Extension module and climatic sensors used in ITS 3G and Endpoint LoRa for monitoring environments

Main features

- Digital connection with LoRa* and ITS 3G Endpoints via I2C
- Allows connection to the Soil Sensor Measurement Extension module
- Contains 2 digital inputs and 1 power output for the weather station and barometer
- Contains 1 analog input for the solar radiation sensor (Pyranometer)
- The rain gauge sensor sends the accumulated rain data
- Anemometer sensor sends wind speed and direction
- The Thermo-hygrometer sensor sends the ambient temperature and humidity
- The Pyranometer sensor sends the level of solar radiation that strikes the site
- The Barometer sensor sends atmospheric pressure

* *LoRa endpoints, in the models: "**NIT 20LI**" e "**NIT 21LI**".*

Applications

- Solution for integrators with special demands for reading climate sensor data to monitor environments
- Data integration for monitoring physical and climatic quantities listed below:
  - Wind direction / speed (Anemometer)
  - Air temperature / humidity (Thermo-hygrometer)
  - Solar radiation (Pyranometer)
  - Rain index (Rain gauge)
  - Atmospheric pressure (Barometer)

Overview

The Climate Extension Module integrates interfaces for climate sensors, enabling the connection of devices with wireless communication.

The solution consists of a central processing module, responsible for reading, decoding and forwarding the information collected from the sensors to the Endpoint LoRa or ITS 3G (responsible for transmission of data over the wireless network).

The agribusiness and smartcity verticals are the markets most focused on this product.

The system is the result of identifying the needs of customers and partners who need to monitor the types of quantities in this project.

Model

Khomp offers the "Climate Extension Module" specified below:

Model	Description
EM W104	Contains 1 analog input for the solar radiation sensor (Pyranometer). Has 1 power outlet for the weather station and barometer.

Technical specifications

Rain gauge sensor (rain index)
- Records the measurement of the level of accumulated rain (in millimeters) every 16 seconds
- Has a bird protection grid (item optional)

Anemometer sensor (wind speed and direction)
- Records speed (average and gust) and angular wind direction every 16 seconds

Thermo-hygrometer sensor (temperature and humidity)
- Records the temperature and humidity at the operation every 16 seconds

Pyranometer sensor (solar radiation)
- Records solar radiation at the operating site. It is connected to an analog input. The LoRa Endpoint or ITS 3G are responsible for data acquisition (period configurable in both)
- Khomp does not offer the Pyranometer sensor among their products for sale
- We recommend using the pyranometer of model SP-110-SS from the manufacturer "Apogee Instruments"

Barometer (atmospheric pressure) sensor
- Records the atmospheric pressure at the operation (configurable registration period)

Power
- Powered via LoRa or ITS 3G Endpoint

Data acquisition
- Wind sensor: 16 seconds
- Rain sensor: 16 seconds
- Temperature / humidity sensor: 16 seconds
- Atmospheric pressure sensor: According to endpoint sampling*
- Solar radiation sensor: According to the endpoint sampling*

* *The sampling period on ITS 3G and the factory default Endpoint LoRa is 300 seconds. The sampling period is configurable on both devices. See the product manual for more details.*

Warranties and certifications
- Full warranty (legal + Khomp warranty): 1 year
- Legal warranty: 90 days
- Khomp Warranty: 9 months
- ISO 9001 certified industry

Input of weather sensors and atmospheric pressure sensor
- Connector: Terminal
- Input voltage: Digital signal up to 3.3 VDC
- Protection: Resettable fuse
- Type of Input:
  - **I2C**, for atmospheric pressure sensor
  - **UART**, for climate sensors

Solar radiation sensor input
- Connector: Terminal
- Power: Auto powered
- Resolution: 0.1 mV
- Input voltage range: 0–400 mV DC
- Protection: Resettable fuse

Climate sensor output
- Average wind speed: 0–118 Km / h
- Wind Direction: 0–359°
- Temperature: -40 to 60 ° C
- Humidity: 10–99%
- Rain Level: From 0-6553,5 mm

Solar radiation sensor output
- Resolution: 1 W/m²
- Units of measurement: W/m²
- Range: From 0–2000 W/m2

Atmospheric pressure sensor output
- Resolution: 1 hPa
- Range: 300–1100 hPa

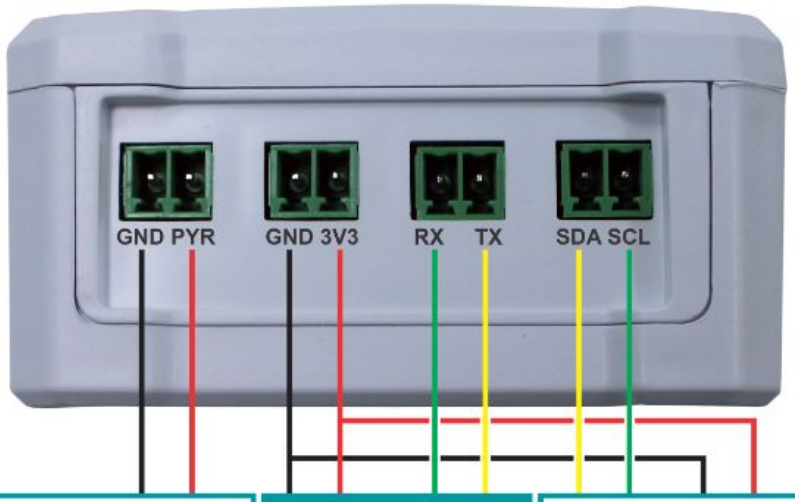
Busbar
- Type: 1²C 100 kHz
- Compatible with:
- ITS 302 (3G), ITS 312 (3G with integrated sensors) and ITS 402 (2G and 4G)
- NIT 20LI and NIT 21LI (LoRa). Compatible with ATC LoRaWAN public network and private networks
- Connectors:
  - One 16-pin male connector
  - One 16-pin female connector

