Cisco Industrial Asset Vision Sensors Datasheets

Following is the list of the supported sensors for the Cisco Industrial Asset Vision General Availability release. These sensors are battery operated and work on LoRaWAN technology.

Model	Sensor
AV200	Outdoor Temperature/Humidity Sensor
AV201	Indoor Temperature/Humidity Sensor
AV202	Product Temperature Sensor
AV203	Refrigerator Temperature/Humidity Sensor
AV204	Door/Window Sensor
AV205	Water Leak Sensor
AV206	Light Level Sensor
AV207	Indoor Occupancy Sensor
AV250	Machine Temperature Sensor
AV300	Outdoor GPS Sensor

AV200: Outdoor Temperature/Humidity Sensor

Solution Overview

The AV200 is an outdoor temperature and humidity sensor for use with Cisco Industrial Asset Vision. Data from the sensor is communicated via the LoRaWAN protocol.

Product Image

Key Benefits

- Temperature and Humidity Detection
- Other Monitoring

Product Details

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-ENV-O1-US
Europe	IOTAV-L-ENV-O1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-20 to 55 ℃ (-4 to 131 °F)
Storage Temperature	-40 to 85 ℃ (-40 to 185 °F)
Operating Humidity	<90% RH (No Condensation)
IP Rating	IP54
Dimensions (L x W x H)	222 x 130 x 195 mm (8.74 x 5.11 x 7.67 inches)

Table 3. Radio

Specification	Description
Frequency Band	800 MHz / 900 MHz ISM Band
Transmit power (conducted)	US915: 20 dBm EU868: 16 dBm
Rx Sensitivity	-136dBm (SF12)
Range	Up to 10km (dependent on environment)

Table 4. Measurements

Specification	Description
Temperature Measurement Range	-20 to 55 °C (-4 to 131 °F)
Temperature Accuracy	+/- 1.5 °C @ 25 °C
Humidity Measurement Range	0% RH to 100% RH
Humidity Accuracy	+/- 10% RH @ 25 °C
Battery Voltage	+/- 0.1V

Table 5. Battery

Specification	Description
Battery Type	2x 1.5V AA in series
Operating Voltage	2.3V to 3V
Battery Life	4 years (25C, 60-minute reports, TxPower=20dBm, SF10)

Table 6. Reporting Metrics

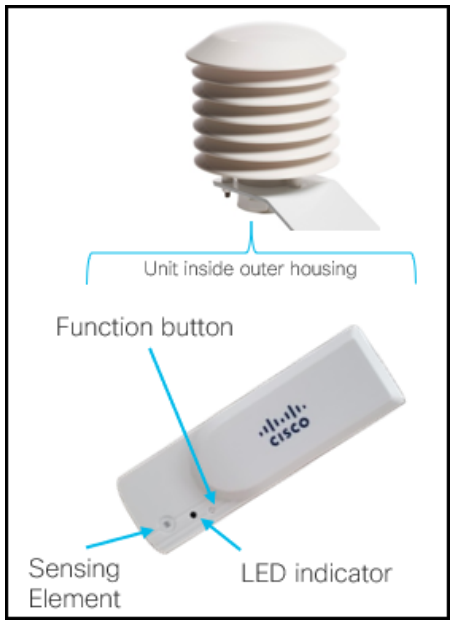
Monitoring	Default Reporting Interval	Expected Battery Life*
Temperature, Humidity, Battery	60 mins	4 years

* Assume default reporting interval, 25C environment, spreading factor=10, max Tx power of sensor.

Table 7. Product Certification and Compliance

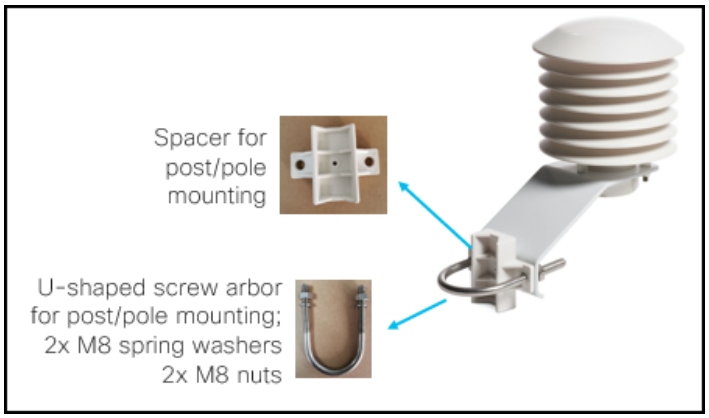
Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 60950-1	Worldwide
CB to IEC 62368-1	Worldwide
IEC 60529 (IP54)	Worldwide
IEC 60950-22	Worldwide
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
Radio	
EU 863-870	EU
EN 300220-1	EU
EN 300220-2	EU
CE RED	EU
US 902-928	USA
FCC 47CFR Part 15 B and C	USA
RSS210	Canada
IC ICES-003	Canada
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV200 On/Off



- Press and hold the Function button until...
  - LED blinks 20 times:
    - Sensor has been turned off.
  - LED illuminates solid for a few seconds:
    - Sensor has been turned on.
    - Sensor attempts to register with the network server.
    - Another blink of the LED indicates that sensor has joined properly (usually happens within 30 seconds).
  - Allow about 10 seconds after turning off before turning on.
- Once sensor has joined:
  - Manual uplink message can be initiated with a short press of the Function button.
  - LED will flash to indicate that message has been triggered.

Mounting Accessories and Methods AV200



- Pole/Post Mounting via included spacer and U-bolt assembly.
  - Pole/Post size: 25-50mm

AV201: Indoor Temperature/Humidity Sensor

Solution Overview

The AV201 is a LoRaWAN sensor which detects ambient air temperature and humidity. It is intended for use with Cisco Industrial Asset Vision.

Product Image

Key Benefits

- Indoor Temperature and Humidity Monitoring
- Useful in Smart Buildings, factories, warehouses, and Smart Offices

Product Specifications

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-ENV-I1-US
Europe	IOTAV-L-ENV-I1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-20 to 55 ℃ (-4 to 131 °F)
Storage Temperature	-40 to 85 ℃ (-40 to 185 °F)
Operating Humidity	<90% RH (No Condensation)
IP Rating	IP65
Dimensions (L x W x H)	112 x 65 x 28 mm (4.4 x 2.5 x 1.1 inches)
Weight	141 g (0.31 lbs)

Table 3. Radio

Specification	Description
Frequency Band	800 MHz / 900 MHz ISM Band
Transmit power (conducted)	US915: 20 dBm EU868: 16 dBm
Rx Sensitivity	-136dBm (SF12)
Range	Up to 10km (dependent on environment)

Table 4. Measurements

Specification	Description
Temperature Measurement Range	-20 to 55 °C (-4 to 131 °F)
Temperature Accuracy	+/- 1 °C @ 25 °C
Humidity Measurement Range	0% RH to 100% RH
Humidity Accuracy	+/- 4% RH @ 25 °C
Battery Voltage	+/- 0.1V

Table 5. Battery

Specification	Description
Battery Type	2x 3.6V ER14505 AA in parallel
Operating Voltage	3.1V to 3.65V
Battery Life	5 years (25C, 15-minute reports, TxPower=20dBm, SF10)

Table 6. Reporting Metrics

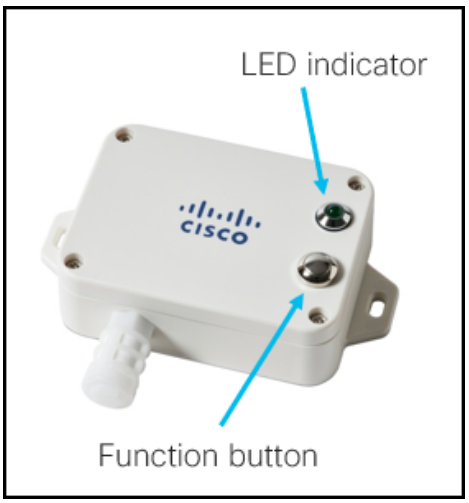
Monitoring	Default Reporting Interval	Expected Battery Life*
Temperature, Humidity, Battery	15 mins	5 years

* Assume default reporting interval, 25C environment, spreading factor=10, max Tx power of sensor.

