notraffic

Nexus Omni

Installation Guide

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Nexus Omni Installation Guide Jan 27 2026

Regulatory Compliance and Installation Requirements

Product installation and qualification must be carried out in accordance with NoTraffic's instructions and in full compliance with all applicable local traffic laws, safety codes, and regulatory requirements.

Table of Contents

1. General

1.1 Scope

This guide describes how to install the NoTraffic AI Mobility Platform system components.

1.2 Terminology

Term/Abbreviation	Description
DHCP	Dynamic Host Configuration Protocol
ESG	Environmental, Social, and Governance
ISI	Intersection Safety Insights
Mobility OS	Mobility Operating System
NOC	NoTraffic Operations Center
NTCIP	National Transportation Communications for Intelligent Transportation System Protocol
SDLC	Synchronous Data Link Control
TLS	Traffic Light Status
TSC	Traffic Signal Controller

2. System Overview

NoTraffic AI Mobility Platform uses fused sensors and machine learning algorithms to detect, identify, classify, and track discrete road users at signalized intersections. Functioning as a traditional detection system, the NoTraffic Mobility Platform actuates detector inputs of traffic signal controllers for stop bar and advance detection. As a comprehensive traffic control platform, it also provides applications (Apps) that support safety metrics, performance metrics, connected intersection (CI), V2X, and other ITS functions. The NoTraffic Mobility Platform provides both local (field) and central (cloud) software user interfaces for managing, monitoring, controlling, and reporting, with 24/7/365 support and monitoring.

The NoTraffic Mobility Platform is composed of the following major hardware components:

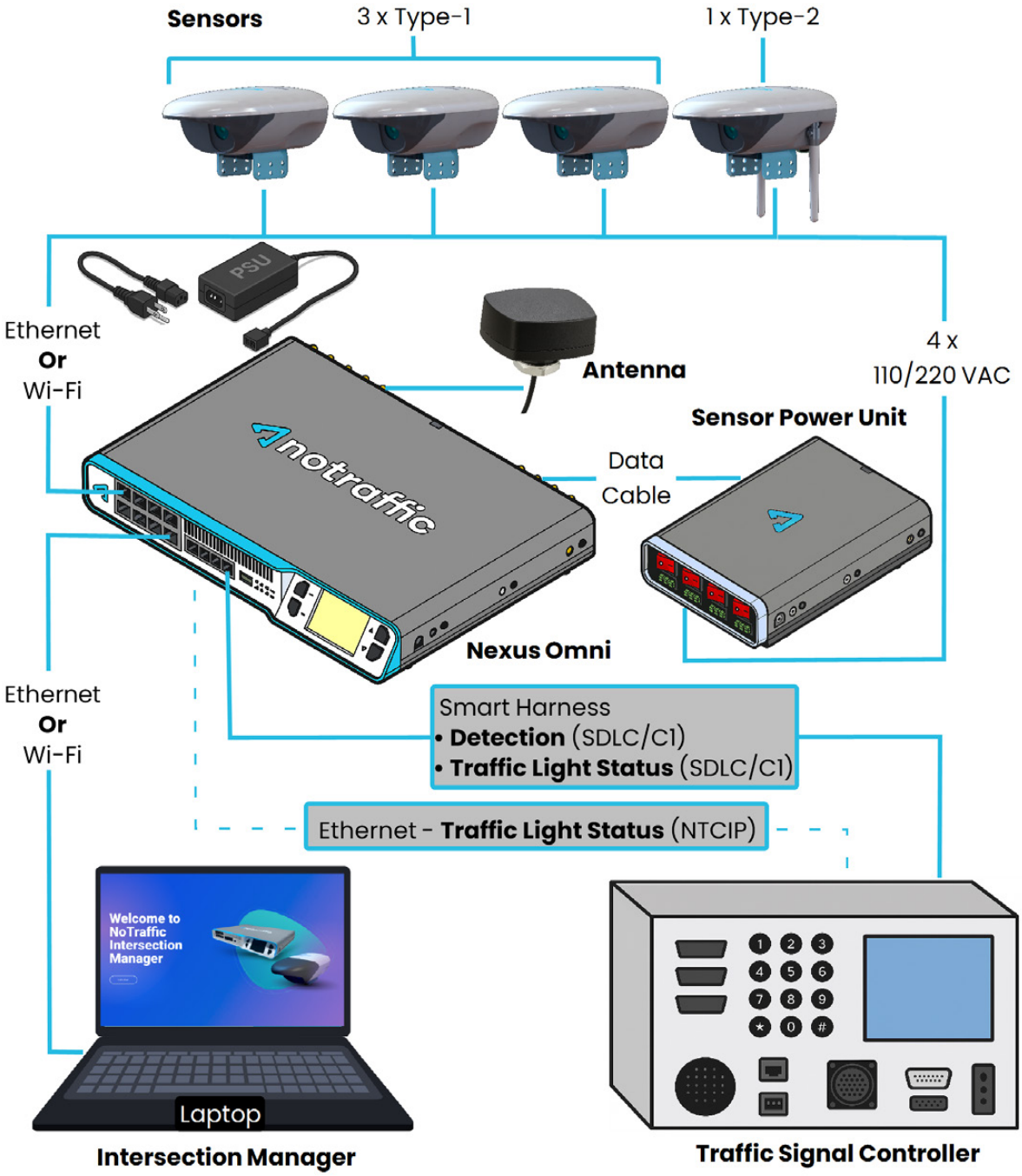
- Type-1 Sensor - Detects and classifies road users using integrated video and radar in various weather and lighting conditions.
- Type-2 Sensor - Provides the same detection and classification capabilities as the Type-1 Sensor and adds a built-in C-V2X RSU for direct V2X applications..
- Nexus Omni - Installed in the cabinet and receives detection data from the Sensors and places calls to the traffic controller. The Nexus Omni connects to the cloud-based Mobility OS and runs applications like Optimization Mode for improved traffic safety and performance.
- Sensor Power Unit - Powers the Sensors and integrates with the Nexus Omni to control power supply to the Sensors.
- Smart Harness - A device that bridges existing analog Traffic Light System (TLS) and Detection communication cables with an Ethernet connection to enable seamless communication with the Nexus Omni.
- Antenna - The antenna ensures a reliable signal for LTE, Wi-Fi, and GPS.

The Sensors are compatible with standard camera mounting hardware using a 4" yoke-style configuration and existing infrastructure. They communicate with the Nexus Omni mounted inside the cabinet via Wi-Fi (up to 250 feet) or Ethernet. Additional Wi-Fi repeaters extend the range for distances exceeding 250ft. Sensors can use any 120–240 VAC power source, including luminaires via a NEMA Tap, eliminating the need for pulling cables to the cabinet. The Sensors combine vision and radar for object detection and classification. A Type-2 Sensor with built-in capabilities for Connected Vehicle (CV) applications is installed at each intersection.

The Nexus Omni is installed in the traffic signal equipment cabinet and connects to the TSC through a Smart Harness to SDLC (BIU), or I/O (spades), and NTCIP (where applicable). The Nexus Omni includes an embedded Intersection Manager (IM) application equipped with a user interface that allows viewing and editing of all real-time and configuration data of the Nexus Omni and Sensors. This browser interface is accessible by a user at the traffic signal equipment cabinet

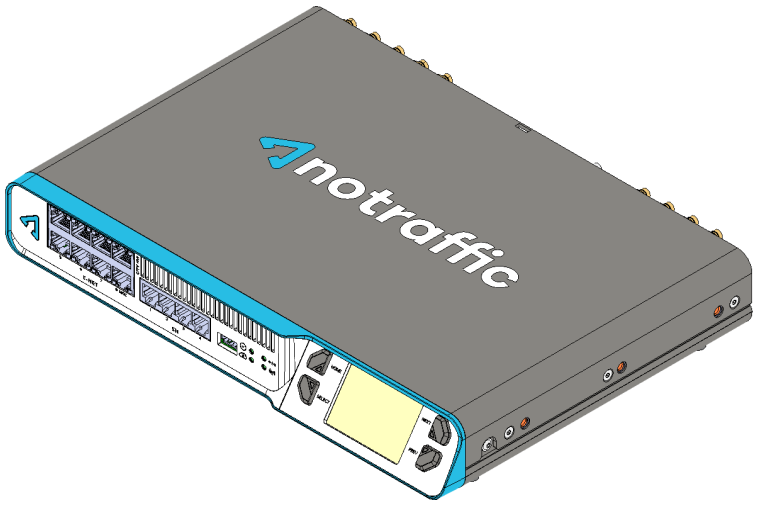
via a wired or wireless connection. The Nexus Omni controls the Sensor Power Unit but does not supply power directly.

A schematic diagram of a typical NoTraffic system appears in the following figure.



2.1 Nexus Omni

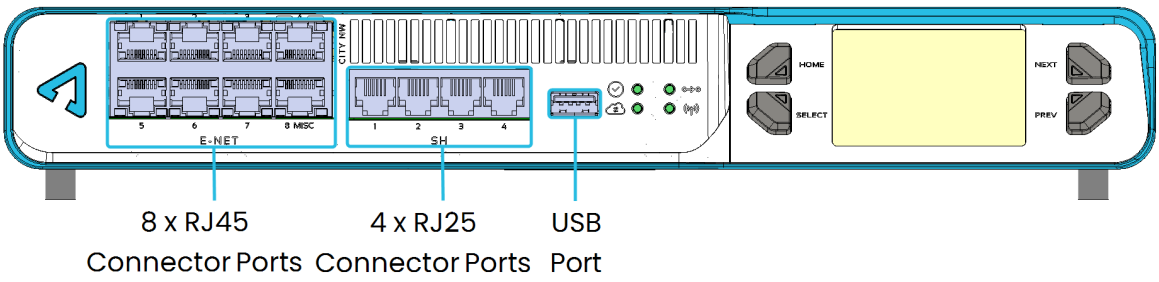
The Nexus Omni is the main processor of the NoTraffic System. It receives processed traffic demand data collected by the Sensors and serves as the interface to the traffic controller. In detection mode, it places detection calls and reads traffic light status from the controller. In optimization mode, it places phase calls to manage traffic flow efficiently.



2.1.1 Nexus Omni Communication Ports

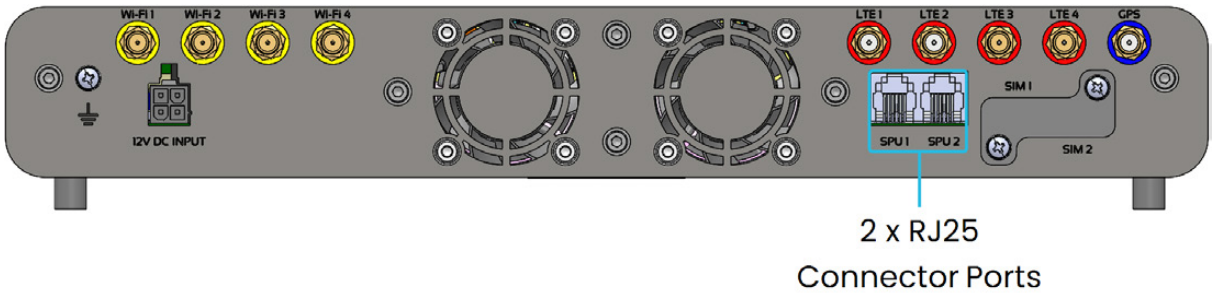
The Nexus Omni front panel includes ports to transfer Sensor, networking, detection, and TLS data. The following figure shows the available connector types:

- 8 x RJ45 Ethernet ports for optional Sensor connections (up to 8 supported) and networking communication.
- 4 x RJ25 communication ports for various I/O connections (Detection and TLS).
- 1 x USB port.



