

ZigBee infrared transmitters and receivers with temperature and humidity sensors



Main features

- Designed to receive modulated IR signals at 38 kHz and emit signals from a wide range of modulations
- Stores an infrared command profile with over 80 options
- Allows for commands from air conditioning equipment available on the market
- Includes internal temperature and humidity sensor
- Powered via μ USB, with optional power source*
- Structure for 1-Wire Khomp temperature probe**
- Supports external IR Extension, ensuring exclusive control in the system**
- Supports one dry contact input***

* *Optional items incur additional costs. The optional power source is an essential item to have the product in operation.*

** *Options available only for the NIR 22IR model.*

*** *The dry contact input can be used for reading sensors of this type (sold by Khomp or not).*

Overview

The NIR 20IR and NIR 22IR enable the automation of an entire commercial/industrial environment through solution integration. They are compatible with Khomp's [ITG ZigBee](#) line, utilizing the gateway's API to ensure activation and shutdown of the air conditioning system at the scheduled time (via application).

The NIR 20IR and NIR 22IR work with most market air conditioning models. Their high-power emitter and highly sensitive receiver allow them to operate at a high angle, easily detecting and recognizing commands.

The Infrared (IR) protocol allows the association of the air conditioning system with devices without the need to physically access them (communication is wireless).

The NIR 20IR and NIR 22IR also act as repeaters in the mesh network, capable of relaying messages from other endpoints (such as NIT 2xZI "ZigBee Endpoint" and NIR 10ZI "ZigBee Repeater").

Applications

- Commercial refrigeration control
- Large-scale automation
- Temperature and humidity monitoring
- Energy savings

The NIR 20IR and NIR 22IR use the ZigBee network (IEEE 802.15.4) to communicate with the [gateway](#) and to apply their settings. Among the possible configurations, one example is programming the fan to high airflow and setting the temperature to 17°C. Users can store their desired settings in the NIR 20IR or NIR 22IR. The internal memories of the products store the configurations and record the operating times. These models conduct temperature and humidity readings based on the configured period (default is 5 minutes). The NIR 22IR model supports a [temperature probe](#) (accessory) Khomp 1-Wire, a dry contact input (accessory), and an input for the [IR Extension](#) (accessory).

The IR Extension has two sides: one side receives the IR signal, and the other side emits the IR signal (ensuring it reaches the air conditioner). It allows the NIR 22IR to not be directly in the line of sight of the air conditioner's infrared sensor.

Model and accessories

Khomp offers the NIR 20IR and NIR 22IR and their peripherals with the following characteristics:

Model	Equipment	Description
NIR 20IR	ZigBee Indoor Infrared Control Repeater Endpoint	No entries for extensions
NIR 22IR	ZigBee Indoor Infrared Control Repeater Endpoint with Terminal Block	It has a 1-Wire input for the temperature sensor, an input for dry contact, and a connection for the IR Extension.

Accessories (optional)	Description
IR Extension	Extensão TTL de leitura/emissão do endpoint infravermelho
Temperature Probe	Sonda IoT de temperatura 1-Wire com cabo de 50 cm.
Dry Contact	Binary dry contact extension
Power source μUSB	Option for power supply via μUSB (5 V)

- This equipment is not entitled to protection against harmful interference and cannot cause interference in properly authorized systems.
- This equipment is not suitable for use in household environments, as it may cause electromagnetic interference that requires the user to take measures to minimize these interferences.

Technical specifications

Highlighted Specifications

- Transmission power of 20 dBm
- Transmitter and router Endpoint
- Type: ZigBee / 2.4 GHz
- Up to 15 hops
- Up to 15 directly connected child Endpoints
- Internal antenna

Transmitter Specifications

- Transmit power of 5 watts
- 120-degree radiation angle
- Adjustable power

Receiver Specifications

- 90-degree reception angle
- High sensitivity
- Integrated 38 kHz signal demodulator

Period between transmissions

- Standard: 5-minute period
- Maximum: 1 day and 12 hours
- Minimum: 30 seconds

Power supply

- μ USB: 5 VDC input (optional)
- Consumption:
 - Stand-by (idle mode): 1 W
 - Transmitting IR: 6 W

Compatible Endpoint versions

- **ITG 200 ZigBee:** v2.6.3.0 or higher

Warranties and certifications

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

Thermo-hygrometer sensor (internal sensor)

- Accuracy of 0.5 °C
- Accuracy of 0.5% RH
- Operating temperature: -10 °C to 85 °C
- Operating humidity: 0 to 100% (non-condensing)

Temperature probe (optional)

- Accuracy of 0.5 °C
- Operating range: -55 °C to 125 °C
- 10-bit resolution
- Cable length: 50 centimeters

Dry contact (optional)

- Binary transmission of 0 or 1*

* *Not a voltage input. The dry contact input can be used for reading sensors of this type.*