Table 7. Product Certification and Compliance

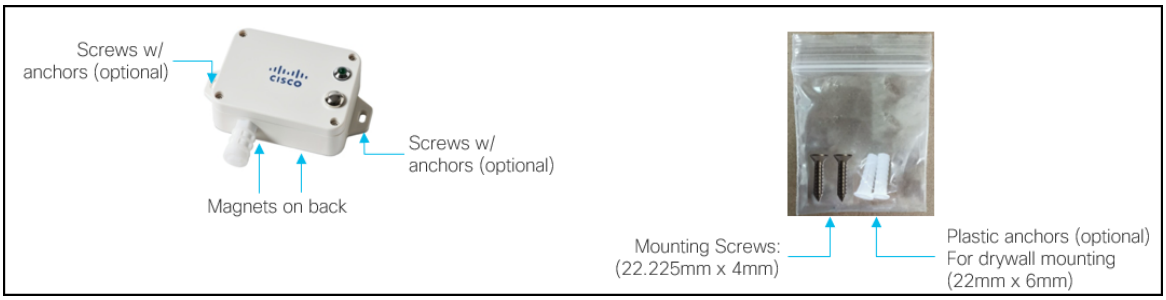
Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 60950-1	Worldwide
CB to IEC 62368-1	Worldwide
IEC 60529 (IP65)	Worldwide
IEC 60950-22	Worldwide
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
Radio	
EU 863-870	EU
EN 300220-1	EU
EN 300220-2	EU
CE RED	EU
US 902-928	USA
FCC 47CFR Part 15 B and C	USA
RSS210	Canada
IC ICES-003	Canada
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV201 On/Off



- Press and hold the Function button for 3–5 seconds until....
  - LED blinks 20 times:
    - Sensor has been turned off.
  - LED illuminates solid for a few seconds:
    - Sensor has been turned on.
    - Sensor attempts to register with the network server.
    - Another blink of the LED indicates that sensor has joined properly (usually happens within 30 seconds).
  - Allow about 10 seconds after turning off before turning on.
- Once sensor has joined:
  - Manual uplink message can be initiated with a short press of the Function button.
  - LED will flash to indicate that message has been triggered.

Mounting Accessories and Methods AV201



- Magnetic mount to ferromagnetic surfaces
- Screws for attaching to walls and other flat surfaces
  - Package also includes plastic anchors for installation into material such as drywall/sheetrock.
- Double-sided tape (not included)

AV202: Product Temperature Sensor

Solution Overview

The AV202 is a LoRaWAN product temperature sensor with an external platinum probe. It is intended for use with Cisco Industrial Asset Vision.

Product Image

Key Benefits

- Temperature measuring for liquid, vapor, grain, and solid plane surfaces

Product Details

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-PTM-I1-US
Europe	IOTAV-L-PTM-I1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-20 to 55 ℃ (-4 to 131 °F)
Storage Temperature	-40 to 85 ℃ (-40 to 185 °F)
Operating Humidity	<90% RH (No Condensation)
IP Rating	IP65
Dimensions (L x W x H)	112 x 88.19 x 32 mm (4.4 x 3.4 x 1.25 inches)
Weight	141 g (0.31 lbs)
Probe Material	316 Stainless Steel
Probe Dimensions	5mm (diameter); 15cm long (pointed)
Probe Lead Length	2m

Table 3. Radio

Specification	Description
Frequency Band	800 MHz / 900 MHz ISM Band
Transmit power (conducted)	US915: 20 dBm EU868: 16 dBm
Rx Sensitivity	-136dBm (SF12)
Range	Up to 10km (dependent on environment)

Table 4. Measurements

Specification	Description
External PT1000 probe temperature range	-40 to 200℃ (-40 to 392 °F)
Temperature Accuracy	(Assume base unit is @ 0℃ ≤ t ≤ 55℃) Probe @ 0℃ ≤ t ≤ 55℃: +/- 0.5℃ Probe @ -40℃ ≤ t < 0℃: +/- {(0.15 + 0.002* |t|) + 1} ℃ Probe @ 55℃ < t ≤ 200℃: +/- {(0.15 + 0.002* |t|) + 0.3} ℃
Battery Voltage	+/- 0.1V

Table 5. Battery

Specification	Description
Battery Type	2x 3.6V ER14505 AA in parallel
Operating Voltage	3.1V to 3.65V
Battery Life	5 years (25C, 15-minute reports, TxPower=20dBm, SF10)

Table 6. Reporting Metrics

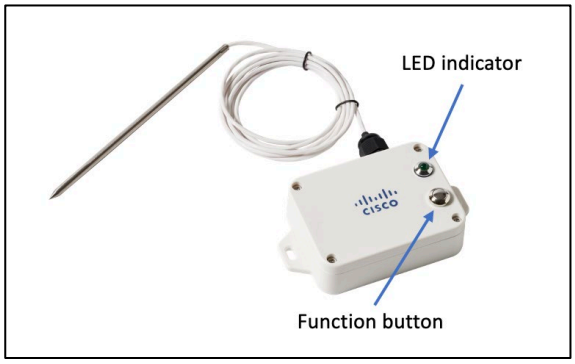
Monitoring	Default Reporting Interval	Expected Battery Life*
Temperature, Battery	15 mins	5 years

* Default reporting interval, 25C environment, spreading factor=10, max Tx power of sensor.

Table 7. Product Certification and Compliance

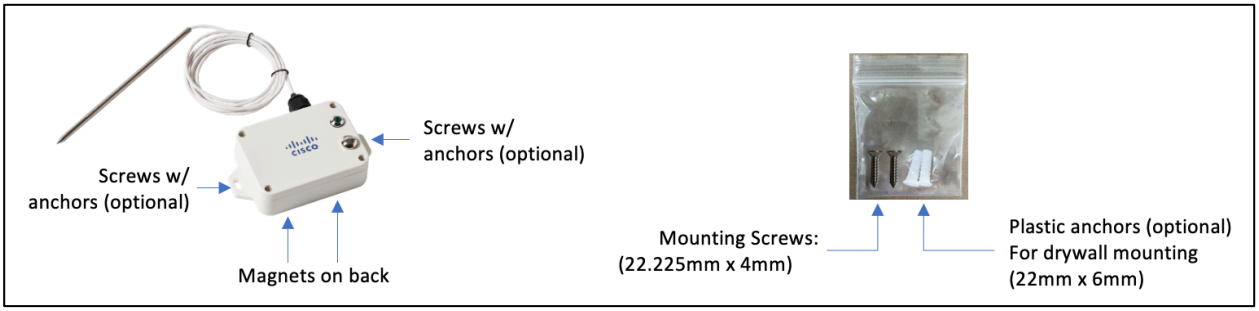
Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 62368-1	Worldwide
CB to IEC 60950-1	Worldwide
IEC 60529 (IP65)	Worldwide
IEC 60950-22	Worldwide
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
Radio	
EU 863-870	EU
EN300220-1	EU
EN300220-2	EU
CE RED	EU
US 902-928	USA
FCC 47CFR Part 15 B and C	USA
RSS210	Canada
IC ICES-003	Canada
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV202 On/Off



