ITG 201 LoRa Outdoor

Wide coverage IoT Gateway for external environments

Main characteristics

- Outdoor protection and optional external waterproof standard antennas
- Ethernet port for availability of data transmission
- Wireless communication module with LoRaWAN protocol endpoints
- GSM module for two 3G or 4G SIM cards*

* *Optional items carry an additional cost.*

Applications

- Solution for integrators subject to special demands for monitoring environments
- Monitoring of industrial, corporate, hospital, agribusiness and Smart City environments, among others, in order to read data from climatic sensors for the purpose of supervising environments

Overview

The ITG 201 LoRa Outdoor is a gateway designed to integrate IoT solutions. It manages information received from connected sensors and transmits it to the client's external servers through means of a secure HTTPS or MQTT integration protocol. This information may be used by various applications developed by the client, allowing a variety of monitoring platforms to be created using data collected by the sensors.

Its system is compatible with the LoRaWAN protocol and offers NetworkServer (internal or external) connection management.

ITG 201 LoRa Outdoor complements the use of the gateway in outdoor environments due to the fact that it is a completely waterproof product. ITG 201 LoRa Outdoor has an OLED display with 4 internal buttons, allowing it to be customized to display system information and offer support for each operating scenario by providing the necessary information.

3G or 4G guaranteeing the sending of data

The ITG gateway line allows a 3G or 4G module to be installed, which accepts up to two Sim Cards in order to provide a fallback system. This module increases the guarantee of information delivery, creating a system with greater reliability. The mobile data network (3G or 4G) in the first scenario is normally used when the Ethernet network is unavailable and a second option is to use the gateway disconnected from a local network, sending data only via 3G or 4G module (***optional item***).

Wireless communication

ITG 201 LoRa Outdoor's wireless communication module comes with endpoints that provide scalability. This module makes it possible to increase the number of sensors that are read and extend the monitoring area by installing sensors at locations positioned further away from the gateway.

The module operates using the LoRaWAN protocol and provides NetworkServer (internal or external) connection management. This LoRa communication module allows the gateway to monitor extensive areas, allowing it to operate in verticals for Agribusiness, Smartcity, Industry 4.0, Corporate, Clinical / Hospital, among other environments.

Compatibility

ITG 201 LoRa Outdoor is compatible with the LoRaWAN protocol and can receive data from a variety of devices using LoRa technology. Khomp offers several compatible devices, such as the NIT 20LI and NIT 21LI endpoints (as well as the attached relay, ground and current extensions), the IoT Photocell (ITP 100/101/110/111) meter for reading water and gas meters (ITC 100), LoRa IoT Endpoints (NIT K718WA-LO, NIT K718WBA-LO, NIT K718E-LO, NIT K72623-LO, NIT K602A-LI, NIT KA0711-LI and NIT KA0708-LI), among others.

Data is sent to the cloud using the MQTT or HTPPS protocol.

The ITG 201 LoRa Outdoor is able to access the Internet through an Ethernet wired connection or the 3G or 4G mobile network, thereby increasing the reliability of data delivery.

Available models

- **ITG 201 LoRa Outdoor Everynet America**.
- **ITG 201 LoRa Outdoor Everynet Europa**.
- **ITG 201 LoRa Outdoor Khomp America** (for private networks).
- **ITG 201 LoRa Outdoor Khomp Europa** (for private networks).

ⓘ **Note**	• **Everynet Ameria/Europa** models come with the "LoRa Antenna/Module" and "Fastening support kit". • **Khomp America/Europa** models are available with the "LoRa Antenna/Module" and "Fastening support kit" (optional items).

Waterproof connectors

Network, antenna, and feed connectors are provided with a Waterproof protection rating (protection against dust and sprays of water from any direction).

SIM card configuration

SIM card operability is an extremely important aspect of ITG gateway function, not only in terms of network quality and stability, but also in relation to the data plan associated with the chip and its proper configuration within the gateway.

Network quality is a very particular characteristic of the operator (supplier) and the location at which the gateway is installed. For example, it is common to encounter situations in which the ITG works more stable with "carrier1" and is less stable with "carrier2". The system administrator is responsible for using this information to verify and validate the SIM card prior to initiating the respective project.