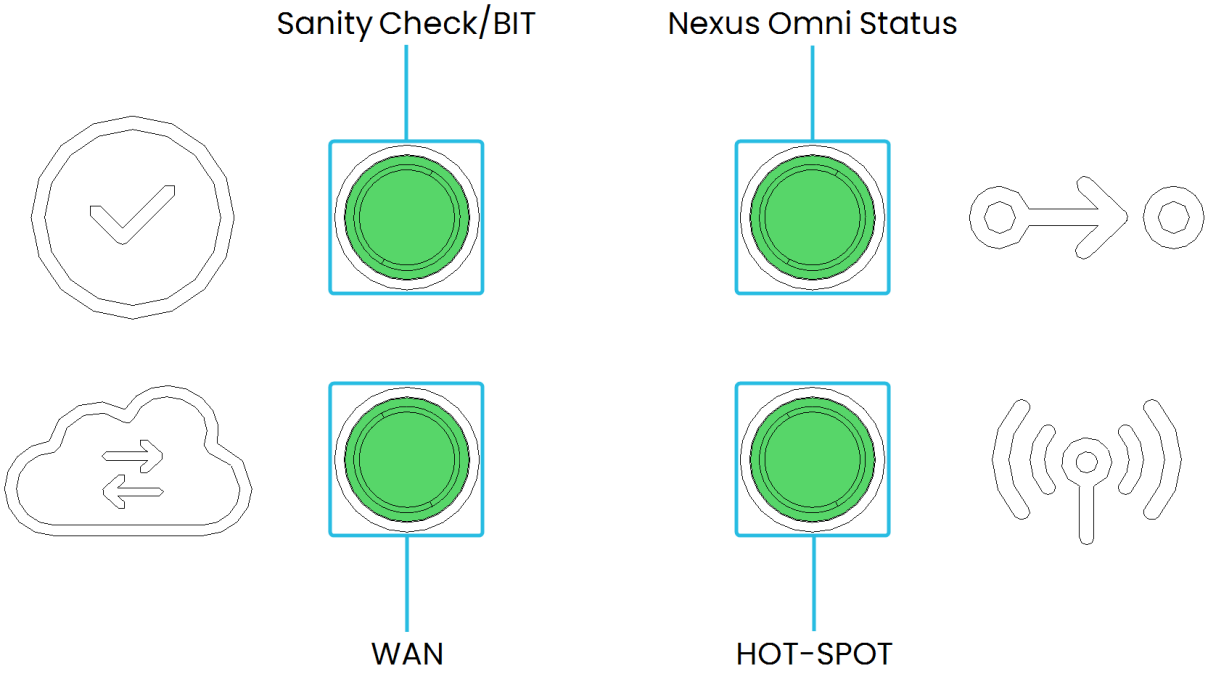
The Nexus Omni rear panel includes ports to communicate data to the Sensor Power Unit. The following figure shows the available connector type:

- 2 x RJ25 communication ports for Sensor Power Unit



2.1.2 Nexus Omni LED Indicators

The four LED indicators on the front panel provide status information during operation.



Indicator	Function	Color
Sanity Check/BIT	Built-in Test (BIT) / self-check status	Green = Normal operation
Nexus Omni Status	System operating state	Red = Factory mode Green = Operational Blue = Managed
WAN	Wide Area Network connectivity	Green = WAN link active
HOT-SPOT	Wi-Fi Hotspot availability	Green = Hotspot active

2.2 Sensor

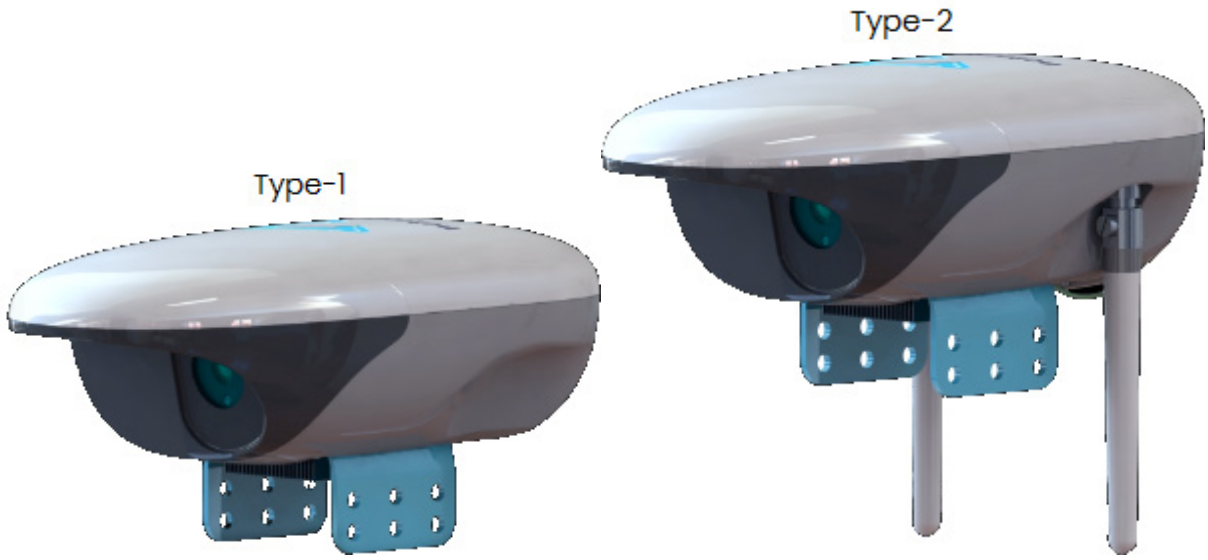
The NoTraffic Sensor combines video and radar technology to detect and classify roadway users in various weather and lighting conditions.

There are two Sensor types:

- **Type-1**: Standard Sensor for detection and classification of road users.
- **Type-2** : Same capabilities as Type-1, plus an embedded Connected Vehicle Roadside Unit (SU – V2X RSU) for direct V2X communication.

Typical Installation:

One Sensor is installed per approach. A Type-2 Sensor is used for one approach to provide direct V2X capabilities, and Type-1 Sensors are used for all other approaches.



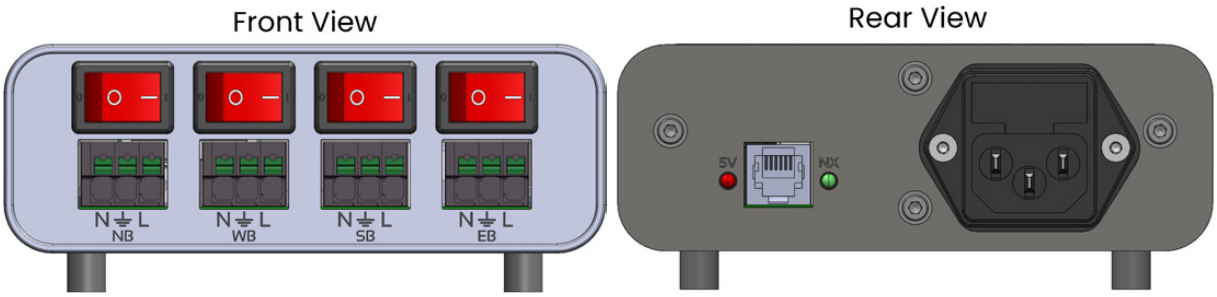
The Sensor communicates with the Nexus Omni (installed in the cabinet) either wirelessly or via Ethernet cable, allowing flexible installation across various locations with different power sources and mounting options. For Sensor-to-Nexus Omni communication up to 100 meters, use Cat5 or higher category Ethernet cable. Cat5e is recommended for new installations.

2.2.1 Power Sources

Sensor Power Unit

Installed in the cabinet adjacent to the Nexus Omni is a 110V AC power supply device with four output ports for powering the Sensors. It also controls the on/off state of the Sensors. Key features of the Sensor Power Unit include:

- Surge protection against power spikes.
- Provides clean, balanced power to the Sensors via a dedicated unit.
- Remote digital control of the Sensor power (on/off).

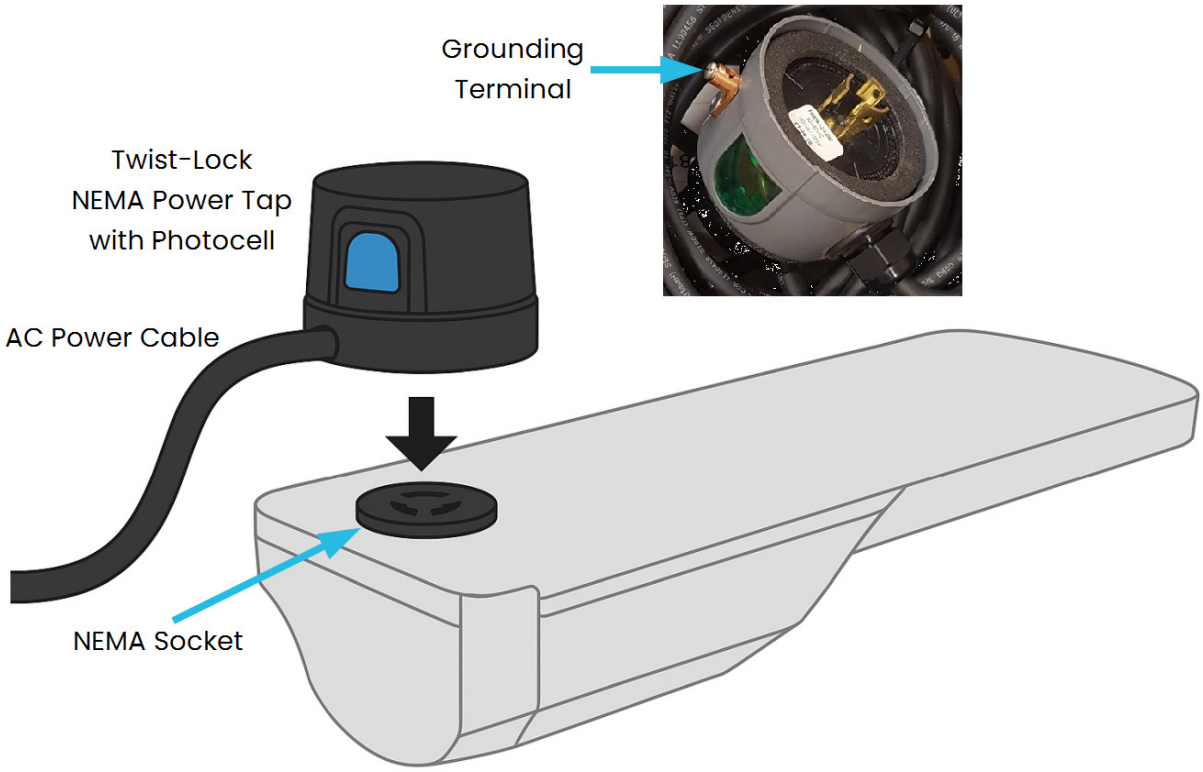


Luminaire Power (NEMA Power Tap)

NEMA power taps are installed on luminaires and contain a photocell. They provide auxiliary power directly to the Sensors without requiring cabinet cabling. The NEMA power tap connects to the luminaire's NEMA socket interface and delivers AC power to the Sensor.

