# Industrial Infrared Spot Sensor Guide



#### Simpy smart monitoring

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## **Daisy Chain Infrared Sensor**

# **OVERVIEW**

InfraSensing's Daisy Chain Infrared Temperature Sensor is an industrial digital SNMP & Modbus TCP sensor designed for contactless temperature monitoring inside enclosures. Daisy chain up to 7 IR spot temperature sensors.

Used with our base unit, the SensorGateway, it will alert you via SMS, email, voice call or SNMP traps.

Through Modbus TCP it integrates with any major Building Management System and through SNMP it integrates with any majorv Network Monitoring System.

With JSON and XML it integrates with your software or web based applications.

# WHAT YOU NEED



SensorGateway (BASE-WIRED)



Daisy Chain Start (ENV-TIR-START)



Industrial Infrared Spot Sensor (ENV-TIR-DAISY)

To start things up, first you would need our SensorGateway (BASE-WIRED), then the base unit for the IR sensors (ENV-TIR-START) and finally the IR Spot Sensors which can be daisy chained up to 7x (ENV-TIR-DAISY) with a Maximum length total of 20 meters. Each Spot Sensor measures the average temperature within its 90° field of view.

For pricing and ordering info please visit: https://infrasensing.com/sensors/sensor\_ir\_temperature.asp





## Do's + Dont's before & during installs

## Do's

- Store the Sensors in its original container and in a clean dry area prior to installation.
- Schedule of installation should be done after any construction or renovation to avoid damage on the IR Sensor
- Remove any debris or other source of clutter that might go in and damage the IR sensor.
- Make sure the power supply is off during installation or mounting in a Busbar.
- Always observe Electro Static Discharge(ESD) control procedure and handle the sensors with care

## Dont's

- Do not leave the sensor through contaminated areas (Dirt, Oil, cement, solvents, etc)
- Do not drop sharp or any object on the lens of the IR sensor
- Do not touch the IR sensor lens
- Do not handle the IR sensors without ESD precautions
- Do not install the IR sensor in locations beyond its temperature limitations (upper limit of 125 °C (257 °F) / lower limit of -40 °C(-40 °F))



# **General layout of the Industrial Infrared Spot Sensor**



# **Installation Steps**

#### Prepare the Area

- 1. Verify that there are no contaminants present,
- 2. Power supply should be off inside the area where the IR Spot sensors will be installed (Busbars).
- 3. Make sure the mounting area of the devices are properly grounded to prevent electrical faults.

### Prepare the Daisy Chain IR Temperature

- 1. Make sure that each IR Spot Sensor is intact and free of contamination.
- 2. Do not use damaged sensors.
- 3. Observe the Do's and Dont's.
- 4. Using an ethernet cable, connect the Spot Sensors(ENV-TIR-DAISY) into the IR sensor Base unit (ENV-TIR-START)



Note:

The "Out" port is always on the top portion of the sensor for both the ENV-TIR-START and ENV-TIR-DAISY, The "IN" port is located on the bottom part. Wherein the top portion of the devices is where the LED indicator is located.



5. Should you have multiple Spot Sensors (ENV-TIR-DAISY) connect them to each other (DaisyChained) before connecting them to the IR sensor Base Unit(ENV-TIR-START). The proper way of connecting is illustrated below.



6. Using your LAN cable connect the sensor base unit(ENV-TIR-START) into the SensorGateway (BASE-WIRED) as illustrated below



Note: You may connect the IR sensor Base unit in any of the given port of the SensorGateway for external probes.



## **HOW IT WORKS**



The Daisy Chain IR Spot Sensor measures the average temperature within its 90° field of view. You can get an estimate of the area captured using our online Field Of View Calculator via this link <u>https://infrasensing.com/sensors/sensor\_ir\_temperature.asp</u>

Temperature reading of the spot sensors are passed into the SensorGateway, If a temperature reaches a set threshold, the SensorGateway will then trigger an alert either through email, SMS, voice or through SNMP alerts.

Do note that the SensorGateway can be integrated via SNMP, ModBus TCP, XML or through JSON.



# **INSTALLATION TIPS**

Typically the Infrared Spot Sensor is used in high precision non-contact temperature measurements most common in power distribution boxes where we measure the temperature of each busbar or busbar joints.



By installing the sensors inside your electrical distribution box you can continuously monitor the temperature of your busbars without the need of human intervention thus we are now automating a previously manual process.



#### IR Spot Sensor application inside a Power Room

The sensors are installed inside the switch board and then daisy chained into the main distribution panels to measure each Busbar.



By Monitoring your busbars you can immediately identify if there is something wrong within your power room like fire hazards for example, as busbar joints degrade they can overheat and cause a fire risk. some of the events that needs to be monitored are:

- Sudden changes in the temperature (spikes / surges)
- Unusual rise in temperature (fire risk / overload)
- Unusual drop in temperature (electrical fault / shutdown)

Whether you are in the area or not, with the use of our IR spot sensor along with our SensorGateway you are assured that your critical facility is being monitored and will notify you when a problem occurs.

### **Daisy Chain Infrared Sensor**

## **MOUNTING TIPS**

When mounting the sensors inside MDPs (Main Distribution Panels) the sensors should be placed near each busbar that you want to monitor. The distance of our sensor pointing to each busbar depends on the width of each bar, An example would be if the busbars width is 2 inches / 5.08 cm then the distance of the sensor should be 1 inch / 2.54cm. for our customers convenience we have provided an online calculator through this link <u>https://infrasensing.com/sensors/sensor\_ir\_temperature.asp.</u>



Typically the sensors are directly mounted on cabinet doors however if the sensors are not near enough it is adviced to use custom rails or bars.



### **Daisy Chain Infrared Sensor**



# Integrating with ServersCheck

Accessing multiple deployments of the IR sensor along with other sensor types can be quite a task!

With the latest edition of our Monitoring Software or Monitoring Appliance you can now view and centralize all your sensors.



We invite you to check our software, It is free for personal or non-profit use. <u>https://infrasensing.com/monitoring-software/</u>



# Integrating with your software

The SensorGateway (base unit) supports 4 protocols: SNMP, Modbus TCP, JSON and XML.

Following is a list of online resources showing you how to integrate our sensors with 3rd party software and other systems using the standard communication protocols available in the base unit.

#### **SNMP Monitoring Systems**

The base units support 2 methods of SNMP:

- SMP Get: requests can be made to the SensorGateway using SNMP v2 or v3
- SNMP Traps: you can use SNMP v1 and v3

We have created guides on how to integrate our solution via SNMP in some of the leading softwares. <u>https://infrasensing.com/sensors/api.asp#nms</u>

#### **Building Management & Automation Systems**

ServersCheck's base units support next to SNMP the Modbus TCP protocol which enables to integrate the sensors with Building Management Systems (BMS)

We have created a user manual on how to integrate our solution via ModBus TCP through this link. <u>https://infrasensing.com/sensors/api.asp#bms</u>

#### Middleware, scripts and other software

Our solution can also be integrated into your own scripts , web page, middleware or other software. More information can be found on the link below.

JSON XML Command Line

Should you know of another online resource about integrating our sensors with other platforms, <u>Contact us</u> and we'll add it to the list.







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