With regards to the data plan, providing an initial estimate of the data plan most suitable for the project is not a simple task. It is common for remote access to be required for the purpose of monitoring / configuring the endpoint network and the ITG gateway itself during the first few weeks in order to stabilize the system. For more information on the traffic that is likely to be generated by the gateway, please refer to the topic "Data Consumption" contained in this data sheet.

The "APN", "user" and "password" associated with the SIM card must be correctly specified. The supplier of the SIM card that you have purchased must indicate the SIM card's application type, the type of network or data plan, the region, and other information regarding the SIM card.

Khomp has tested and approved the SIM cards described below. When these SIM cards are used, they must be configured using the following table:

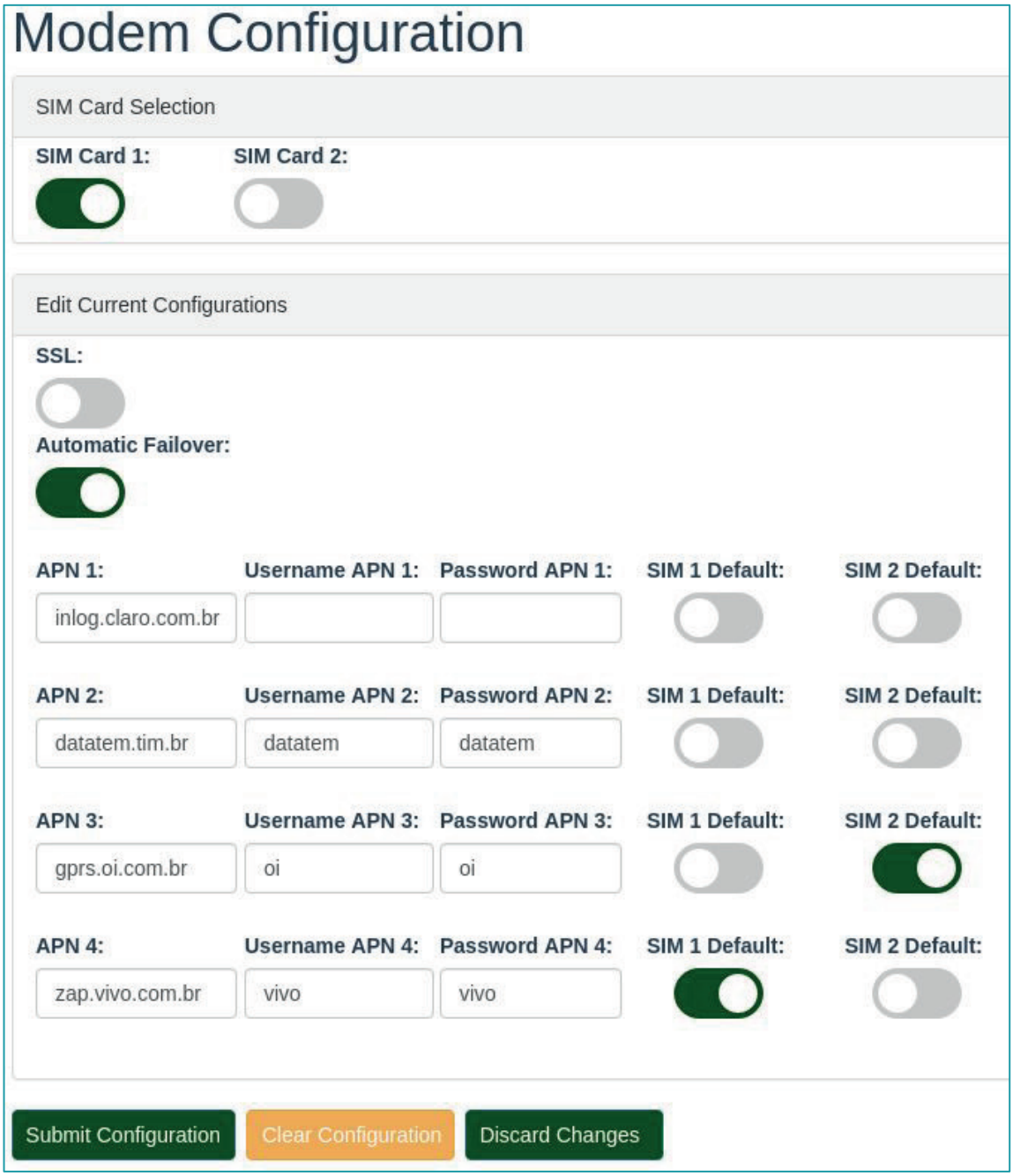
Provider	Model	APN	Usuer	Password
Algar	M2M IoT	algar.br	algar	algar
Linksfield	M2M	lf.br	lf	lf
NLT	2G, 3G or 4G	nlt.com.br	nlt	nlt
NLT *	SIM Card M2M/IoT Triplo Corte	nlt.com.br	nlt	nlt
Arqia	IoT GO	m2m.arqia.br	arqia	arqia
Arqia	Broadband	bl.arqia.br	arqia	arqia
Arqia	IoT Connect	iot4u.br	arqia	arqia
Arqia	Move	iot4u.br	arqia	arqia
Vivo	3G or 4G	zap.vivo.com.br	vivo	vivo
Vivo	M2M	inlog.vivo.com.br	datatem	datatem
Claro	3G or 4G	claro.com.br	claro	claro
Claro	M2M	inlog.claro.com.br	claro	claro
Tim	3G or 4G	tim.br	tim	tim
Tim	M2M	datatem.tim.br	datatem	datatem