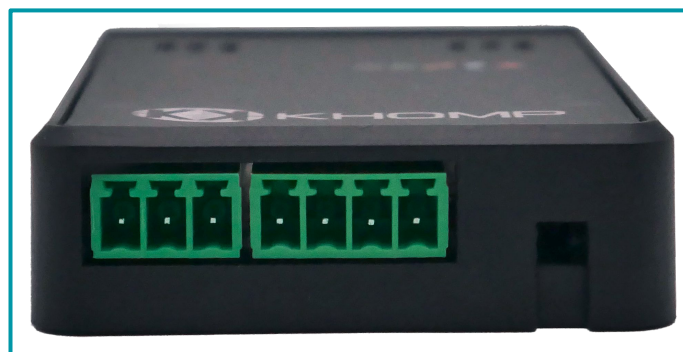
IR extension (optional)

- 180-degree reception angle when placed in front of the controlled device's receiver
- 90-degree reception angle when used as a reception extension
- Integrated emitter with reduced power of 0.5 W
- Integrated demodulator
- Cable length: 50 cm

Physical/Environmental

- Case dimensions (LxWxH): 10x5.5x1.7 cm
- Transport box dimensions: 11.5x10x7 cm
- Net weight: NIR 20IR has 50 grams and NIR 22IR contains 55 grams
- Gross weight: NIR 20IR has 110 grams and NIR 22IR contains 120 grams
- Operating temperature: -10 °C to 85 °C
- Operating humidity: 0–100% (non-condensing)
- Internal multifunctional button
- Attachment: Velcro
- RGB LED with multifunction warning about profile installation, message sending, among others

Side connections



Legend: The side ports of NIR 22IR (connections for [temperature probe](#), [IR Extension](#), [dry contact sensors](#), and [power supply](#)) are observed. The NIR 20IR model only has a connection for the power supply.

Products images and some accessories



Legend: NIR 20IR and NIR 22IR, respectively.

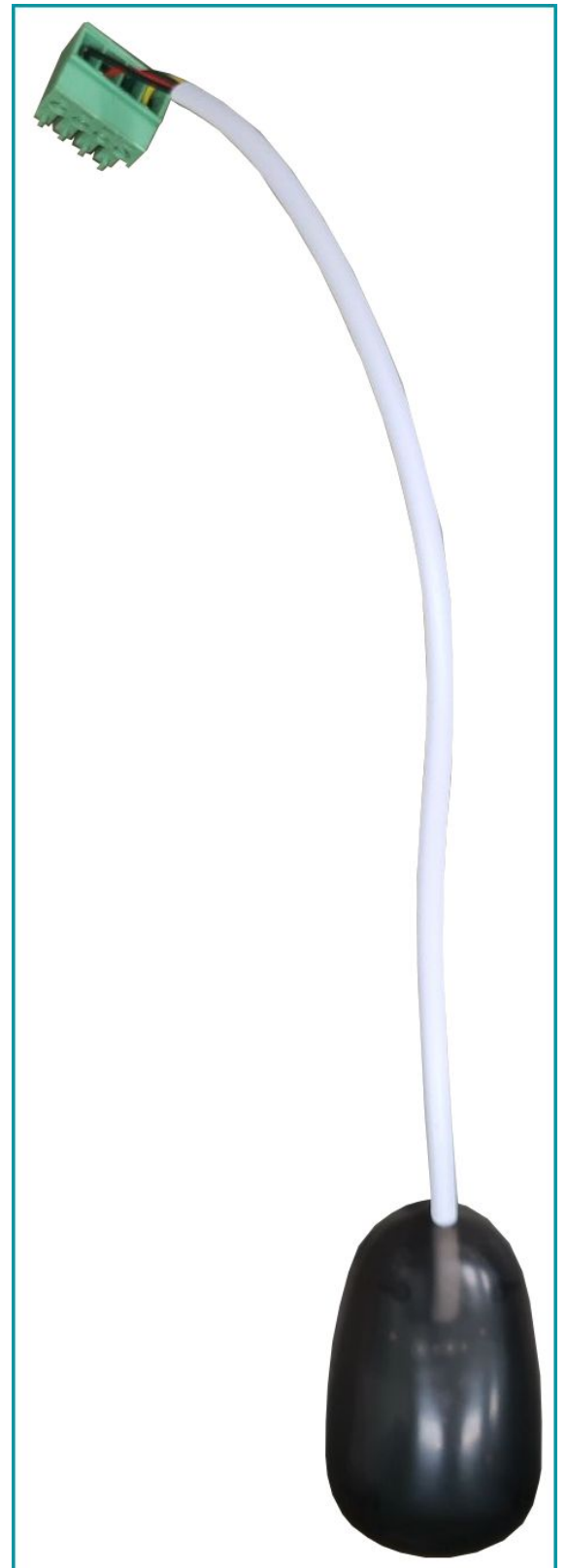


Legend: NIR 20IR and NIR 22IR, Temperature Probe, IR Extension, and μ USB Power Source with cable.