Key features:

- 10-foot, 3-conductor power cable from the NEMA power tap, supplying line, neutral, and ground via the NEMA socket interface.
- The grounding conductor connects via a dedicated grounding terminal on the adapter and must be secured to a grounding point inside the luminaire during installation.
- 20-foot and 7-pin NEMA tap options are available if required.
- Twist-lock installation that does not interfere with normal luminaire photocontrol operation.



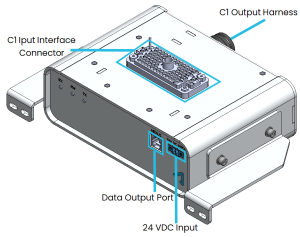
2.3 Antenna

The antenna ensures reliable signals for LTE, Wi-Fi and GPS. It has 4X LTE leads (for main modem and backup), 4X Wi-Fi leads, and 1 GPS/GNSS lead. All leads are 6 feet in length.

2.4 I/O Cables and Smart Harnesses

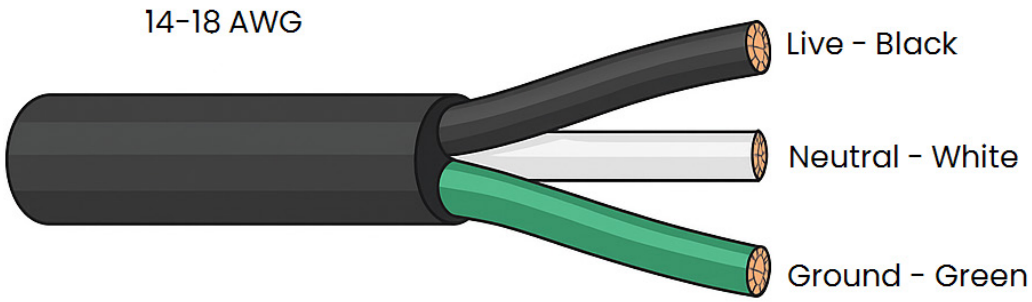
When integrating with the existing controller, use one or more of the following to enable read/write access:

I/O Cable	Where Used	Purpose
Cat5 cable 	1. NTCIP connection from Nexus Omni to TSC 2. City Network switch to Nexus Omni (if needed) 3. PC to Nexus Omni (if needed)	1. NTCIP connection to TSC. 2. Reads Traffic Light Status, vehicle calls, and detector calls (required for ATSPMs). 3. Required for optimization to place phase calls. 4. To connect to **Intersection Manager Installation Assistant**.
TSC – Nexus Omni I/O Cable 	1. Smart Harnesses to Nexus Omni 2. Sensor Power Unit to Nexus Omni	1. Enables communication between TSC and Nexus Omni. 2. Controls Sensors power.

I/O Cable	Where Used	Purpose
Smart Harness 	1. Nexus Omni to TSC or SDLC Bus	1. Enables communication between TSC and Nexus Omni for: • Reading TLS. • Placing detection calls.
SDLC 15-15 15-25 (BIU and SIU) 	1. TSC to SDLCSmart Harnesses to Nexus Omni	1. Enables communication between TSC and Nexus Omni for: • Reading TLS. • Placing detection calls.
	1. SDLC Smart Harness	1. Converts a DB15 male connector into a DB15 female connector.
C1 Smart Harness 	1. TSC to C1 Smart Harnesses to Nexus Omni	1. Enables communication between TSC and Nexus Omni for: • Reading TLS for Caltrans TEES software. • Placing detection calls.

2.5 Sensor Power Cable (Customer-Provided)

Use a 14–18 AWG, 3-conductor stranded copper cable to power each Sensor. When using 18 AWG wire, terminate it with a 16 AWG ferrule for proper termination.



2.6 Cabinet Equipment

NoTraffic is compatible with various traffic cabinet equipment, including:

- Traffic Cabinets: NEMA TS1, TS2-1 & TS2-2, 332 / Caltrans cabinets, and ATC cabinets.
- Power: NoTraffic requires one 120 VAC socket to power all cabinet equipment.

> **Warning**
> Do not connect the units to a GFCI-protected power outlet, this leads to unwanted power interruptions.

- Detection I/O: SDLC (via SDLC bus, controller SDLC port, or 2070 module with SDLC port and a virtual BIU), or by terminating spades directly to the input file.
- Traffic Light Status I/O: NTCIP is used to read traffic light status and phase call information. SDLC can be used but it only reads traffic light status. For Caltrans TEES software, a C1 harness is used.
- Optimization & ATSPM requirements: NTCIP is required for intersections to run in optimization mode or collect ATSPMs.

2.7 Software

The Nexus Omni runs a web-based application called **Intersection Manager Installation Assistant**, used for intersection configuration. For a comprehensive overview, refer to the Intersection Manager Installation Assistant Version 5+ User Guide.

2.7.1 Modes of Operation

The NoTraffic system operates in three modes:

- Detection Mode - Sensors detect and classify all road users, providing inputs to the traffic controller for signal operations. Data is sent to MOS for performance measurement. The intersection continues to operate using the timing and detector plans programmed in the traffic controller.
- Optimization Mode - NoTraffic uses AI to autonomously optimize traffic signal operations in real-time based on actual demand and by predicting traffic patterns up to two minutes into the future, instead of following a fixed cycle or historical estimates. Advanced AI algorithms track and count vehicles, analyze incoming data, and respond appropriately, regardless of intersection geometries or traffic demand changes.
- Passive Mode - Sensors collect data without actuating the traffic signal. This mode is typically used for roundabout or pedestrian signals. Data is still sent to the dashboard for access and performance measurement. Additionally, Sensors pass traffic demand information to downstream intersections if the corridor or grid is in Optimization Mode.

3. Required Tools and Equipment

The following generic tools are required for installation:

- PH1 Phillips-Head Screwdriver
- 2.5 mm hex screwdriver (included in the Type-2 Sensor box)
- Cordless drill with step bit up to 1”
- Wire cutters and wire strippers
- Multimeter
- Silicone waterproof sealant

Note
Additional mounting hardware and associated tools may be required depending on the specific hardware purchased and the traffic cabinet in use.

Warning

When working at field locations with elevated ambient temperatures, use caution when opening cabinets and handling internal equipment.

Cabinet interiors and metal surfaces reach significantly higher temperatures than the surrounding environment. Allow sufficient cooling time after opening before performing maintenance or handling.

4. Installation

Select mounting locations for the Nexus Omni ,antenna, Sensor Power Unit and Sensors.

4.1 Nexus Omni Mounting Options

The Nexus Omni supports multiple mounting options to accommodate various installation scenarios:

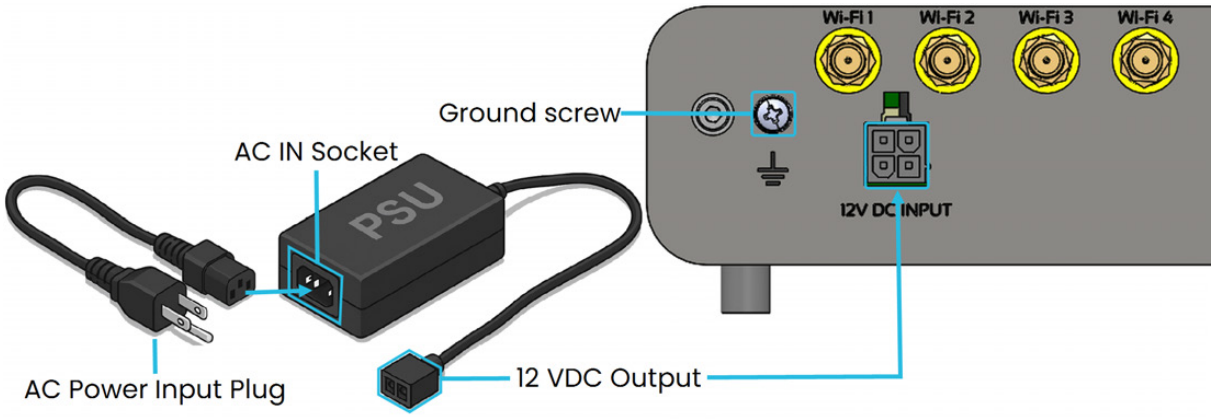
- Horizontal or vertical shelf mounting (vertical mounting requires an additional holder)
- Standard 19" rack installation (requires additional mounting brackets)

> **Note**
> For a 1U rack installation, remove (unscrew) the four mounting legs from both the Nexus Omni and the Sensor Power Unit before mounting.

4.2 Connecting the Power Supply Unit (PSU)

To connect the PSU to the Nexus Omni

1. AC input:
   a. Plug the C13 connector of the power cord into the PSU's AC IN socket.
   b. Connect the AC power input plug to the mains outlet inside the cabinet.
2. DC output:
   a. Plug the 4-pin 12 VDC output connector from the PSU into the Nexus Omni's 12 VDC INPUT port, as shown in the figure below.
   b. Make sure the connector is securely clipped into the input socket and the cable is not under strain.



Note
When using the Sensor Power Unit, see Section 4.6, connect one socket on the supplied AC Y-splitter power cord to the Nexus Omni PSU. This setup saves one AC outlet.

Note
For improved grounding and electrical safety, connect a grounding cable to the ground screw on the rear panel of the Nexus Omni.

4.3 Installing the Antenna

The antenna can be mounted in one of two options as follows:

- Roof mounted - this is the default mounting method.
- Vertical mounted – used where roof drilling is not permitted due to weatherproofing concerns.

Note
Make sure that all nine leads from the antenna can reach the Nexus Omni inside the cabinet.

