ThermoSense

NRF Split AC Controller

A clever start to efficient cooling that helps decrease your energy costs.

Product Overview

MachineSens IoT® ThermoSense NRF Split AC controller is a high-tech, plug-and-play intelligent device that offers centralized monitoring and management of heating and cooling system in offices, homes, and apartments. It is designed to work with a wide range of Split AC units.

These IoT-enabled intelligent controllers, compatible with various vendors and designed for most HVAC systems, offer automated and centralized energy management for your property, contributing to a 15% to 20% reduction in energy expenditures.

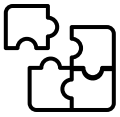
Product Features

Plug-and-play installation
for easy setup

NRF communication
for secure and fast data transmission

Centralized monitoring and control
for efficient management through web app

Scheduling capability
for Energy optimization

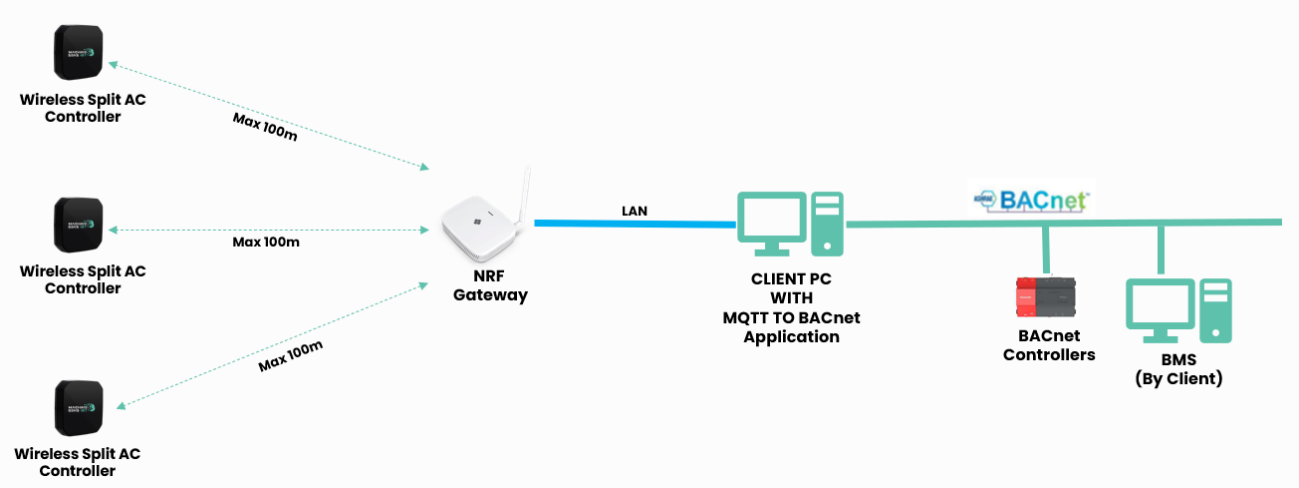


Integratable with existing building management systems (BMS)

Discrete Sensor Interface
for precise monitoring

System Architecture

Our intelligent gateway gathers nearly real-time data from all wireless split AC controllers within its range. It transforms the raw data into a user-friendly JSON format and subsequently publishes it using the MQTT protocol. The data can be transmitted to any local or cloud MQTT broker through Ethernet, LTE (4G), or WIFI.



Specifications

General	
Power Input	5V DC (Micro USB)
Material	ABS Plastic
Operating temperature	-10 °C to +55 °C
Storage temperature	-20 °C to +70 °C
Relative Humidity	10% to 90% (non-condensing)
Environment	Indoor
IP Class	IP20
Mounting Options	Wall Mounted
Dimensions (HxWxD)	99mm x 99mm x 25 mm
Configuration	Via PC software
Sensor Technology	Infra-red
Compatibility	All Split Units featuring independent control of both compressor and fan
Enclosure Type	Network enclosure

Wireless Communication NRF	
Protocol	Enhanced ShockBurst (ESB)
Frequency	2.4 Ghz (ISM Band)
Transmit Range	Up to 100m
Operating Voltage	3.3V
Current Consumption	**Transmit Mode:** Typically, around 115 mA **Receive Mode:** Typically, around 45 mA **Power-Down Mode:** Low power consumption when not in use
Output Power (PA)	Adjustable (OdBm, -6dBm, -12dBm, -18dBm)
Receiver Sensitivity (LNA)	Around -85 dBm in 2 Mbps mode. Sensitivity may vary based on the data rate and modulation settings
Data Rates	Selectable data rates (e.g., 250 kbps, 1 Mbps, 2 Mbps)
Interface	SPI (Serial Peripheral Interface) for communication with a microcontroller
Modulation	GFSK (Gaussian Frequency Shift Keying) modulation
Data Format	JSON