- Press and hold the Function button for 3-5 seconds until....
  - LED blinks 20 times:
    - Sensor has been turned off.
  - LED illuminates solid for a few seconds:
    - Sensor has been turned on.
    - Sensor attempts to register with the network server.
    - Another blink of the LED indicates that sensor has joined properly (usually happens within 30 seconds).
  - Allow about 10 seconds after turning off before turning on.
- Once sensor has joined:
  - Manual uplink message can be initiated with a short press of the Function button.
  - LED will flash to indicate that message has been triggered.

Mounting Accessories and Methods AV202



- Magnetic mount to ferromagnetic surfaces
- Screws for attaching to walls and other flat surfaces
  - Package also includes plastic anchors for installation into material such as drywall/sheetrock.
- Double-sided tape (not included)

AV203: Refrigerator Temperature/Humidity Sensor

Solution Overview

The AV203 is a LoRaWAN sensor used to measure the temperature and humidity in low temperature environments such as freezers. It is intended for use with Cisco Industrial Asset Vision.

Product Image

Key Benefits

- Domestic and Commercial Refrigerators
- Cold Chain Logistics
- Data Logger

Product Specifications

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-FRZ-O1-US
Europe	IOTAV-L-FRZ-O1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-40 to 55 ℃ (-40 to 131 °F)
Storage Temperature	-40 to 85 ℃ (-40 to 185 °F)
Operating Humidity	<90% RH (No Condensation)
IP Rating	IP65
Dimensions (L x W x H)	112 x 65 x 28 mm (4.4 x 2.5 x 1.1 inches)
Weight	141 g (0.31 lbs)

Table 3. Radio

Specification	Description
Frequency Band	800 MHz / 900 MHz ISM Band
Transmit power (conducted)	US915: 20 dBm EU868: 16 dBm
Rx Sensitivity	-136dBm (SF12)
Range	Up to 10km (dependent on environment)

Table 4. Measurements

Specification	Description
Temperature Measurement Range	-40 to 55 ℃ (-40 to 131 °F)
Temperature Accuracy	+/- 0.5 °C @ 25 °C
Humidity Measurement Range	0% RH to 100% RH
Humidity Accuracy	+/- 3% RH @ 25 °C
Battery Voltage	+/- 0.1V

Table 5. Battery

Specification	Description
Battery Type	2x 3.6V ER14505 AA in parallel
Operating Voltage	3.1V to 3.65V
Battery Life	5 years (25C, 15-minute reports, TxPower=20dBm, SF10)

Table 6. Reporting Metrics

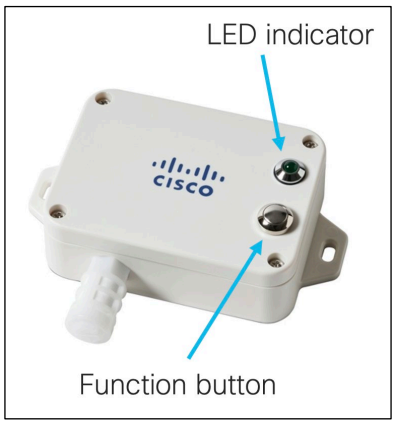
Monitoring	Default Reporting Interval	Expected Battery Life*
Temperature, Humidity, Battery	15 mins	5 years

* Default reporting interval, 25C environment, spreading factor=10, max Tx power of sensor.

Table 7. Product Certification and Compliance

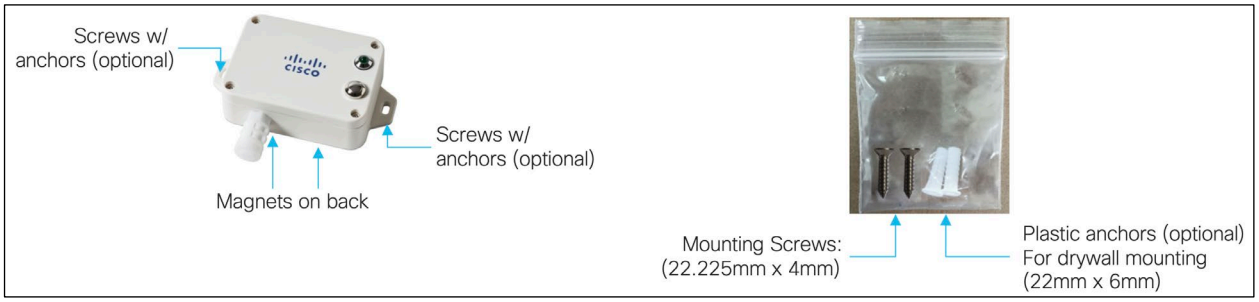
Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 60950-1	Worldwide
CB to IEC 62368-1	Worldwide
IEC 60529 (IP65)	Worldwide
IEC 60950-22	Worldwide
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
Radio	
EU 863-870	EU
EN 300220-1	EU
EN 300220-2	EU
CE RED	EU
US 902-928	USA
FCC 47CFR Part 15 B and C	USA
RSS210	Canada
IC ICES-003	Canada
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV203 On/Off



- Press and hold the Function button for 3-5 seconds until....
  - LED blinks 20 times:
    - Sensor has been turned off.
  - LED illuminates solid for a few seconds:
    - Sensor has been turned on.
    - Sensor attempts to register with the network server.
    - Another blink of the LED indicates that sensor has joined properly (usually happens within 30 seconds).
  - Allow about 10 seconds after turning off before turning on.
- Once sensor has joined:
  - Manual uplink message can be initiated with a short press of the Function button.
  - LED will flash to indicate that message has been triggered.

Mounting Accessories and Methods AV203



- Magnetic mount to ferromagnetic surfaces
- Screws for attaching to walls and other flat surfaces
  - Package also includes plastic anchors for installation into material such as drywall/sheetrock.
- Double-sided tape (not included)

AV204: Door/Window Sensor

Solution Overview

The AV204 is a LoRaWAN sensor that detects door and window open/close status. It is intended for use with Cisco Industrial Asset Vision.