***** *Homologated SIM cards based on firmware version* ***1.1.0.1***

Due to the wide range of SIM card models available on the market, it is extremely important that the ITG gateway administrator confirms whether the information in the table can be used by the SIM card purchased with the chip supplier. This is due to the fact that configuring the wrong APN may result in the gateway not being operable / accessible via the mobile data network or providing access that is slower than expected, which compromises the ITG's performance.

The APNs previously configured in the gateways are merely intended to provide an example. Delete this information (in cases in which it is not useful) and configure the information for SIM cards installed in gateways.

	Note	Restarting the ITG must be restarted after any information associated with the modem has been altered in order for the new configurations to become effective.



Data consumption

This section provides a simple example of a scenario involving LoRa, which may be used as a base for calculating the approximate volume of data that will be sent to your project's Cloud.

	LoRa Technology
Endpoint	NIT 21LI
Number of endpoints	5
Frequency at which messages are sent to the Cloud	5 minutes
Daily consumption	± 4.5 Mb
Weekly consumption	± 31.5 Mb
Monthly consumption	± 135 Mb

Technical specifications

Physical/Environmental

- RJ45 fast Ethernet 10/100 Mbps port
- External kit and power plug with a waterproof protection rating, external LoRa and GSM antennas with waterproof protection (optional)
- Gross weight: 4.05 kg
- Net weight: 2.20 kg
- Dimensions: 250x190x86 mm
- Transport box dimensions: 440x340x140 mm
- Power adapter:
  - Input: 100-240 VAC, 50/60 Hz
  - Consumption: 5 W
  - Output: 12 VDC
- Operating temperature: -20 to 50 ºC
- Storage temperature: -40 to 85ºC
- Operating Humidity: 10-90% (non-condensing)
- Storage humidity: 10-90% (non-condensing)
- Wind Exposure Area (AEV → *Área de Exposição ao Vento*): 0.05184 m²
- Internal characteristics:
  - OLED display with 4 ITG 200 Indoor buttons
  - Reset button
  - Power LED
  - Equipment status LED

Waterproof antennas

LoRa antenna:

- Omnidirectional LoRa antenna
  - America 915 MHz
- Operating frequency:
  - From 824 MHz to 960 MHz
- Gain: 6 dBi
- Impedance: 50 ohms
- Type N male terminal
- Polarization: vertical
- Weight 280 g
- Dimensions: 695x20 mm

GSM antenna* **(optional)**:

- Omnidirectional antenna
- Operating frequency:
  - From 680 MHz to 2700 MHz
- Gain: 4 dBi
- Impedance: 50 ohms
- Type N male terminal
- Polarization: vertical
- Weight: 96 g
- Dimensions: 250x24 mm

Optional items *

- 4G data module for up to 2 SIM cards
- 3G data module for up to 2 SIM cards
- Waterproof GSm antenna

3G Module* (optional)

- 3G operating bands: B5, B8, B2, B1, B4
- Frequency bands: 800/850 MHz, 900 MHz, AWS1700, 1900 MHz, 2100 MHz
- Throughput (DL / UL):
  - HSPA: 21/5.7 Mbps
  - WCDMA: 384/384 Kbps
  - EDGE: 296/236 Kbps
  - GPRS: 107/85.6 Kbps
- Supports 2 standard Mini SIM cards (2FF)
- Secure integration protocol via HTTPS or MQTT

4G module* (optional)

- Supports 2 SIM cards of the Nano SIM standard (4FF)
- Operating/frequency bands:
- LTE B1: -99.5 dBm (10 MHz)
- LTE B2: -99.9 dBm (10 MHz)
- LTE B3: -99.7 dBm (10 MHz)
- LTE B4: -99.7 dBm (10 MHz)
- LTE B5: -99.9 dBm (10 MHz)
- LTE B7: -99.2 dBm (10 MHz)
- LTE B8: -99.8 dBm (10 MHz)
- LTE B12: -99.8 dBm (10 MHz)
- LTE B13: -99.5 dBm (10 MHz)
- LTE B18: -100 dBm (10 MHz)
- LTE B19: -99.9 dBm (10 MHz)
- LTE B20: -99.8 dBm (10 MHz)
- LTE B25: -100 dBm (10 MHz)
- LTE B26: -99.5 dBm (10 MHz)
- LTE B28: -99.6 dBm (10 MHz)
- LTE B38: -99 dBm (10 MHz)
- LTE B39: -99.5 dBm (10 MHz)
- LTE B40: -99.2 dBm (10 MHz)
- LTE B41: -99 dBm (10 MHz)
- WCDMA B1: -109.2 dBm
- WCDMA B2: -110 dBm
- WCDMA B4: -109.5 dBm
- WCDMA B5: -110.4 dBm
- WCDMA B6: -110.5 dBm
- WCDMA B8: -109.5 dBm
- WCDMA B19: -110.1 dBm
- GSM850: -108 dBm
- EGSM900: -108 dBm
- DCS1800: -107.4 dBm
- PCS1900: -107.5 dBm
- Transfer rate (DL/UL)
  - LTE:
    - LTE-FDD: 150/50 Mbps
    - LTE-TDD: 130/30 Mbps
  - UMTS:
    - DC-HSDPA: 42 Mbps (DL)
    - HSUPA: 5.76 Mbps (UL)
    - WCDMA: 384/384 kbps
  - GSM:
    - EDGE: 296/236.8 kbps
    - GPRS: 107/85.6 kbps

***** *Optional items carry an additional cost. The system requires a minimum of one installed LoRa antenna in order to provide service.*

LoRa module**

- LoRaWAN™ Protocol 1.0.3
- Frequency bands:
  - 915 MHz (USA)
- Each model is provided with a specific frequency band that cannot be altered after purchase
- Channels: 8
- Power:
  - Up to +28 dBm (915 MHz)

Warranties and certification

- Total warranty (legal warranty + Khomp warranty): 1 year
  - Legal warranty: 90 days
  - Khomp Warranty: 9 months
- Anatel Certification
- ISO 9001-certified manufacturer