Physical/environmental
- Dimensions:
  - Climate Extension Module: 78x93x42 mm
  - Weather Station: 330x150x280 mm
  - Pyranometer Sensor: 32,61xØ23,50 mm
- Weight:
  - Climate Extension Module: 110 g
  - Weather Station: 805 g
- Operating temperature: -20 to 85 ° C
- Operating humidity: 10–90% (non-condensing)

Everynet interoperability seal

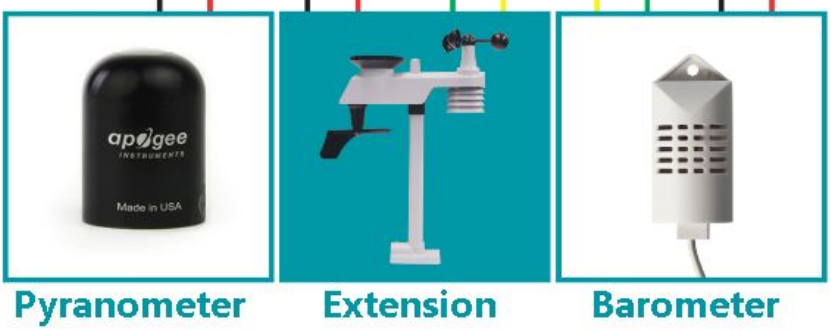
Other product images

Weather sensor connection

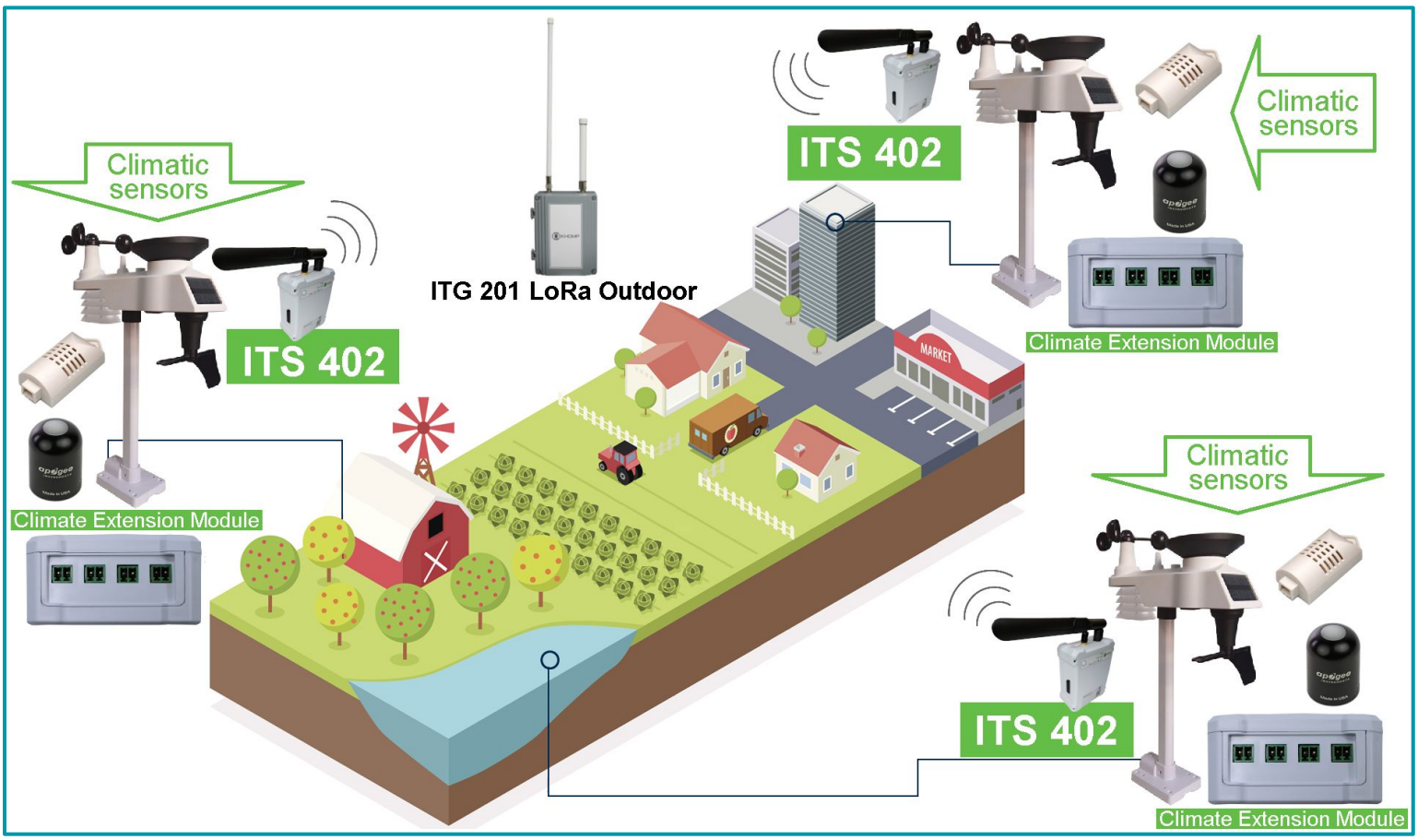


ITS 3G or Endpoint LoRa

List of signs and colors of the wires



Application model



KHOMP
Rua Joe Collaço, 253 - Florianópolis, SC
+55 (48) 3722.2900
comercial@khomp.com