Product Image

Key Benefits

- Monitoring of doors, windows, and other items which incorporate an open/close mechanism

Product Specifications

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-HAL-I1-US
Europe	IOTAV-L-HAL-I1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-20 to 55 ℃ (-4 to 131 °F)
Storage Temperature	-40 to 85 ℃ (-40 to 185 °F)
Operating Humidity	<90% RH (No Condensation)
IP Rating	IP65
Dimensions (L x W x H)	112mm x 65mm x 32mm (4.4 x 2.55 x 1.25 inches)
Hall Sensor Dimensions	42mm x 13mm x 12mm (1.65 x 0.51 x 0.47 inches)
Weight	141 g (0.31 lbs)
Probe Lead Length	1m
Sensing distance	Less than 3cm

Table 3. Radio

Specification	Description
Frequency Band	800 MHz / 900 MHz ISM Band
Transmit power (conducted)	US915: 20 dBm EU868: 16 dBm
Rx Sensitivity	-136dBm (SF12)
Range	Up to 10km (dependent on environment)

Table 4. Measurements

Specification	Description
Battery Voltage	+/- 0.1V

Table 5. Battery

Specification	Description
Battery Type	2x 3.6V ER14505 AA in parallel
Operating Voltage	3.1V to 3.65V
Battery Life	5 years (25C, 15-minute reports, TxPower=20dBm, SF10)

Table 6. Reporting Metrics

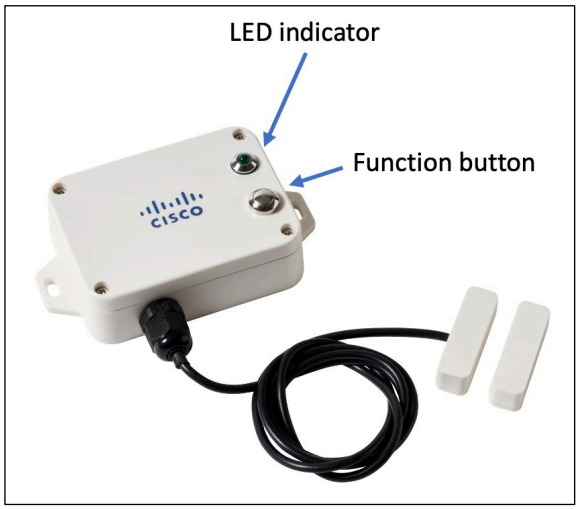
Monitoring	Report on State Change?	Default Reporting Interval	Expected Battery Life*
Open/close, Battery	Yes	60 mins	5 years (~100 triggers/day)

* Default reporting interval, 25C environment, spreading factor=10, max Tx power of sensor.

Table 7. Product Certification and Compliance

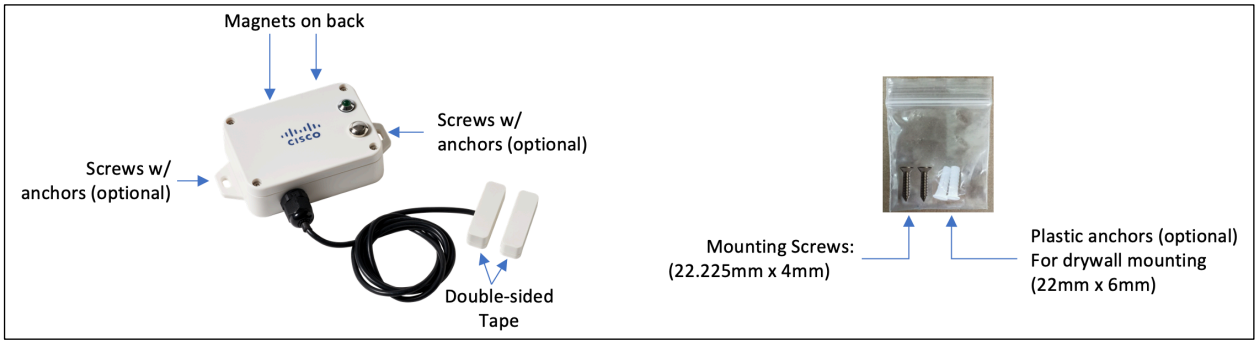
Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 60950-1	Worldwide
CB to IEC 62368-1	Worldwide
IEC 60529 (IP65)	Worldwide
IEC 60950-22	Worldwide
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
Radio	
EU 863-870	EU
EN 300220-1	EU
EN 300220-2	EU
CE RED	EU
US 902-928	USA
FCC 47CFR Part 15 B and C	USA
RSS210	Canada
IC ICES-003	Canada
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV204 On/Off



- Press and hold the Function button for 3-5 seconds until....
  - LED blinks 20 times:
    - Sensor has been turned off.
  - LED illuminates solid for a few seconds:
    - Sensor has been turned on.
    - Sensor attempts to register with the network server.
    - Another blink of the LED indicates that sensor has joined properly (usually happens within 30 seconds).
  - Allow about 10 seconds after turning off before turning on.
- Once sensor has joined:
  - Manual uplink message can be initiated with a short press of the Function button.
  - LED will flash to indicate that message has been triggered.

Mounting Accessories and Methods AV204



- Magnetic mount to ferromagnetic surfaces
- Screws for attaching to walls and other flat surfaces
  - Package also includes plastic anchors for installation into material such as drywall/sheetrock.
- Double-sided tape for base unit (not included)
- Double-sided tape on the external probes
  - Be sure to clean/dry the mounting surface prior to mounting.

AV205: Water Leak Sensor

Solution Overview

The AV205 is a LoRaWAN sensor which can be used to detect water leaks. It is intended for use with Cisco Industrial Asset Vision.

Product Image

Key Benefits

- Monitoring for water leaks in engine rooms, warehouses, and semiconductor plants

Product Specifications

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-WLK-O1-US
Europe	IOTAV-L-WLK-O1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-20 to 55 ℃ (-4 to 131 °F)
Storage Temperature	-40 to 85 ℃ (-40 to 185 °F)
Operating Humidity	<90% RH (No Condensation)
IP Rating	IP67
Dimensions (L x W x H)	112mm x 65mm x 32mm (4.4 x 2.55 x 1.25 inches)
Water Sensor Dimensions	38.5mm x 11.9mm x 13.7mm (1.51 x 0.46 x 0.53 inches)
Weight	141 g (0.31 lbs)
Probe Lead Length	1m
Probe Temperature	Up to 50 °C

Table 3. Radio

Specification	Description
Frequency Band	800 MHz / 900 MHz ISM Band
Transmit power (conducted)	US915: 20 dBm EU868: 16 dBm
Rx Sensitivity	-136dBm (SF12)
Range	Up to 10km (dependent on environment)

Table 4. Measurements

Specification	Description
Battery Voltage	+/- 0.1V

Table 5. Battery

Specification	Description
Battery Type	2x 3.6V ER14505 AA in parallel
Operating Voltage	3.1V to 3.65V
Battery Life	5 years (25C, 15-minute reports, TxPower=20dBm, SF10)

Table 6. Reporting Metrics

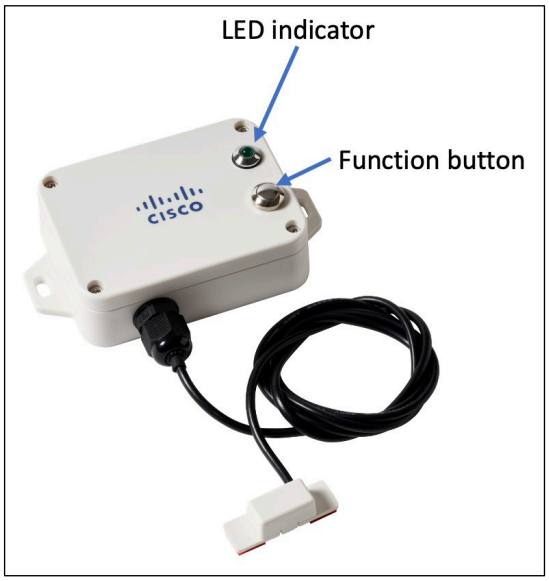
Monitoring	Report on State Change?	Default Reporting Interval	Expected Battery Life*
Leak, Battery	Yes	60 mins	5 years

* Default reporting interval, 25C environment, spreading factor=10, max Tx power of sensor.

