Guardian Air
Installation Guide

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Chapter 1. Introduction

Guardian Air overview

Guardian Air is a wireless security sensor for operational technology (OT) and Internet of Things (IoT) environments. It monitors in real-time activities from prominent wireless frequencies, to provide immediate visibility to connected assets and attack surfaces. Guardian Air seamlessly integrates with Vantage for unified visibility of wired, wireless and endpoint assets across your OT and IoT environments.

General

Guardian Air is the first wireless security sensor purpose-built for *operational technology (OT)* and *Internet of Things (IoT)* environments. It monitors all prominent frequencies to provide customers with the much-needed visibility of the wirelessly connected assets. Guardian Air can detect the appearance of rogue infrastructure such as:

- Cellphone towers
- Spoofing devices
- *long range wide area network (LoRaWAN)*
- Building automation protocols
- Drones, and related equipment

Data from Guardian Air sensors is sent to Vantage for analysis alongside network and endpoint data. This consolidated analysis provides a holistic view of your *OT* and *IoT* environments.

Continuous visibility and monitoring

While many *OT* security solutions only see wireless assets once they are connected to the wired network, the Guardian Air sensor continuously monitors all prominent wireless frequencies. These include:

- Bluetooth
- Wi-Fi
- Building automation protocols
- Drones, and
- Long range technology such as cellular and *LoRaWAN*

Guardian Air operates in a wide variety of frequencies, which allows it to provide real-time monitoring and detailed information of assets such as rogue installations or drones. Drones can be utilized to perform attacks, take pictures of critical facilities or carry equipment for attacks or for the exfiltration of valuable information. With Guardian Air, you can detect the presence of drones and the equipment attached to them, enabling security teams to take corrective action.

Ongoing detection of wireless-specific threats

The nature of a wireless connections means that cyber adversaries don't need to be in close proximity to exploit an asset's vulnerabilities. Guardian Air provides ongoing threat detection of wireless-specific threats, such as:

- Brute force attacks
- Spoofing
- Bluejacking

For example, Guardian Air can detect de-authentication attacks and triangulate the location of the devices performing the attacks. Alarms can be set to notify security teams enabling them to take immediate countermeasures, improve defenses and minimize impacts to critical operations.

Description

A description of the key characteristics of the Guardian Air sensor.
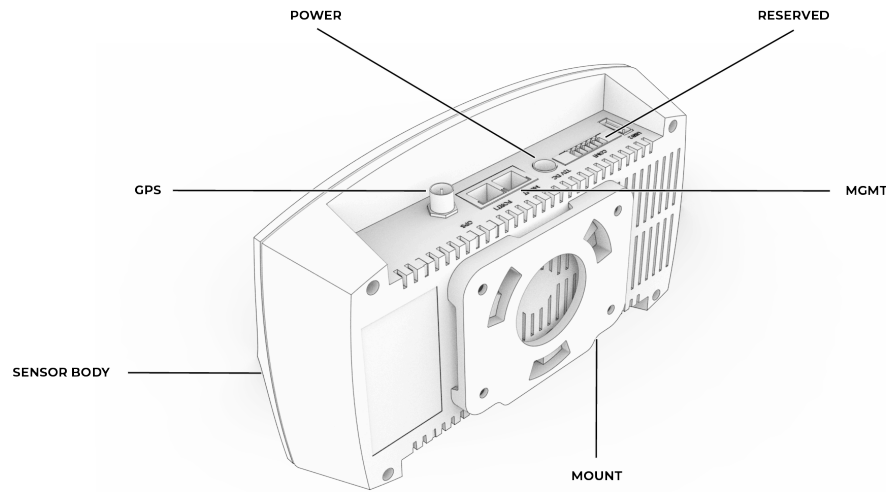
General

Figure 1. Guardian Air

The Nozomi Networks Guardian Air sensor is a sleek, compact device designed for deployment in *industrial control systems (ICS)* environments. Its design focuses on simplicity and functionality, ensuring seamless integration into diverse *OT* setups. The sensor features a durable, hard plastic body, that ensures resilience in challenging industrial environments.