To install the antenna on the roof:

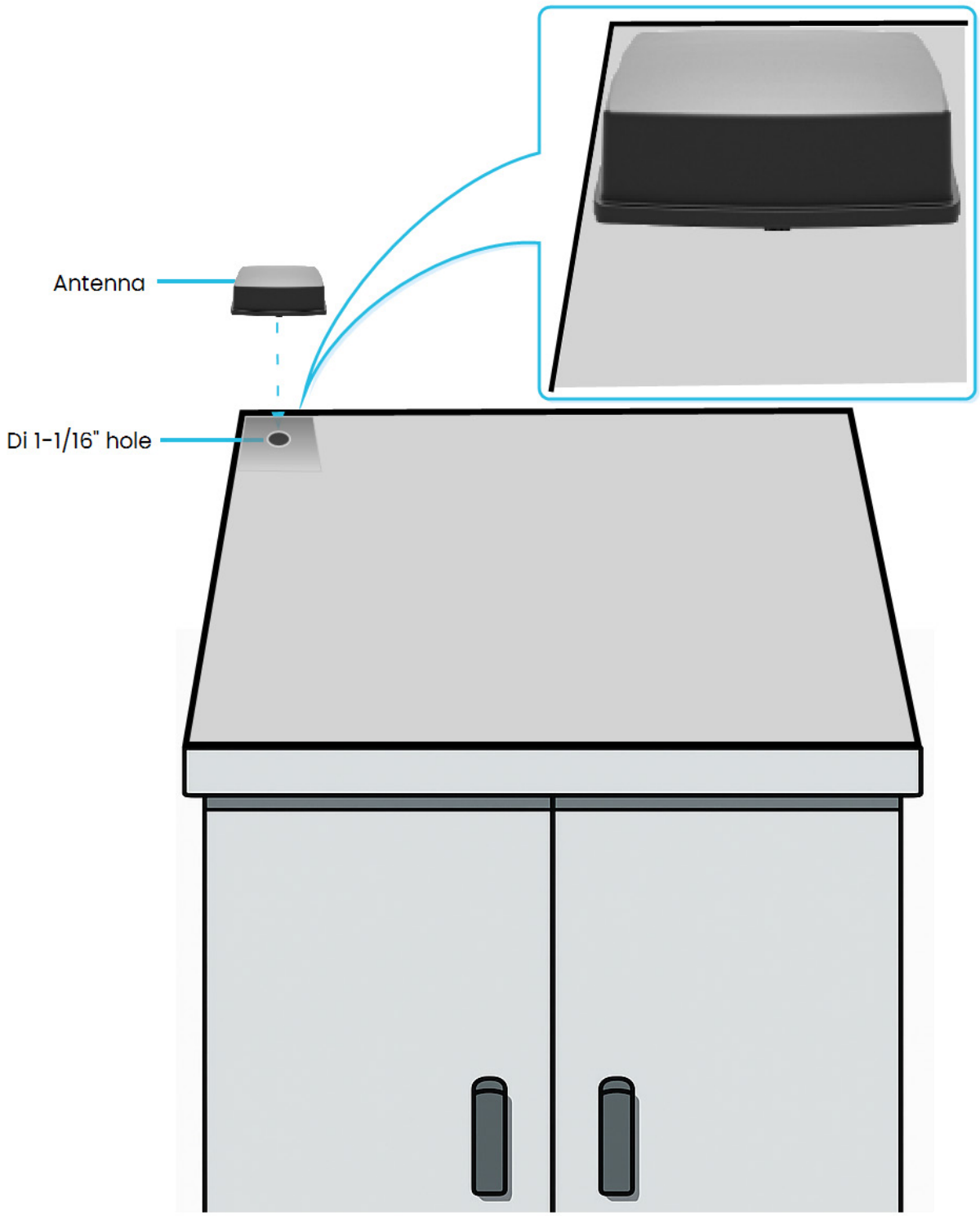
Install the antenna on a flat surface .

If installing on the side of the cabinet, use a custom made mounting bracket large enough to accommodate the antenna.

Caution

Do not install the antenna sideways or protruding from the cabinet. Improper positioning degrades signal quality and leads to long-term performance issues.

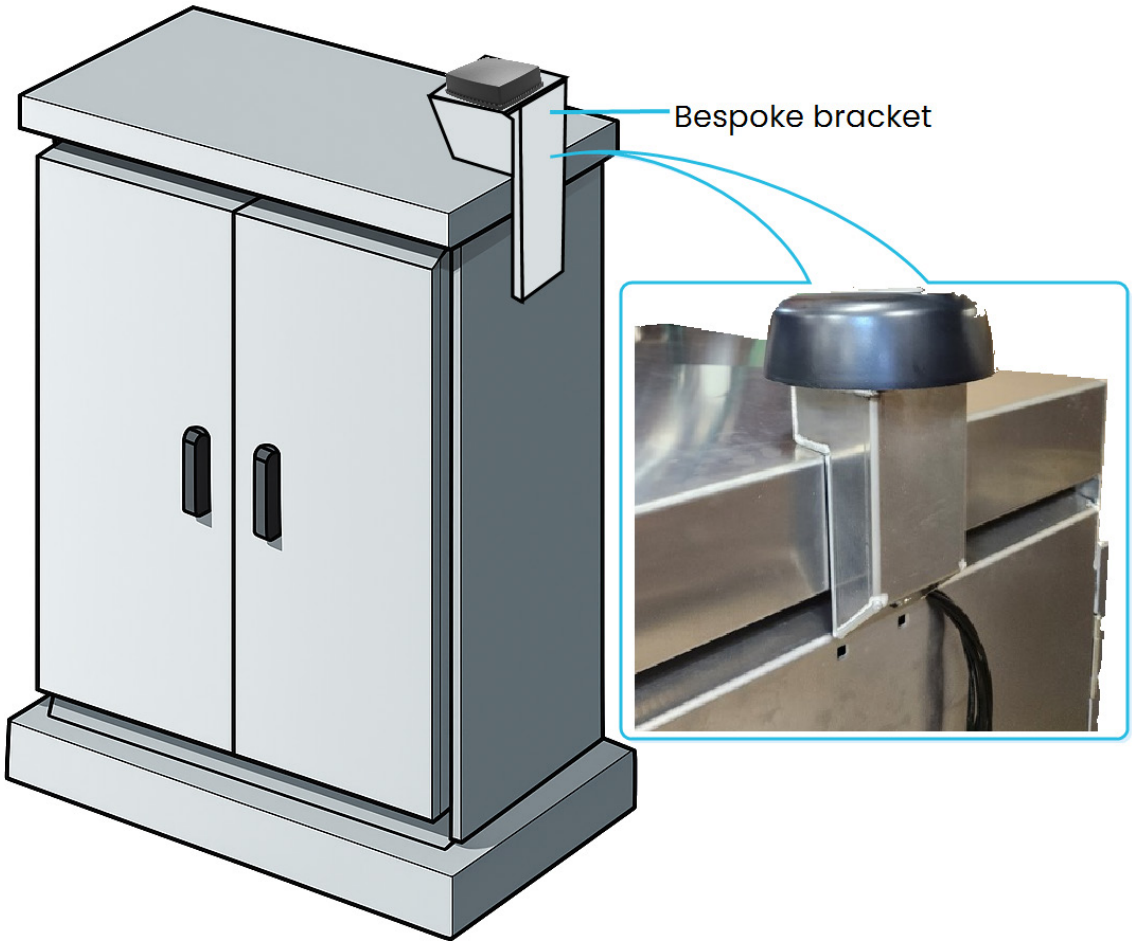
1. Select a mounting location near the rear of the cabinet top panel to minimize cable routing distance, as shown in the following figure.



2. Drill a 1-1/16 in hole in the cabinet's top panel at the center of the selected mounting location.
3. Remove all debris from the surface and clean the area using a fresh alcohol wipe.
4. Feed the antenna cable assembly wiring harness through the drilled hole from the top side of the cabinet.
5. Position the antenna centrally over the drilled hole. Make sure it is in full contact with the cabinet top panel. Secure it firmly using 3M adhesive.
6. Route the antenna cable inside the cabinet to the Nexus Omni.
7. Apply silicone waterproof sealant around the underside of the antenna base to form a weatherproof seal.

To install the antenna vertically:

1. Locate a position on the side of the cabinet for antenna mounting, as shown in the illustrative example below.
2. Mount the antenna on a bespoke bracket for optimal antenna performance.

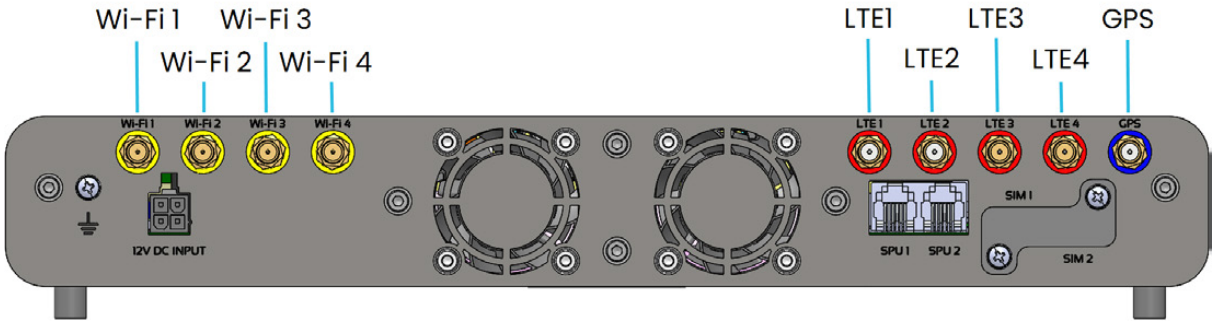


Note
The integrator is responsible for designing and fabricating a suitable mounting bracket based on site specific placement requirements.

To connect the antenna leads:

1. Connect the following antenna lead connectors to the Nexus Omni rear panel. Make sure each connector's color aligns with the matching color of the respective port on the Nexus Omni.

Antenna Output	Nexus Omni Input
Wi-Fi-1	Wi-Fi 1 (yellow).
Wi-Fi-2	Wi-Fi 2 (yellow)
Wi-Fi-3	Wi-Fi 3 (yellow)
Wi-Fi-4	Wi-Fi-4 (yellow)
4G/5G-1	LTE1 (red)
4G/5G-2	LTE2 (red)
4G/5G-3	LTE3 (red)
4G/5G-4	LTE4 (red)
GNSS	GPS (blue)



4.4 Installing Sensors

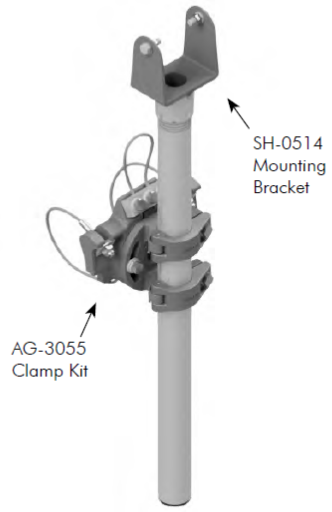
To mount the Sensors:

1. Choose a mounting location for each Sensor that is centrally aligned with the approach and positioned at the maximum achievable height. Make sure of the following:
    - Install Sensors at a height of 18–33 ft (5.5–10 m) above ground level to ensure optimal visibility of approaching lanes and the intersection center.
    - Each Sensor covers a single intersection approach, including right-turn, through and left-turn traffic.
    - Mount the V2X Sensor (1 per intersection) facing the main street closest to the cabinet, with minimal obstruction to field of view, to provide the best possible range for V2I communications.
    - For mast arm installations, mount the Sensor as close as possible to the center of the approach for optimal detection performance.

Note
To determine the best location for the Sensor, consult the NoTraffic team.

2. Mount the mast arms or camera mounts at the selected Sensor location for each intersection approach. The following are recommended:
    - Mast Arms – a Pelco Astro-Brac with a SH-0514 mounting bracket and a 6-foot riser tube as shown in the following figure. Clamp kits may vary depending on agency specifications or preferences. Most standard detection camera mounting brackets are compatible but should be reviewed on a case-by-case basis.

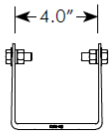
Note
Make sure the mounting bracket has the same width (4-inches) and bolt size as the Sensor's mounting brackets and bolt holes.