Table 7. Product Certification and Compliance

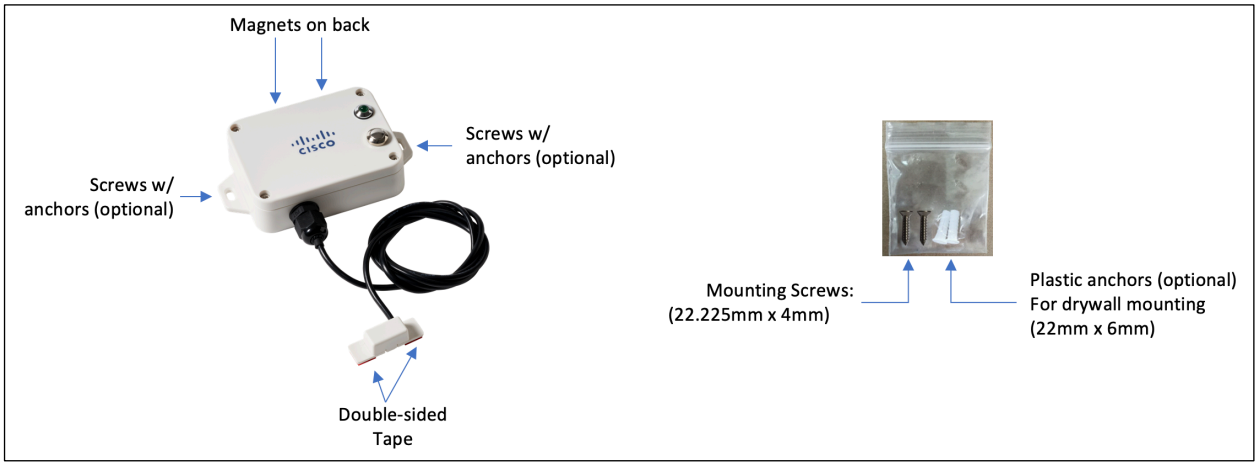
Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 60950-1	Worldwide
CB to IEC 62368-1	Worldwide
IEC 60529 (IP67)	Worldwide
IEC 60950-22	Worldwide
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
Radio	
EU 863-870	EU
EN 300220-1	EU
EN 300220-2	EU
CE RED	EU
US 902-928	USA
FCC 47CFR Part 15 B and C	USA
RSS210	Canada
IC ICES-003	Canada
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV205 On/Off



- Press and hold the Function button for 3-5 seconds until....
  - LED blinks 20 times:
    - Sensor has been turned off.
  - LED illuminates solid for a few seconds:
    - Sensor has been turned on.
    - Sensor attempts to register with the network server.
    - Another blink of the LED indicates that sensor has joined properly (usually happens within 30 seconds).
  - Allow about 10 seconds after turning off before turning on.
- Once sensor has joined:
  - Manual uplink message can be initiated with a short press of the Function button.
  - LED will flash to indicate that message has been triggered.

Mounting Accessories and Methods AV205



- Magnetic mount to ferromagnetic surfaces
- Screws for attaching to walls and other flat surfaces
  - Package also includes plastic anchors for installation into material such as drywall/sheetrock.
- Double-sided tape for base unit (not included)
- Double-sided tape on the external probe
  - Be sure to clean/dry the mounting surface prior to mounting.

AV206: Light Level Sensor

Solution Overview

The AV206 is a LoRaWAN sensor which detects ambient light intensity. It is intended for use with Cisco Industrial Asset Vision.

Product Image

Key Benefits

- Illuminance Detection in use cases such as Smart Buildings and greenhouses

Product Specifications

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-LUX-I1-US
Europe	IOTAV-L-LUX-I1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-20 to 55 ℃ (-4 to 131 °F)
Storage Temperature	-40 to 85 ℃ (-40 to 185 °F)
Operating Humidity	<90% RH (No Condensation)
IP Rating	IP65
Dimensions (L x W x H)	112mm x 65mm x 32mm (4.4 x 2.55 x 1.25 inches)
Weight	141 g (0.31 lbs)

Table 3. Radio

Specification	Description
Frequency Band	800 MHz / 900 MHz ISM Band
Transmit power (conducted)	US915: 20 dBm EU868: 16 dBm
Rx Sensitivity	-136dBm (SF12)
Range	Up to 10km (dependent on environment)

Table 4. Measurements

Specification	Description
Illuminance Measurement Range	3 Lux to 65K Lux
Illuminance Accuracy	+/- 15%
Battery Voltage	+/- 0.1V

Table 5. Battery

Specification	Description
Battery Type	2x 3.6V ER14505 AA in parallel
Operating Voltage	3.1V to 3.65V
Battery Life	5 years (25C, 15-minute reports, TxPower=20dBm, SF10)

Table 6. Reporting Metrics

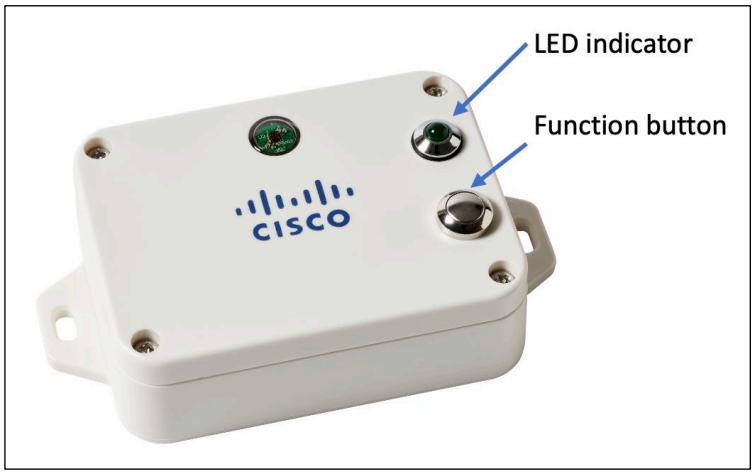
Monitoring	Default Reporting Interval	Expected Battery Life*
Illuminance, Battery	15 mins	5 years

* Default reporting interval, 25C environment, spreading factor=10, max Tx power of sensor.