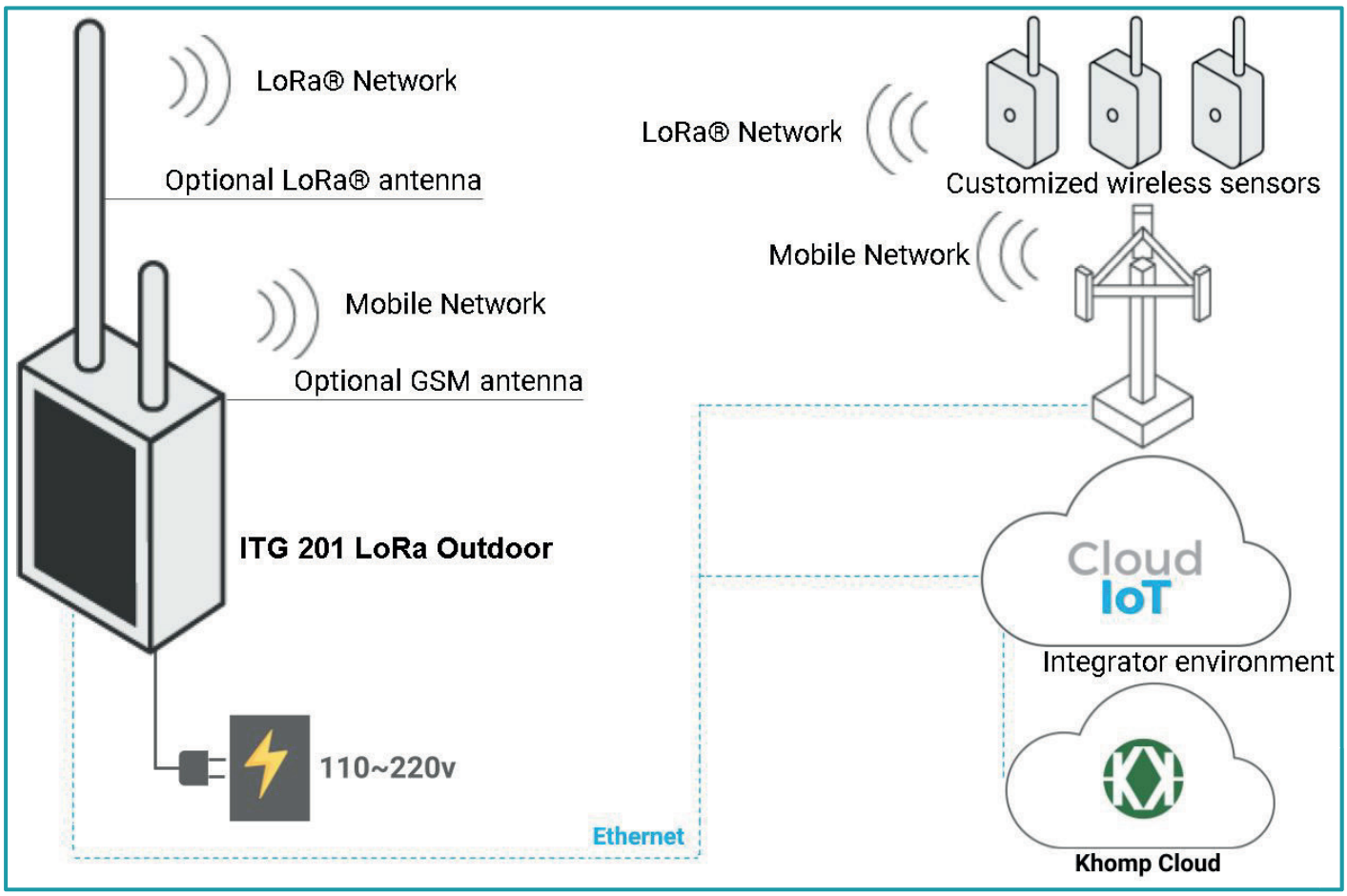
** *The frequency band at which the model operates can only be determined at the time of purchase. For example, in Brazil the model with the American frequency (915 MHz) is used. In Europe the 868 MHz model must be used. The European model does not work in the United States and vice versa.*

