the programming "Use mode"

EU DECLARATION OF CONFORMITY

Hereby, Esse-ti S.r.l. declares that the equipment type 4G.evov is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available from the following Internet address:

<https://www.esse-ti.it/en/dichiarazioni-di-conformita>

4G.evovx

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