Table 7. Product Certification and Compliance

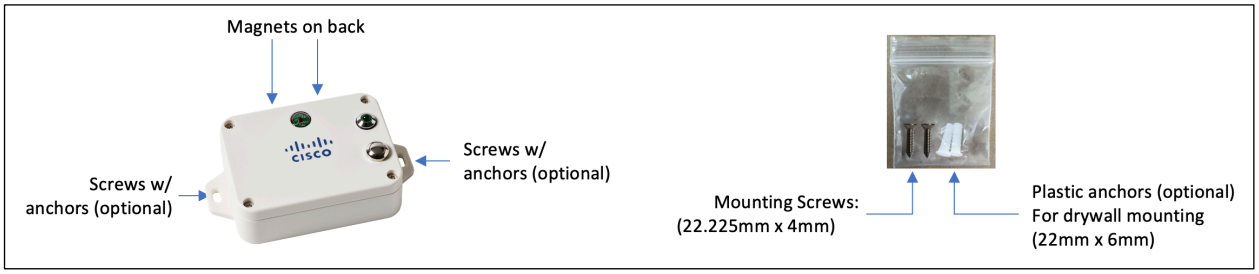
Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 60950-1	Worldwide
CB to IEC 62368-1	Worldwide
IEC 60529 (IP65)	Worldwide
IEC 60950-22	Worldwide
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
Radio	
EU 863-870	EU
EN 300220-1	EU
EN 300220-2	EU
CE RED	EU
US 902-928	USA
FCC 47CFR Part 15 B and C	USA
RSS210	Canada
IC ICES-003	Canada
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV206 On/Off



- Press and hold the Function button for 3-5 seconds until....
  - LED blinks 20 times:
    - Sensor has been turned off.
  - LED illuminates solid for a few seconds:
    - Sensor has been turned on.
    - Sensor attempts to register with the network server.
    - Another blink of the LED indicates that sensor has joined properly (usually happens within 30 seconds).
  - Allow about 10 seconds after turning off before turning on.
- Once sensor has joined:
  - Manual uplink message can be initiated with a short press of the Function button.
  - LED will flash to indicate that message has been triggered.

Mounting Accessories and Methods AV206



- Magnetic mount to ferromagnetic surfaces
- Screws for attaching to walls and other flat surfaces
  - Package also includes plastic anchors for installation into material such as drywall/sheetrock.
- Double-sided tape (not included)

AV207: Indoor Occupancy Sensor

Solution Overview

The AV207 is a LoRaWAN indoor occupancy sensor. The AV207 senses the movement of people, animals, or other objects, and if a person or an object moves in the monitoring area, the sensor detects the infrared signal and reports the status information. The AV207 is intended for use with Cisco Industrial Asset Vision.

Product Image

Key Benefits

- Area Access Monitoring
- Detect Ingress/Egress of people, animals, or objects

Product Specifications

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-OCU-I1-US
Europe	IOTAV-L-OCU-I1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-20 to 55 ℃ (-4 to 131 °F)
Storage Temperature	-40 to 85 ℃ (-40 to 185 °F)
Operating Humidity	<90% RH (No Condensation)
IP Rating	IP30
Dimensions (L x W x H)	78mm x 78.8mm x 82.2mm (3.07 x 3.10 x 3.23 inches)
Weight	128.8 g (0.28 lbs)

Table 3. Radio

Specification	Description
Frequency Band	800 MHz / 900 MHz ISM Band
Transmit power (conducted)	US915: 20 dBm EU868: 16 dBm
Rx Sensitivity	-136dBm (SF12)
Range	Up to 10km (dependent on environment)

Table 4. Measurements

Specification	Description
Sensing distance	2 meters to 12 meters
Mounting Height	2 to 2.2 meters above ground level
Mounting Angle	Tilt 15° downward
Sensing Angle	Horizontal 110°, Vertical 60°
Temperature Measurement Range	-20 to 55 ℃ (-4 to 131 °F)
Moving speed to trigger	>= 0.2 m/s
Temperature Accuracy	+/- 2 °C @ 25 °C
Illuminance Measurement Range	3 Lux to 1100 Lux
Illuminance Accuracy	+/- 15%
Battery Voltage	+/- 0.1V

Table 5. Battery

Specification	Description
Battery Type	2x 3.6V ER14505 AA in parallel
Operating Voltage	3.1V to 3.65V
Battery Life	2.5 years (25C, 100 triggers/day, TxPower=20dBm, SF10)

Table 6. Reporting Metrics

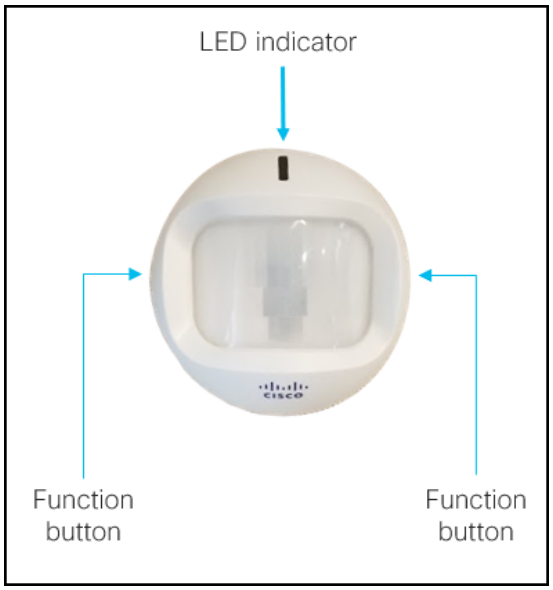
Monitoring	Report on State Change?	Default Reporting Interval	Expected Battery Life*
Motion, Temperature, Illuminance, Battery	Yes	60 mins	2.5 years (~100 triggers/day)

* 25C environment, spreading factor=10, max Tx power of sensor

Table 7. Product Certification and Compliance

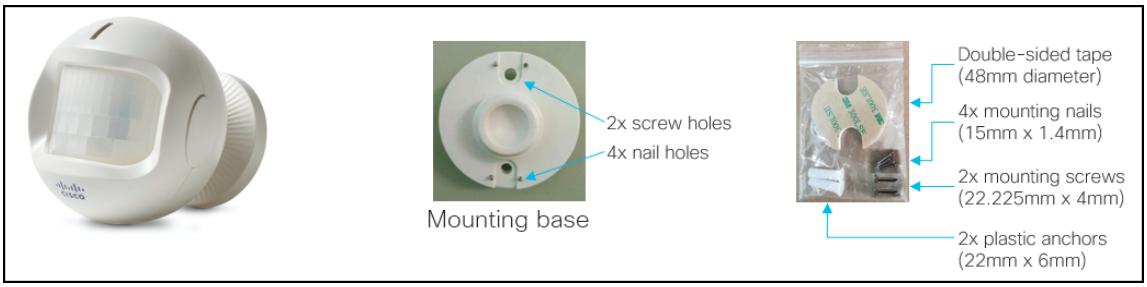
Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 60950-1	Worldwide
CB to IEC 62368-1	Worldwide
IEC 60529 (IP30)	Worldwide
IEC 60950-22	Worldwide
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
Radio	
EU 863-870	EU
EN 300220-1	EU
EN 300220-2	EU
CE RED	EU
US 902-928	USA
FCC 47CFR Part 15 B and C	USA
RSS210	Canada
IC ICES-003	Canada
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV207 On/Off