Products images and some accessories



Legend: *Temperature Probe.*



Legend: *IR Extension.*



Legend: *IR Extension connected to NIR 22IR.*

Products images and some accessories

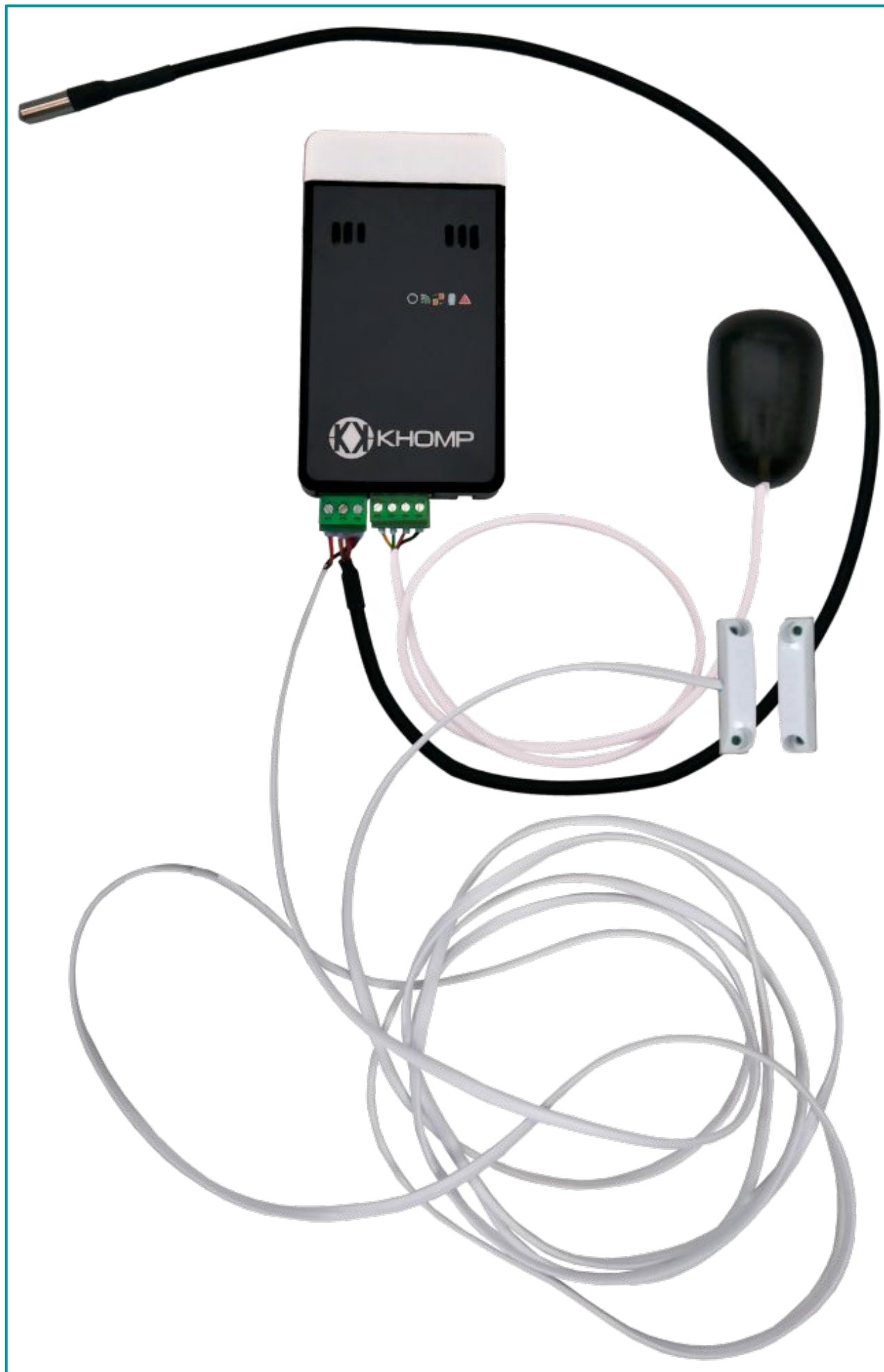


Legend: *Temperature probe* connected to the NIR 22IR.



Legend: *NIR 22IR* connected with the cable to the power source.