The top of the sensor has:

- A power button
- A reset button
- An *light-emitting diode (LED)* status indicator
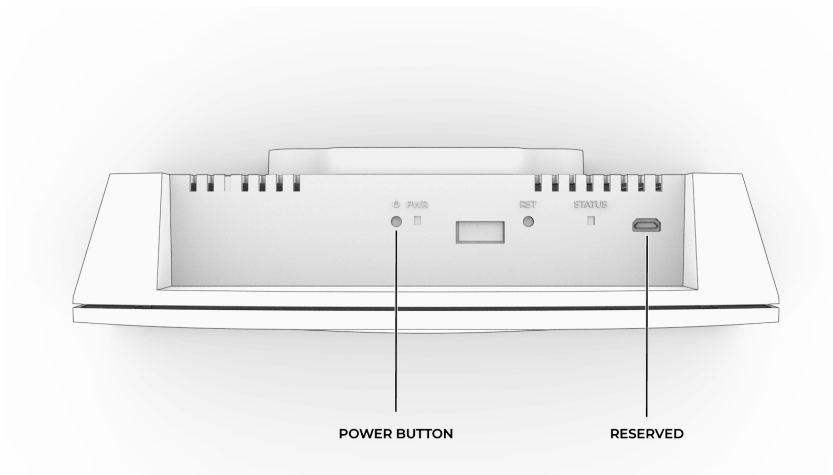- A reserved port that is not used at this time

POWER BUTTON   RESERVED

Figure 2. Guardian Air - top view

The bottom of the sensor has:

- A MGMT (management) port
- A *Global Positioning System (GPS)* connector
- A 12 *Volts Direct Current (VDC)* power connector
- A connector
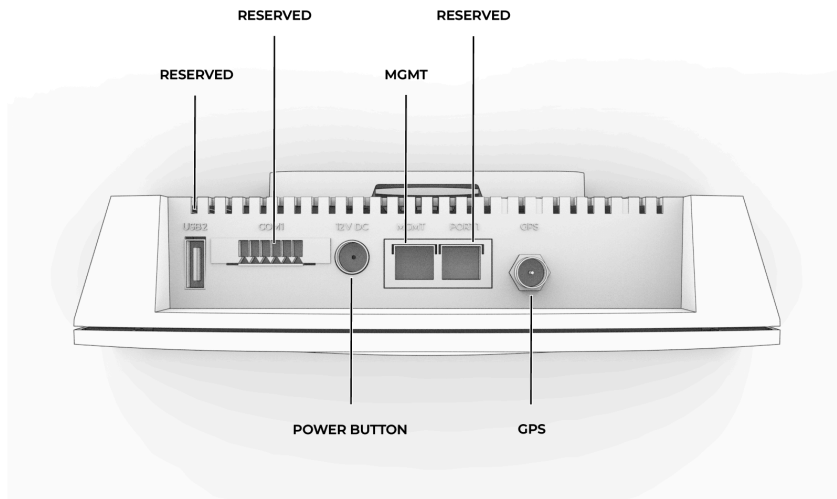- Three reserved ports that are not used at this time

Figure 3. Guardian Air - bottom view

Electrical supply

You can connect electrical power to the sensor through:

- A *power over ethernet (PoE)* compatible switch
- The supplied 12 *Volts Direct Current* external power supply
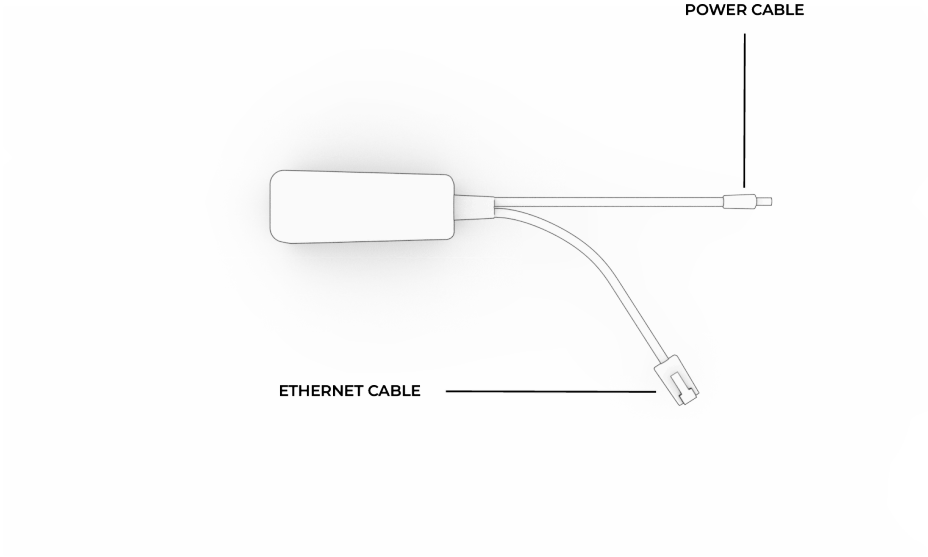
POWER CABLE