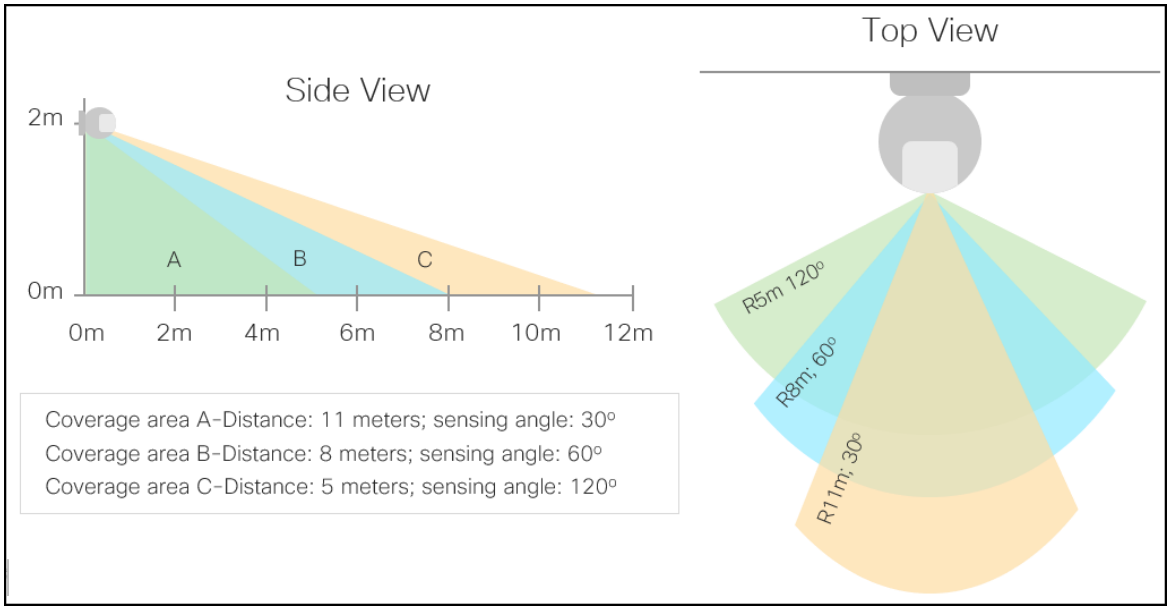
- Turn on: Press and hold either function button until indicator flashes green and red.
  - Sensor attempts to register with the network server.
  - Another blink of the LED indicates that sensor has joined properly (usually happens within 30 seconds).
- Turn off: Press and hold both function buttons until indicator flashes green 20 times.
- Allow about 10 seconds after turning off before turning on.
- Once sensor has joined:
  - Manual uplink message can be initiated with a short press of either function button.
  - LED will flash green to indicate that message has been triggered.

Mounting Accessories and Methods AV207



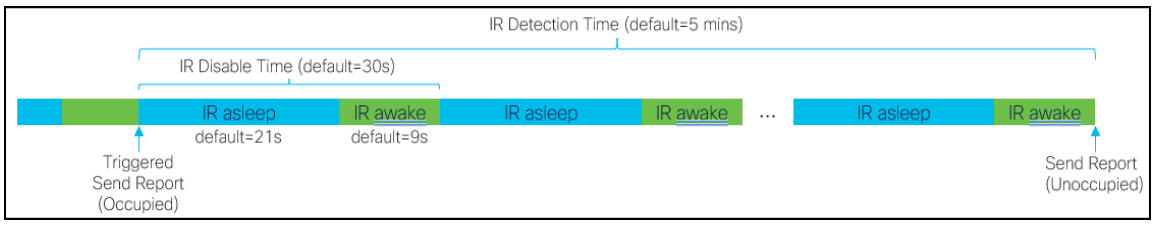
- Screws for attaching to walls and other flat surfaces
  - Package also includes plastic anchors for installation into material such as drywall/sheetrock.
- Nails for attaching to walls and other flat surfaces
- Double-sided tape
  - Be sure to clean/dry the surface before application.

AV207 Motion Detection Range



Coverage area A-Distance: 11 meters; sensing angle: 30°
Coverage area B-Distance: 8 meters; sensing angle: 60°
Coverage area C-Distance: 5 meters; sensing angle: 120°

AV207 Disable/Detection Time



- To conserve battery, IR detection is not running constantly.
- IR detection is done within a window called IR Disable Time.
- IR sensor is asleep during first 70% of IR Disable Time window. Sensor is awake for the last 30%.
- Once sensor is triggered, sensor continues to evaluate for occupancy according to IR Disable Time window.
- If motion is detected during the awake window, sensor proceeds to the next IR asleep window and IR Detection Time counter is reset.
- Once motion has been undetected for the IR Detection Time window, a data report indicating “not occupied” is sent.

AV250: Machine Temperature Sensor

Solution Overview

The AV250 is a LoRaWAN sensor which can be used to detect temperature of an environment or to a medium to which its thermocouple is connected. It is intended for use with Cisco Industrial Asset Vision.

Product Image

Key Benefits

- Temperature measuring Equipment
- Measuring temperature in manufacturing ovens and industrial control equipment

Product Specifications

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-MTM-O1-US
Europe	IOTAV-L-MTM-O1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-20 to 55 ℃ (-4 to 131 °F)
Storage Temperature	-40 to 85 ℃ (-40 to 185 °F)
Operating Humidity	<90% RH (No Condensation)
IP Rating	IP67
Base Unit Dimensions (L x W x H)	112mm x 88.19mm x 32mm (4.4 x 3.47 x 1.25 inches)
Weight	141 g (0.31 lbs)
Probe Type	Type T thermocouple
Probe Dimensions	5mm (diameter); 30mm long (rounded)
Probe Lead Length	1m

Table 3. Radio

Specification	Description
Frequency Band	800 MHz / 900 MHz ISM Band
Transmit power (conducted)	US915: 20 dBm EU868: 16 dBm
Rx Sensitivity	-136dBm (SF12)
Range	Up to 10km (dependent on environment)

Table 4. Measurements

Specification	Description
External PT1000 probe temperature range	-40 to 125 ℃ (-4 to 257 °F)
Temperature Accuracy	(Assume base unit is @ 0℃ ≤ t ≤ 55℃) Probe @ 0C ≤ t ≤ 55℃: +/- 0.5℃ Probe @ -40℃ ≤ t < 0℃: +/- 3℃ Probe @ 55℃ < t ≤ 125℃: +/- 1.5℃
Battery Voltage	+/- 0.1V

Table 5. Battery

Specification	Description
Battery Type	2x 3.6V ER14505 AA in parallel
Operating Voltage	3.1V to 3.65V
Battery Life	4.8 years (25C, 15-minute reports, TxPower=20dBm, SF10)

Table 6. Reporting Metrics

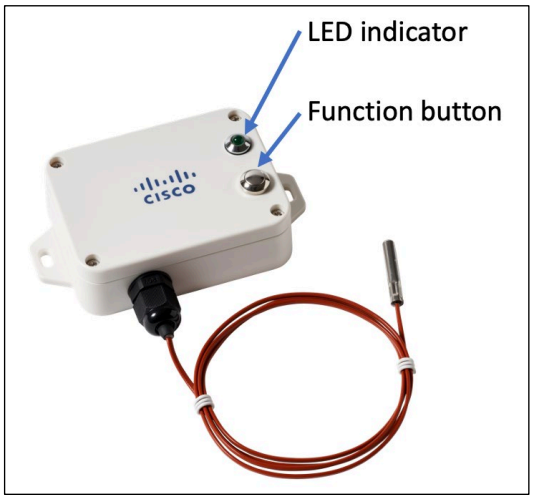
Monitoring	Default Reporting Interval	Expected Battery Life*
Temperature, Battery	15 mins	4.8 years

* Default reporting interval, 25C environment, spreading factor=10, max Tx power of sensor.