Fastening support kit

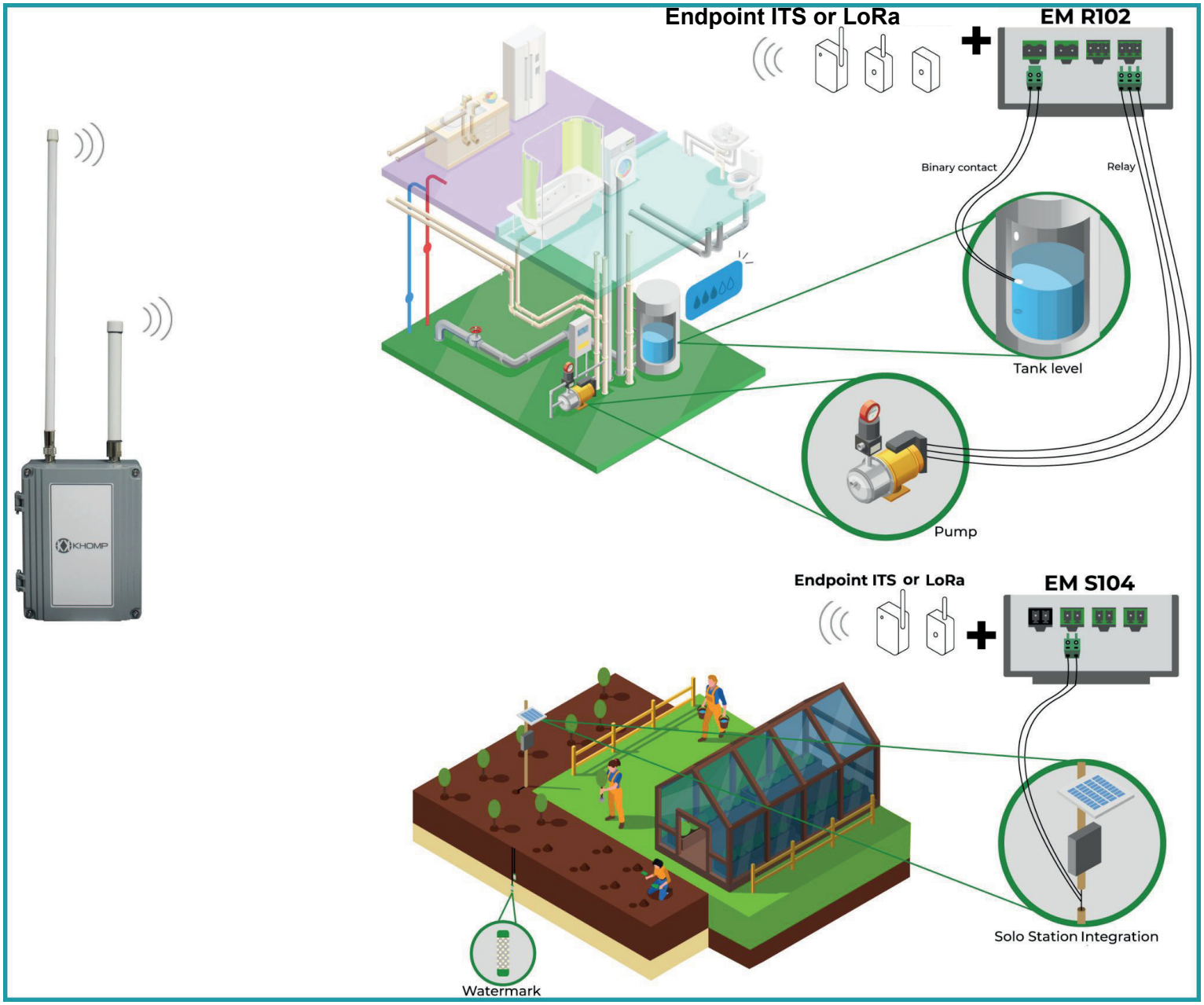
- Stainless steel bracket
- Tube clamps (between 3/4" and 1.1/4")
- Endless thread tube clamps (between 76,2 mm and 101.6 mm)
- Screws and wall plugs for fastening product to walls

Product images

Suggested application



Example of use



"Incorporates the product approved by Anatel under the number 08669-18-03237"

In accordance with Anatel Resolution No. 680/2017: "This product is not protected against harmful interference and may not cause interference to duly authorized systems".

For information on the approved product, access the Web address: https://sistemas.anatel.gov.br/sch

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