ETHERNET CABLE

Figure 4. Power over Ethernet (PoE) connector

Operation

Learn how Guardian Air operates and what the different colors of the status indicator mean.
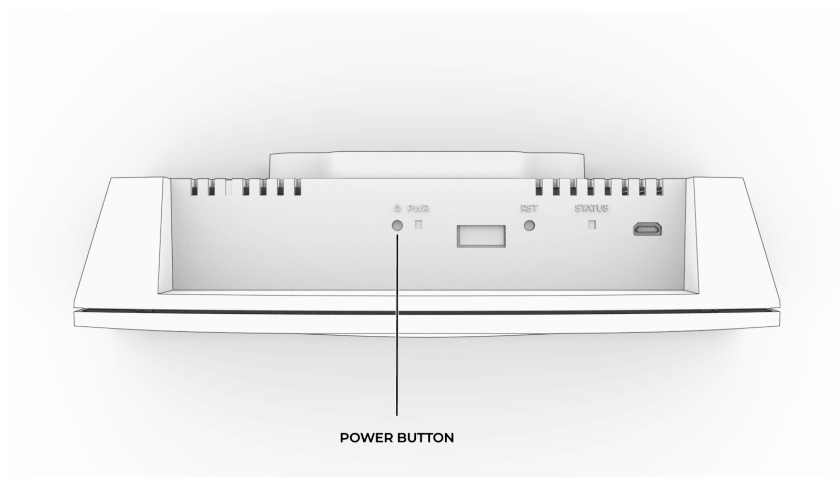
Power cycling

Figure 5. Power button

You can power cycle the appliance in two ways:

- Press the power button with a pen or a pointed object
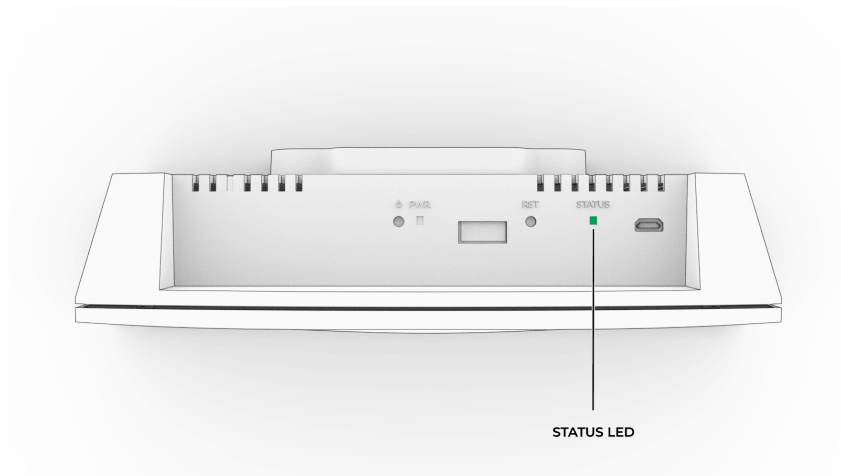- Disconnect the power cable and then connect it again

LED indicators

STATUS LED

Figure 6. Status LED

Fixed yellow: the sensor has not obtained an *internet protocol (IP)* address.