Camera Bracket, 1-Piece Extended Tilt & Pan, Alum Galaxy Cable Mount

	1.94" OD Tube Length		Cable Length		Cable		Coating
AG-0175 -	[ ]	-	[ ]	-	[ ]	-	[ ]
	23=23" Tube 37=37" Tube 46=46" Tube 58=58" Tube 74=74" Tube		See Table		Blank=Galv SS=Stainless		PNC=Process No Color P_ _=Paint

Cable Length:	62"	84"	96"	110"	120"	132"	144"	220"	280"
Maximum Pole Dia:	7.0"	10.5"	12.4"	14.6"	16.2"	18.2"	20.1"	32.2"	35.0"
Pole Dia w/ Ty-back:	4.5"	7.6"	9.6"	11.8"	13.4"	15.3"	17.2"	29.3"	35.0"

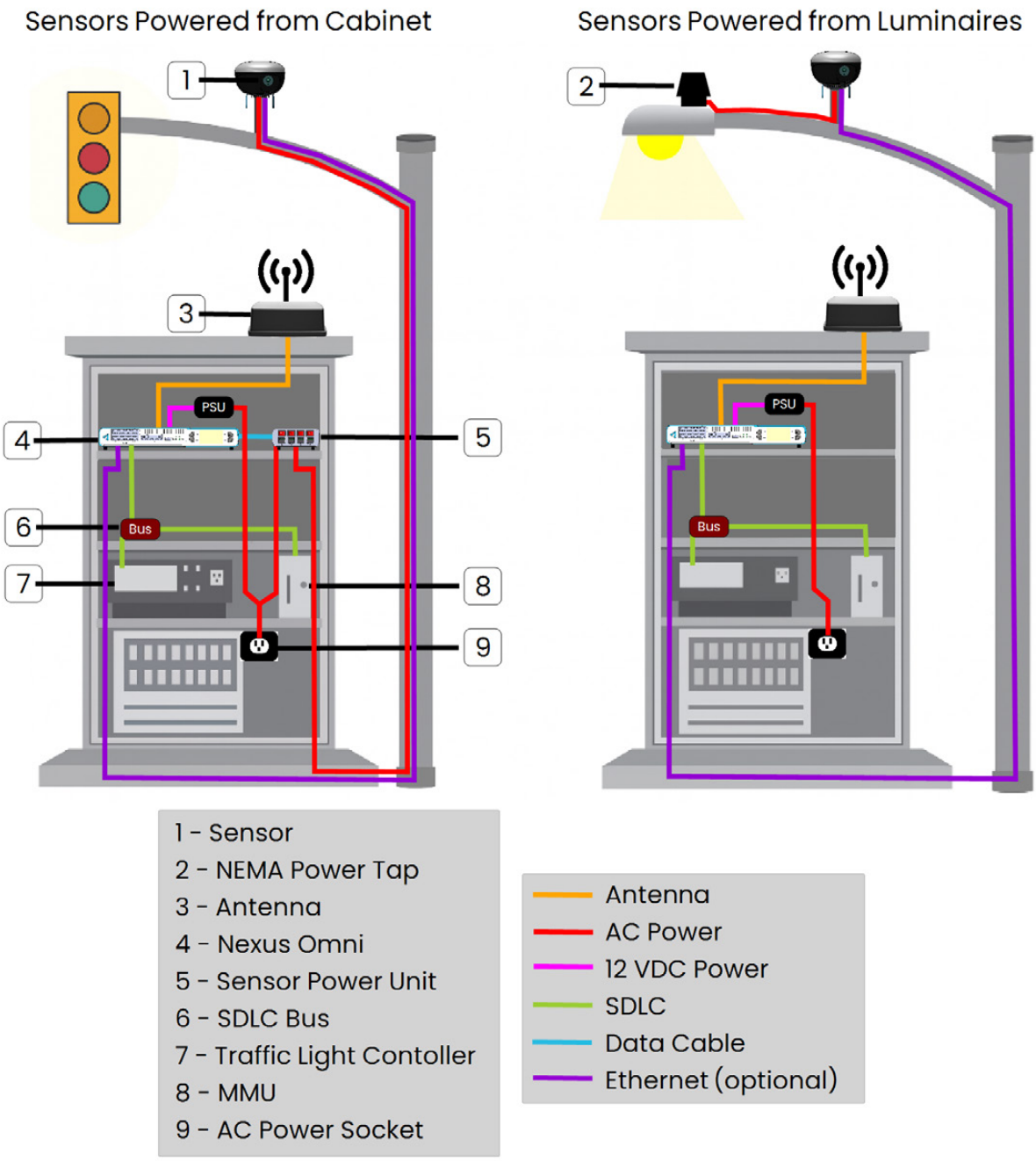


- Luminaires - the Iteris Universal Camera Mount MA/SOP-16. Equivalent products from other vendors (e.g., Sky-Bracket) are acceptable.

3. Fit the Sensor onto and over the mounting arm.
4. Align the holes of the locating plates with the holes on the mounting bracket.
5. Fasten the Sensor to mast arm or luminaire using standard detection camera mounting brackets and secure using the 2 bolts.

4.5 Connecting Cabinet Components

Cabinet equipment required for cabinet-powered Sensors and luminaire-powered Sensors are shown below.

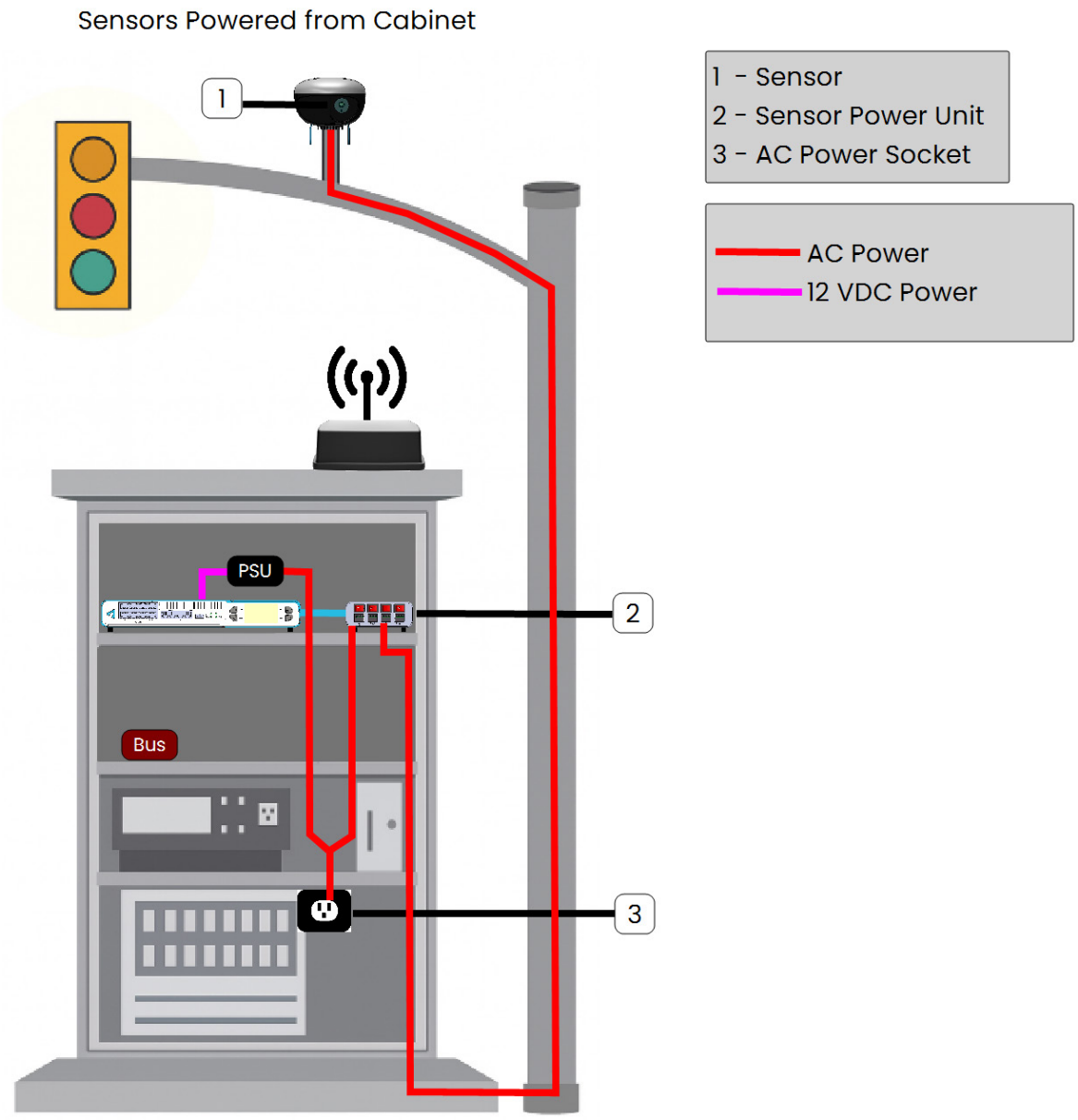


4.5.1 Running Power to Sensors

There are two options to run the power cable to the Sensors:

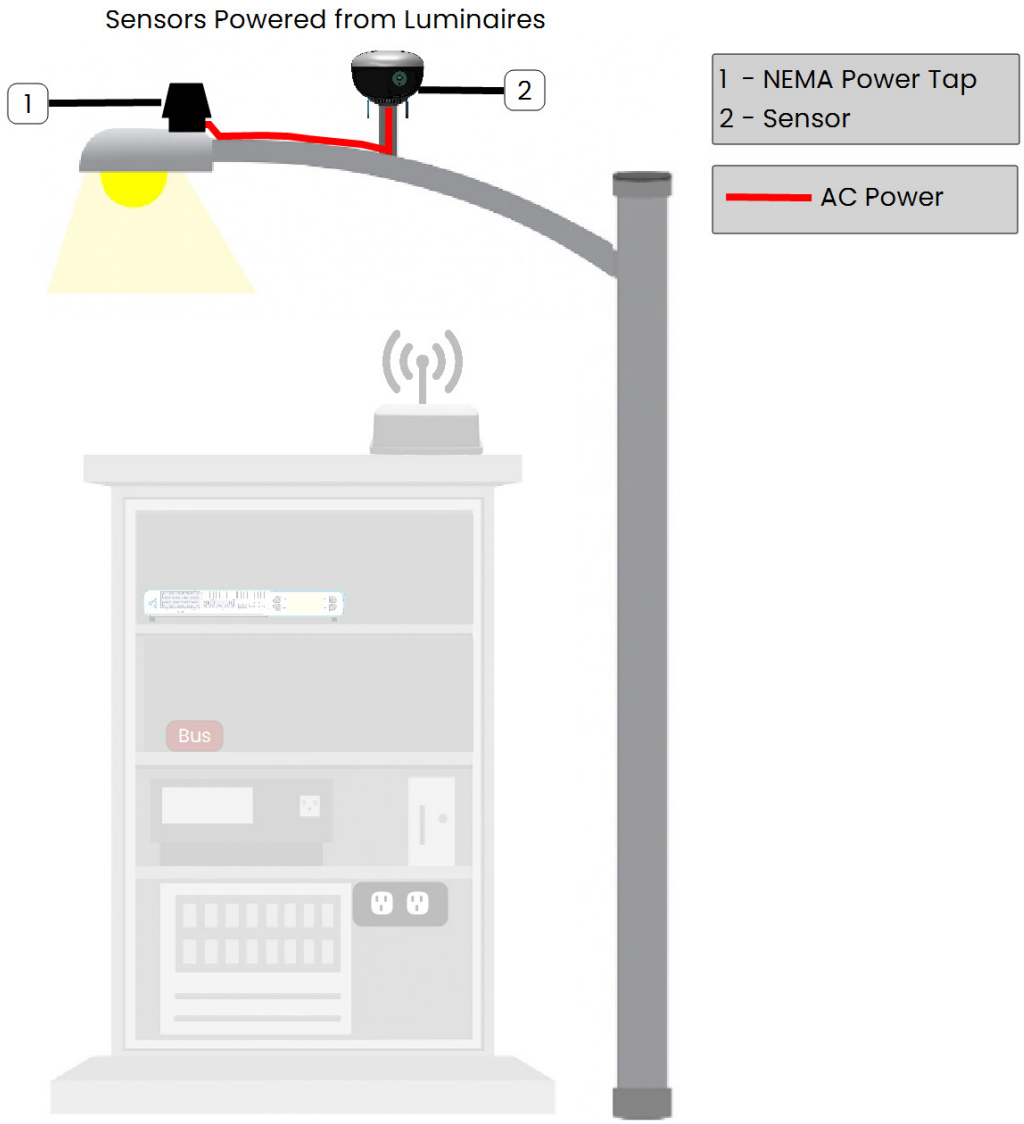
4.5.1.1 Sensors powered using the Sensor Power Unit:

1. From the Sensor Power Unit in the cabinet, run the power cable to the mast arm location where the Sensor is mounted.



4.5.1.2 Sensors powered from a luminaire using a NEMA tap:

1. Attach and twist the NEMA power tap onto the NEMA socket at the top of the luminaire.
2. Connect an additional grounding wire to the NEMA power tap's grounding terminal, and secure the opposite end to a grounding point inside the luminaire.
3. Route the NEMA power tap's AC power cable along the mast arm to the Sensor mounting location.
4. Cut the power cable to theappropriate length to reach the Sensor's power connector.
5. Connect the NEMA power tap's AC power cable to the Sensor's power connector.



4.5.2 Connecting Sensors

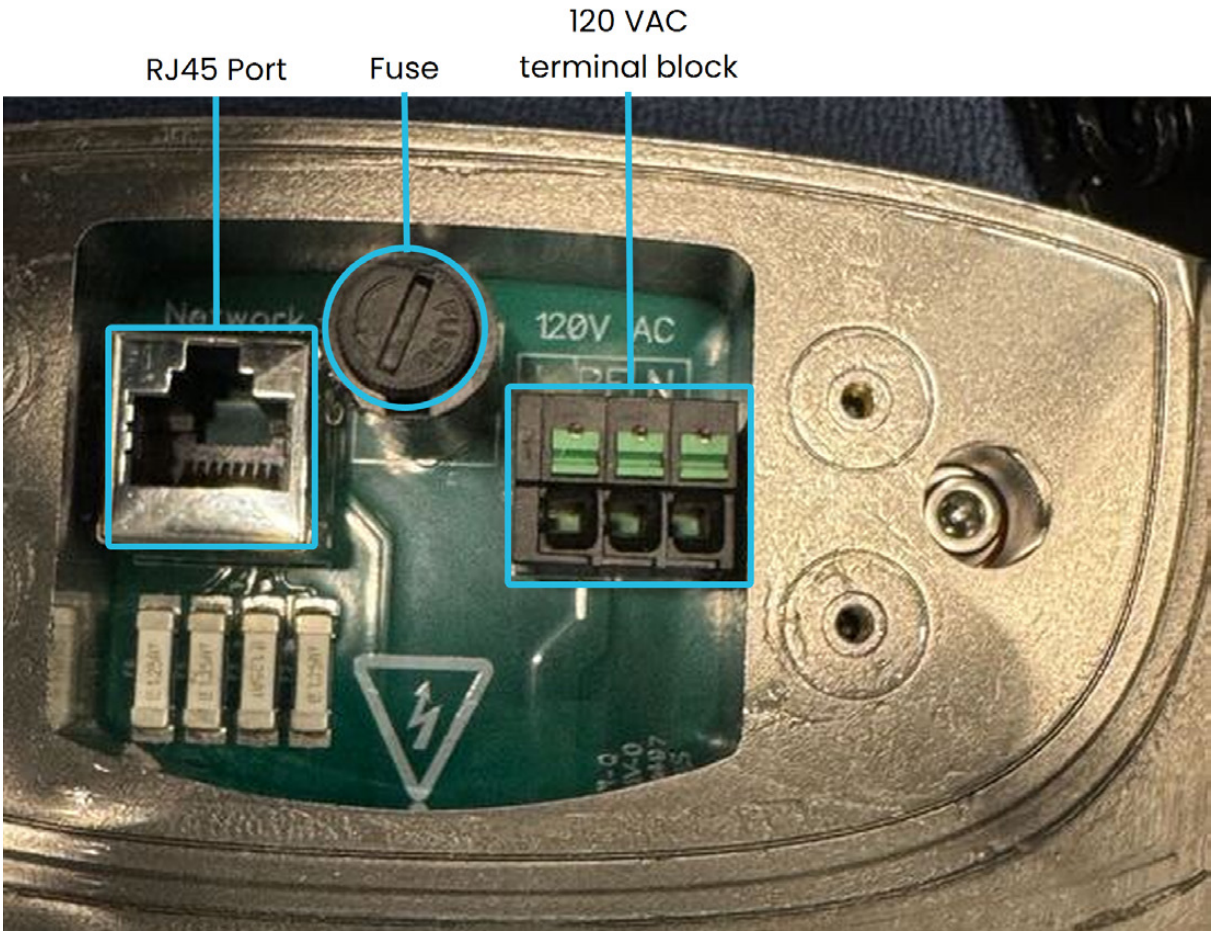
To connect the power and Ethernet cables to the Sensor:

1. On the Sensor, remove all 4 screws securing the rear panel to the Sensor.
2. Slightly loosen the mounting bracket on the Sensor in order to tilt the sensor down allowing access to the wiring panel.
3. Feed the end of the power cable through the power cable entry hole in the rear compartment, along with the rubber grommet and plastic nut, as shown in the following figures.
4. Feed the end of the Ethernet cable through the Ethernet cable entry hole in the rear compartment, along with its rubber grommet and plastic nut, as shown in the following figures.

5. Strip down the end of the power cable, separating the live (black), neutral (white) and ground (green) wires.

> **Note**
> The NEMA tap cable does not include a ground wire. Grounding is performed at the luminaire.

6. Terminate the AC power wires at the terminal block on the Sensor using the green push lever connectors. No tools are required.



Note
On older Sensor models, connect the wires by pressing the green tabs with a flat-head screwdriver to open the connector. Insert the wire, then release the tab. Make sure the tab clicks into place to lock the wire securely.

7. Replace the rear compartment (secure with 2.5 mm hex screws), grommet, and nut as shown in the following figure.

Note
Ensure the rear compartment is securely fastened and the seal between the power cable and the nut is tight.

4.5.3 Connecting Sensor Power Cables to Sensor Power Unit

Note
This procedure applies only when Sensors are powered from the cabinet using a Sensor Power Unit.

1. Connect the power supply cord to the back of the Sensor Power Unit.
2. Do not connect the power supply cord to the mains supply socket at this stage. Make sure this is a grounded socket (not one with GFCI protection) that is easily accessible during installation.
3. Set all output terminal switches to OFF (0).
4. Prepare the Sensor power conductor wires:

   Use 14–18 AWG, 3-conductor stranded copper cable between the Sensor Power Unit and the Sensors.

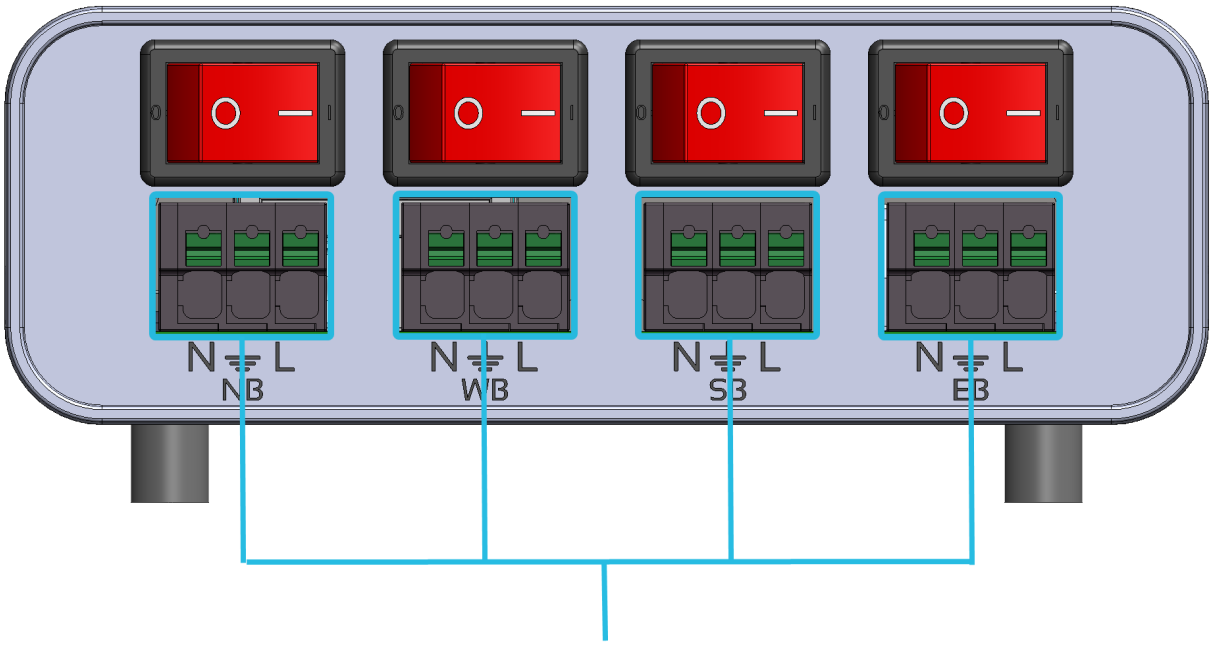
   a. Strip 3/8 in of insulation from each wire.
   b. When using 18 AWG wire, terminate it with a 16 AWG ferrule for proper termination.

Caution
Use only insulated bootlace ferrules with a 10 mm contact length. Make sure the plastic insulating collar matches the conductor AWG size.

Reference examples (or equivalent): H1.0/16 GE or RS PRO 250-3438

1. Connect each wire to the corresponding Sensor power ports on the Sensor Power Unit. in this order:
   a. ⏚ (Ground): green
   b. **N** (Neutral): white
   c. **L** (Live): black
2. Each output supports 110 VAC or 220 VAC, depending on the local power supplied to the Sensor

Power Unit. Refer to the Sensor Power Unit caution label for the maximum output per connector.