Table 7. Product Certification and Compliance

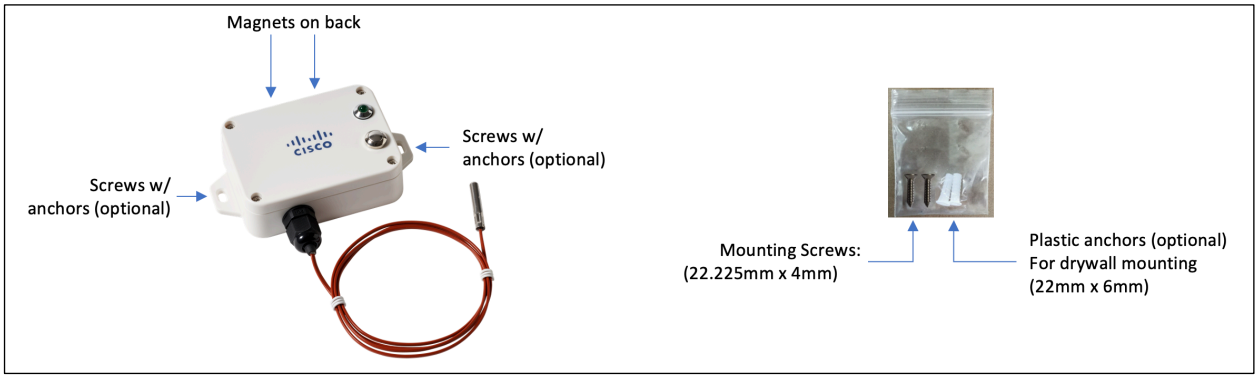
Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 60950-1	Worldwide
CB to IEC 62368-1	Worldwide
IEC 60529 (IP67)	Worldwide
IEC 60950-22	Worldwide
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
Radio	
EU 863-870	EU
EN 300220-1	EU
EN 300220-2	EU
CE RED	EU
US 902-928	USA
FCC 47CFR Part 15 B and C	USA
RSS210	Canada
IC ICES-003	Canada
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV250 On/Off



- Press and hold the Function button for 3-5 seconds until....
  - LED blinks 20 times:
    - Sensor has been turned off.
  - LED illuminates solid for a few seconds:
    - Sensor has been turned on.
    - Sensor attempts to register with the network server.
    - Another blink of the LED indicates that sensor has joined properly (usually happens within 30 seconds).
  - Allow about 10 seconds after turning off before turning on.
- Once sensor has joined:
  - Manual uplink message can be initiated with a short press of the Function button.
  - LED will flash to indicate that message has been triggered.

Mounting Accessories and Methods AV250



- Magnetic mount to ferromagnetic surfaces
- Screws for attaching to walls and other flat surfaces
  - Package also includes plastic anchors for installation into material such as drywall/sheetrock.
- Double-sided tape (not included)

AV300: Outdoor GPS Sensor

Solution Overview

The AV300 sensor is a LoRaWAN asset tracking sensor which utilizes GPS for determining location. The sensor can be mounted on non-powered assets exposed to rain, dust, and marine conditions, where long battery life is required. The device has built-in antennas for GPS reception and for LoRaWAN communication, a 3D accelerometer, a high-performance GPS that can track both GPS and GLONASS satellites simultaneously, and flash memory for storing non-volatile information.

Product Image

Key benefits

- Track assets such as vehicles, containers, trailers, and freight
- Detect unauthorized movement of the assets

Product Specifications

Table 1. Cisco Part Number

Geography	Cisco PID
US, Canada	IOTAV-L-GPS-L1-US
Europe	IOTAV-L-GPS-L1-EU

Table 2. Environmental/Physical Specifications

Specification	Description
Operating Temperature	-20 to 60 ℃ (-4 to 140 °F)
Storage Temperature	-20 to 60 ℃ (-4 to 140 °F)
IP Rating	IP67
Dimensions (L x W x H)	108 x 86 x 31 mm (4.25 x 3.38 x 1.22 inches)
Weight	188 g (0.41 lbs)
Housing	Ultra-rugged nylon glass

Table 3. Radio

Specification	Description
Frequency Range	800 MHz / 900 MHz ISM Band
Range	Up to 15km (dependent on environment)

Table 4. Location Specifications

Specification	Description
Constellation	Concurrent GPS/GLONASS
Channels	72
Tracking sensitivity	-167 dBm

Table 5. Battery

Specification	Description
Battery Type	3x 1.5V AA in series (lithium-ion recommended)
Operating Voltage	4V to 6V
Battery Life	~5 years (1 location acquisition/day, 25C, max SF, and max Tx power)

Telemetry Reporting Metrics

When motion is detected, sensor moves into “in trip” state with a default reporting interval of 15 minutes. When sensor has been stationary for at least 5 minutes, it moves into an “out of trip” state with a default reporting interval of 24 hours.

Data types reported by the sensor include: In trip/out of trip, Latitude/Longitude, Speed, Heading, Battery level.

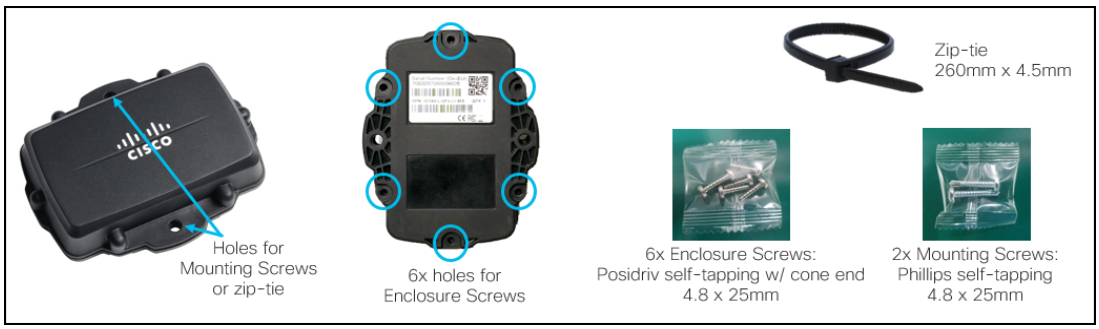
Table 6. Product Certification and Compliance

Specification	Applicable Regions
Safety	
UL/CSA 60950-1/62368-1	North America
EN 60950-1/62368-1	EU
CB to IEC 60950-1	Worldwide
CB to IEC 62368-1	Worldwide
IEC 60529 (IP67)	Worldwide
IEC 60950-22	Worldwide
EMC Emission	
FCC	USA
EMC Immunity	
EN 301489-1	EU
EN 301489-3	EU
EN 301489-19	EU
Radio	
EU 868	EU
US 915	North America
Other	
RoHS	EU
FCC Part 2	USA
RSS 102	Canada

Turning AV300 On/Off

- Turn on: Insert (3) 1.5V AA batteries.
- Turn off: Remove batteries.
- Allow about 10 seconds after turning off before turning on.
- LED indicator:
    1) When batteries are inserted: Flash for 1 second.
    2) If brownout condition is detected, LED illuminates for 10s. Please insert new batteries.
    3) Sensor attempts to join network. LED flashes 2 times per second. Join may fail, in which case, LED turns off for some time and then retries the join process.
    4) Sensor attempts to acquire GPS fix (may take up to a few minutes). LED flashes 1 time per second during fix time.
    5) Sensor sends GPS fix. LED flashes 2 times.
    6) LED off for the duration of operation.

Mounting Accessories and Methods AV300



- Fasten back cover to outer shell using 6x enclosure screws.
- Attach to wall or other flat surface using 2x mounting screws.
- Attach via included zip-tie.
    - Included zip-tie is intended for pole size with diameter up to 85mm.