Flashing yellow: the sensor had obtained an *IP* address, but it is not able to connect to Nozomi Networks services.

Flashing green: the sensor is ready to be connected to Vantage.

Fixed green: the sensor is operating correctly.

Chapter 2. Requirements

Requirements

The requirements for Guardian Air.

To use Guardian Air, you will need:

- Vantage
- An Ethernet cable

Chapter 3. Installation

Install a Guardian Air sensor

Guardian Air is designed to be mounted on a wall or ceiling. Follow this procedure to install your Guardian Air sensor.

Before you begin
You will need the correct size and type of screws for your installation surface. The screws should have a diameter of 4 mm (5/32 in) and a minimum length of 30 mm (1.2 in).
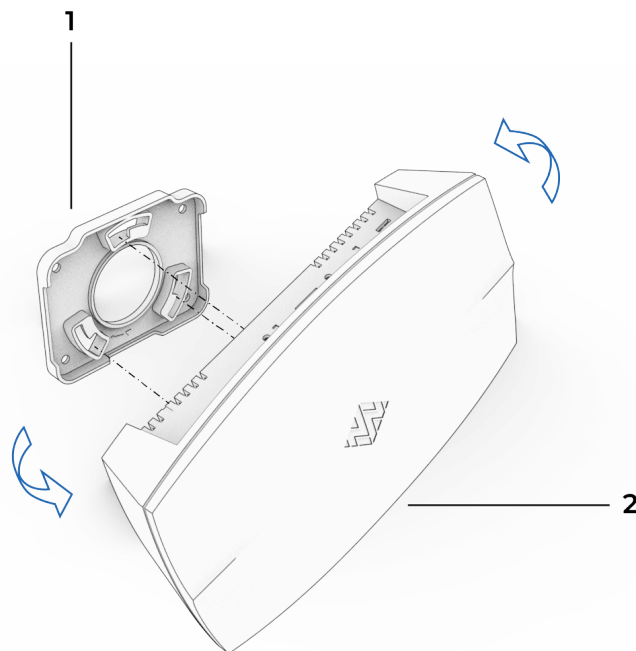
Procedure

1. Choose where you want to install the Guardian Air sensor.

   Choose from:
   - A wall-mounted installation
   - A ceiling-mounted installation

2. Choose the correct screws for the surface that you want to install Guardian Air.

3. Hold the Guardian Air sensor (sensor) (2) in position and turn the mount (1) counterclockwise to remove it.
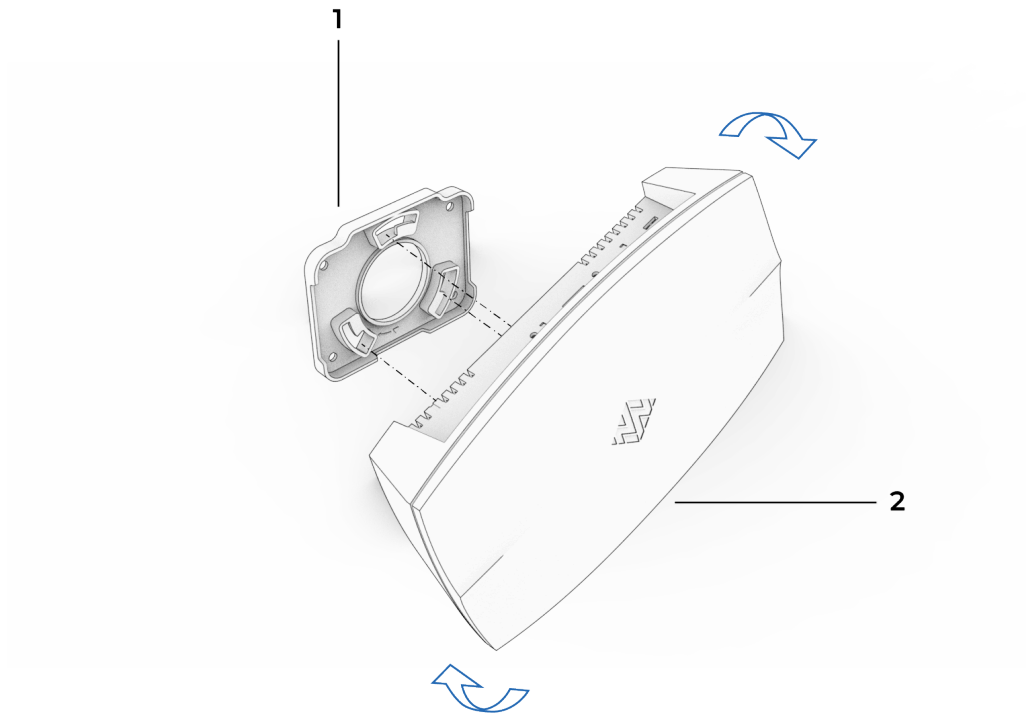
4. Put the mount (1) in position on the wall or ceiling.