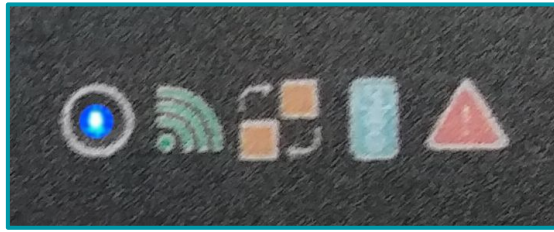
Imagens do produto e de alguns acessórios



Legend; *Extensão IR. NIR 22IR connected with Temperature Probe, Magnetic Contact Probe (dry contact), and IR Extension.*

Front LED

The LED is located on the front of the NIR 20IR and NIR 22IR. The LED is positioned next to the icons for wireless network, data transmission, power, and attention.



Legend: The image indicates the front LED is lit blue.

Application model

NIR 20IR Infrared sensor



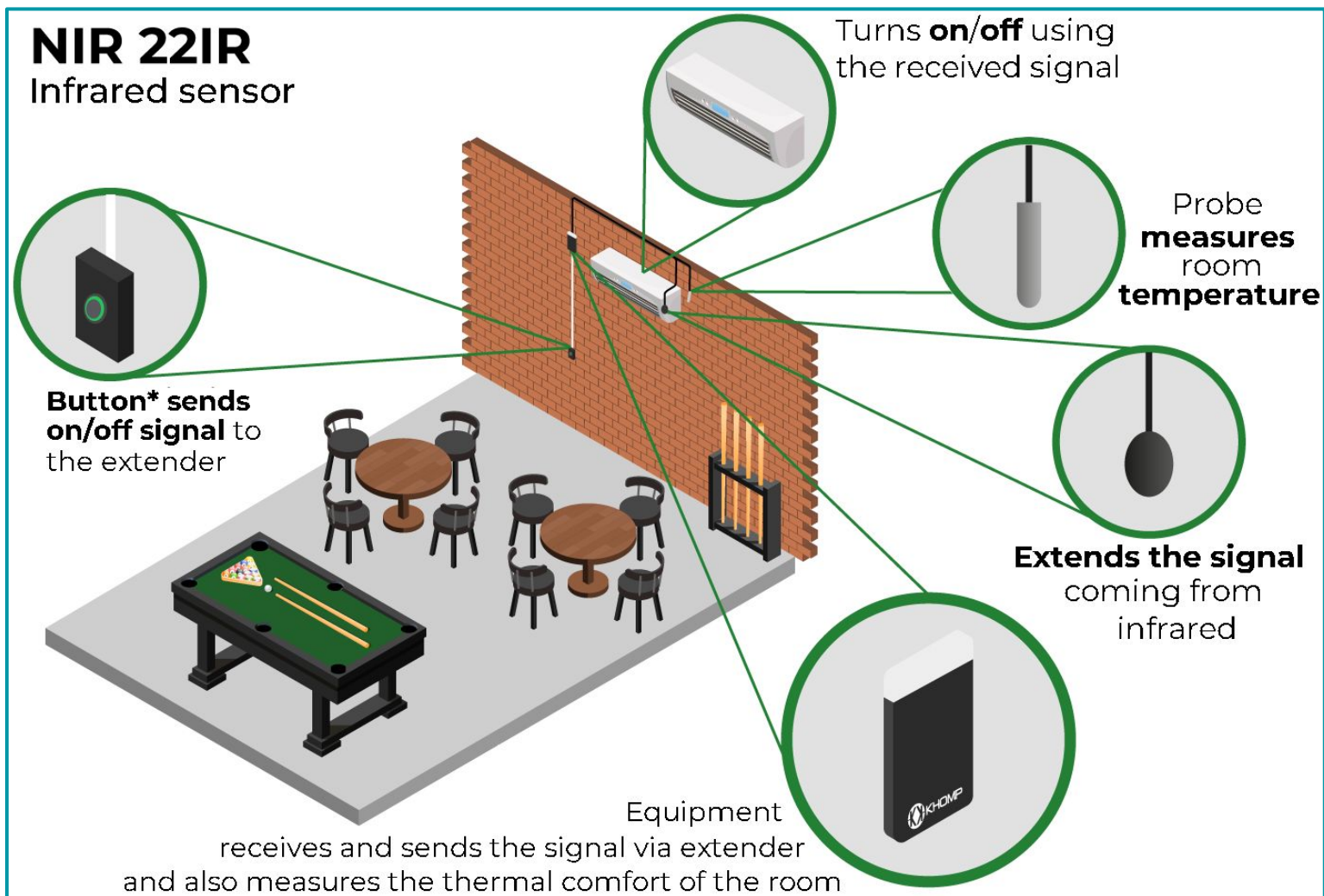
Equipment receives and sends the signal via extender and also measures the thermal comfort of the room

INFRARED SIGNAL



Turns **on/off** using the received signal

Application model



* The button is not provided by Khomp.

The NIR 20IR and NIR 22IR are not capable of integrating with [TagoIO](#).

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- This equipment is not suitable for use in domestic environments, as it may cause electromagnetic interference that requires the user to take measures to minimize this interference.