1

3 (x4)
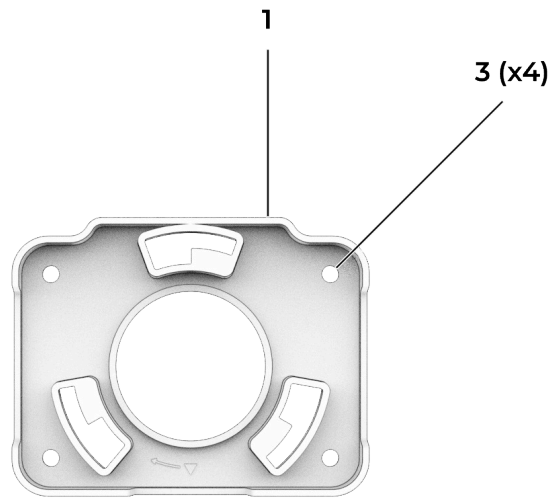
5. Make a mark at the position of the four holes (3).

6. Remove the mount (1).

7. Drill the four holes (3) to the correct depth for your screws.

8. Put the mount (1) in position and install the four screws.

9. Align the sensor (2) with the mount (1) and turn it clockwise until it locks into position.

Chapter 4. Troubleshooting

Status indicator shows fixed yellow

Possible cause

Your *dynamic host configuration protocol (DHCP)* server is not connected correctly.

Procedure

Check your *DHCP* server.

Status indicator shows flashing yellow

Possible cause

The sensor has obtained an *IP* address, but cannot connect to Nozomi Networks services.

Procedure

Do a check of your firewall.

Glossary

Dynamic Host Configuration Protocol

DHCP is a network protocol that automatically assigns IP addresses and other configuration settings to devices, simplifying network management, reducing manual setup, preventing IP conflicts, and supporting scalable network configurations.

Global Positioning System

GPS is a satellite-based navigation system that provides real-time location and time information, enabling accurate positioning, navigation, and tracking for various devices and applications worldwide.

Industrial Control Systems

An ICS is an electronic control system and related instrumentation that is used to control industrial processes.

Internet of Things

The IoT describes devices that connect and exchange information through the internet or other communication devices.

Internet Protocol

An Internet Protocol address, or IP address, identifies a node in a computer network that uses the Internet Protocol to communicate. The IP label is numerical.

Light-emitting Diode

An LED (Light Emitting Diode) is an electronic component that emits light when an electric current passes through it, offering energy-efficient, long-lasting illumination for displays, indicators, and lighting applications.

LoRaWAN

LoRaWAN (Long Range Wide Area Network) is a wireless communication protocol designed for low-power, long-range communications. It's specifically intended for Internet of Things (IoT) devices and applications, enabling them to transmit small packets of data over vast distances efficiently.

Operational Technology

OT is the software and hardware that controls and/or monitors industrial assets, devices and processes.

Power over Ethernet

PoE is a technology that allows electrical power to be transmitted alongside data over standard Ethernet cables. This enables network devices such as IP cameras, wireless access points, and VoIP phones to receive power directly from the network cable, eliminating the need for separate power sources and simplifying installation.

Volts Direct Current

VDC refers to the voltage of a direct current (DC) electrical supply, where electrons flow in one direction, powering devices like electronics, sensors, and various other components.