4 x 110/220 VAC, 60 Hz power output ports for Sensors

Caution

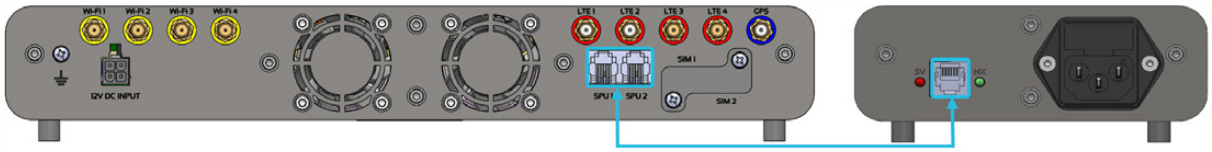
For safety, always connect wires in the following order: Ground → Neutral → Live

When disconnecting, reverse the order: Live → Neutral → Ground

Follow this sequence even when the power is switched off to prevent accidental electric shock.

4.5.4 Connecting Nexus Omni to Sensor Power Unit

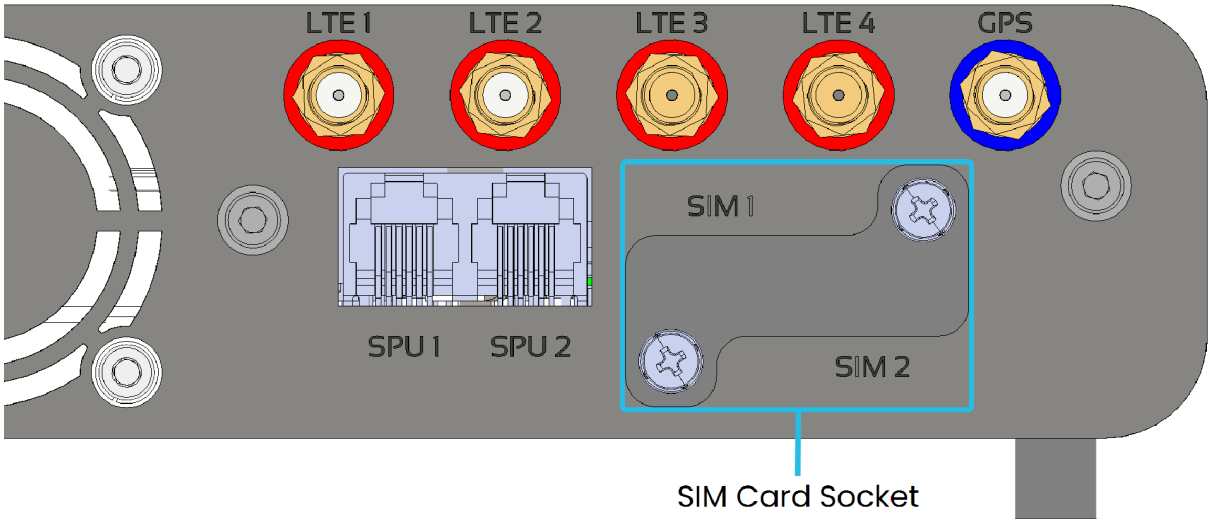
1. Plug one end of the RJ25 cable into the rear of the Nexus Omni and the other end into the Sensor Power Unit. The Nexus Omni supports connection to a maximum of two Sensor Power Units.



RJ25 Connection to Sensor Power Unit

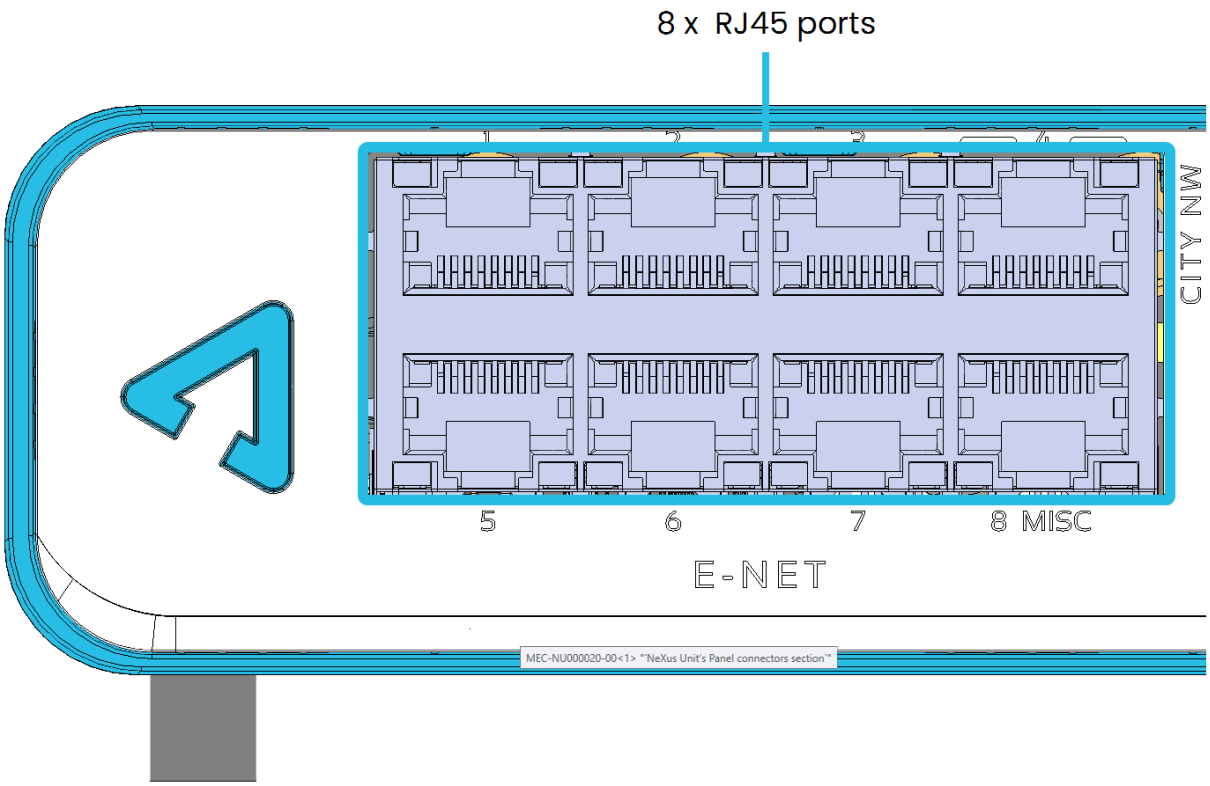
4.5.5 SIM's Socket

Note
Two SIM cards are pre-installed in the Nexus Omni. Do not remove them without explicit instructions from NoTraffic Support.



4.5.6 Connecting I/O for Sensors and Networking Communication

1. Four of the eight RJ45 Ethernet ports are designated for connecting to the Sensors via Ethernet cable.



2. The remaining four RJ45 Ethernet ports can be assigned for communications as follows:
    - Using NTCIP to connect to the city network directly through the local switch.
    - Connecting to a PC for installation and maintenance using Intersection Manager Installation Assistant.

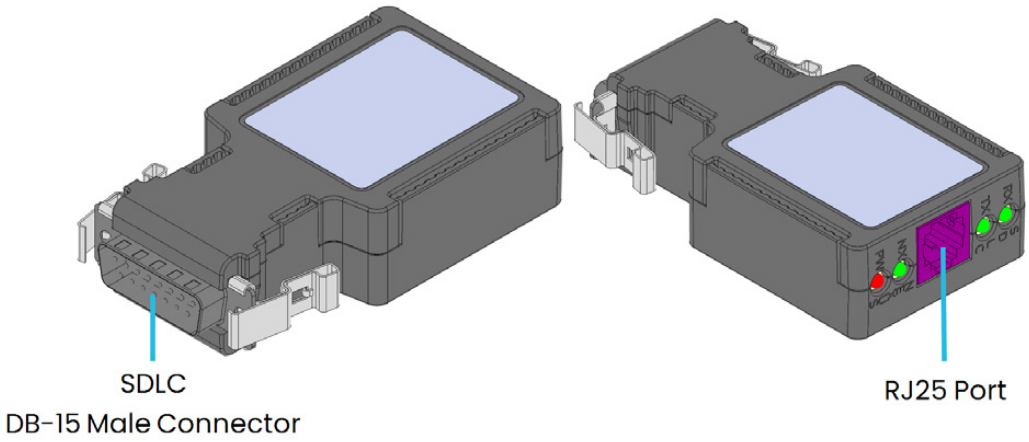
4.5.7 Connecting TSC – Nexus Omni I/O Smart Harness

The Smart Harness functions as an inline interface between the TSC and the traffic signal wiring, alllowing the Nexus Omni to access intersection signal data.

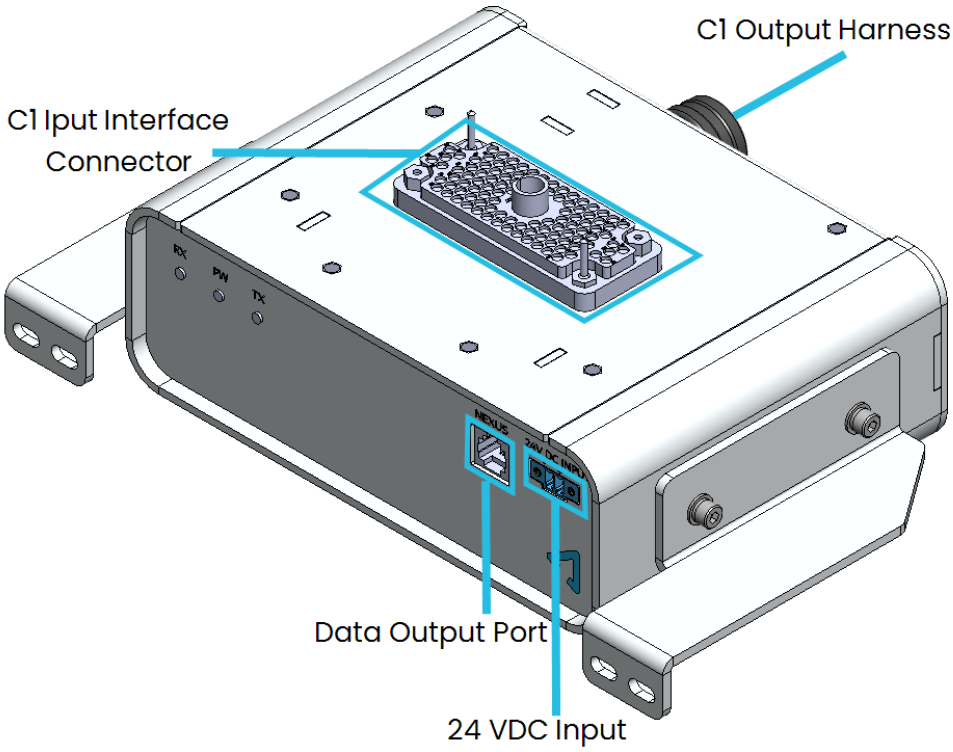
To connect the TSC to the Nexus Omni I/O Smart Harness:

1. Connect a suitable **Smart Harness** to the TSC, using the required NTCIP, SDLC, C1, and ABC ports. Multiple Smart Harness options are available, as follows:

   a. **SDLC Smart Harness**

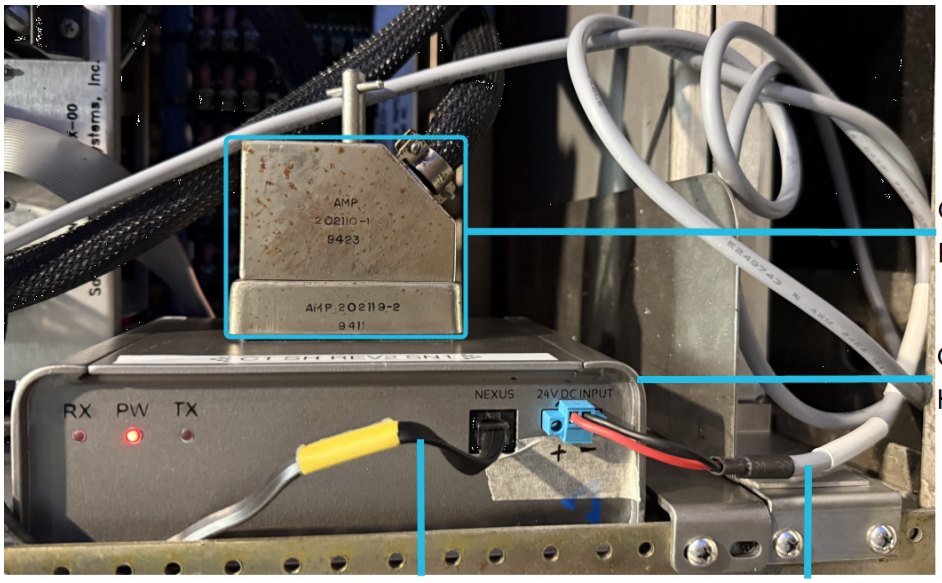


   b. **C1 Smart Harness**

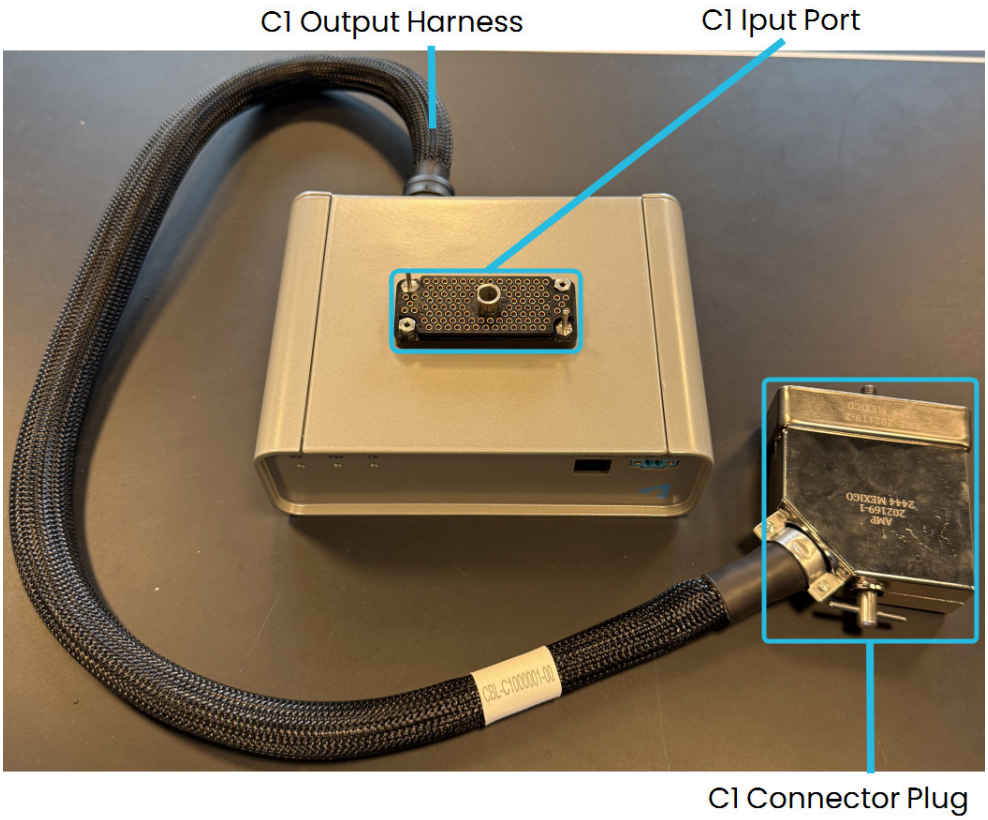


2. Disconnect the existsing C1 harness plug from the TSC.

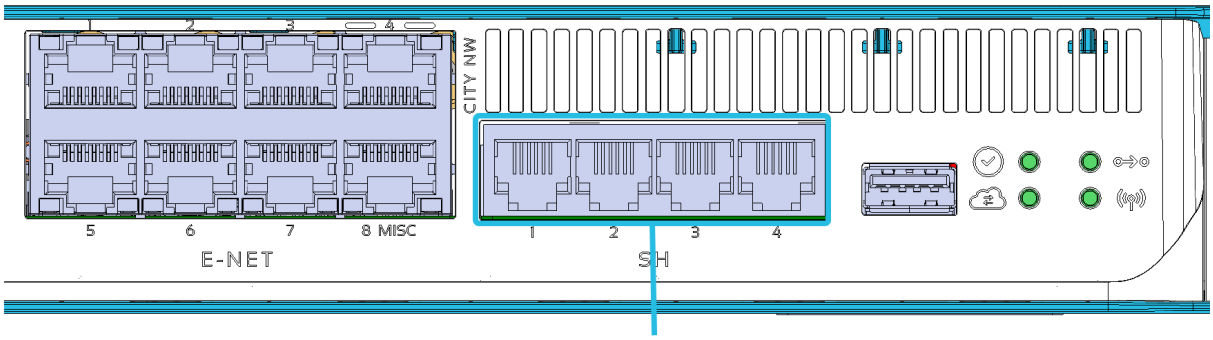
3. Connect the C1 connector plug of the disconnected harness to the C1 input interface connector on the C1 Smart Harness.



4. Connect the C1 connector plug of the C1 output harness to the TSC.



5. Attach the data cable between the C1 Smart Harness data output port and one of the four RJ25 ports on the Nexus Omni front panel.



4 x RJ25 Connector Ports

6. Connect the power cable from the cabinet's 24 VDC output to the C1 Smart Harness input power port.

4.6 Checking Connections and System Power Up

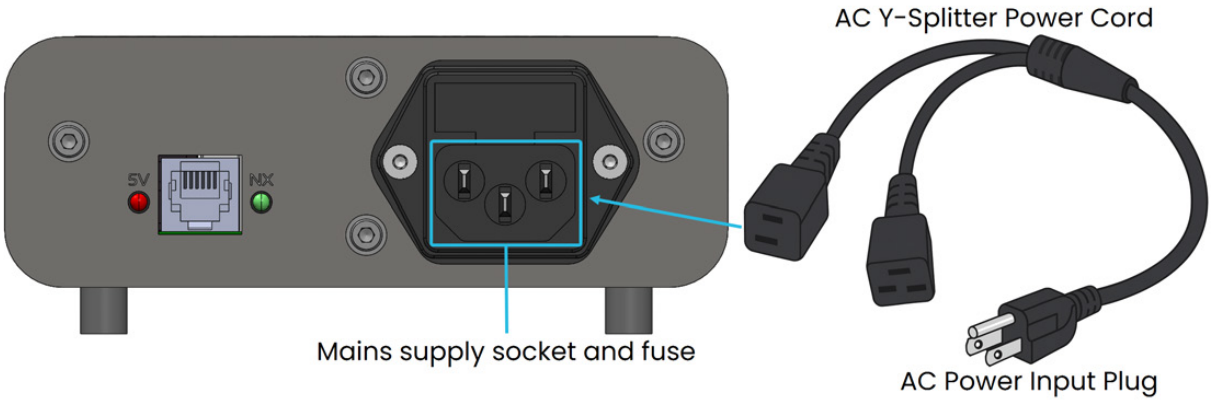
1. Make sure all antenna cables are tightened securely and gently pull all power cables to make sure they are not loose.

> **Note**
> For proper operation of the Smart Harness, follow this procedure when powering on the Nexus Omni.

2. Power on the Nexus Omni and allow the system to fully boot.
3. Wait for LTE status (typically ~5 minutes).
4. On the Nexus Omni display, confirm that LTE status is valid.
5. Once LTE is connected, connect the Smart Harness to the Nexus Omni.
6. If required, the Nexus Omni will automatically update the Smart Harness with the latest firmware.
    - The flashing process takes ~3 minutes.

> **Note**
> Do not interrupt the firmware flashing process. Interruptions corrupt the firmware.

7. Connect the Sensor Power Unit's AC power cord to the cabinet mains supply.



Note
Connect one socket on the supplied AC Y-splitter power cord to the Nexus Omni PSU. This setup saves one AC outlet.

4.7 Aiming Sensors

1. Tilt the Sensor towards the oncoming traffic.

2. Once connected, call your colleague at the intersection—using a laptop running Intersection Manager Installation Assistant—to assist with aiming.
3. Keep the horizontal and vertical movements of the mounting bracket slightly loose
4. Once aimed, secure all fasteners to lock down the Sensor in place. Tighten according to the torque specifications provided by the fastener or equipment manufacturer.
5. Proceed with the Intersection Manager Installation Assistant wizard.

5. Configuring the System

For instructions on using the Intersection Manager Installation Assistant, refer to the User Guide.

Note

- If using a switch, NoTraffic must be assigned a static IP address. Record the IP address of the controller and UDP port for NTCIP communication.
- The Nexus Omni has a pre-configured static IP address.
- Sensors get their IP addresses dynamically using DHCP.

6. Field Replacement - Sensor Power Unit

Warning

- The Sensor Power Unit is not a field-serviceable component.
- Do not open the enclosure under any circumstances.

Warning

All operations involving output switches and wiring must be performed with the unit disconnected from the AC mains. Any tasks involving potentially energized units must be performed wearing the appropriate personal protective equipment.

Caution

Always ensure power is disconnected before performing fuse replacement.

Power Socket – Fuse Replacement

Fuse Location

- The power connector at the rear of the Sensor Power Unit includes a fuse compartment.
- This compartment contains 2 × Ceramic Fuses, 4A, 250 VAC, 5×20 mm, 1.5 kA breaking capacity.

Replacement Policy

- These fuses may be replaced in the field if blown.
- The standard fuse supplied is from the Littelfuse 216 Series.
- Replace only with the same fuse type or an equivalent specification.

To replace fuses

1. Use a small electrical flat-head screwdriver to release the fuse compartment from the power socket.
2. Remove the existing fuses and insert the new ones.
3. Reinsert the fuse compartment, pressing it firmly until it is fully seated.

Appendix A. Support

Technical support for troubleshooting is available 24/7/365 by phone or email. Certain restrictions and exclusions may apply.

Contact the support number 3 days in advance of aiming new Sensors or renaming existing Sensors.

Contact Support (U.S. and Canada)

- Email: support@notraffic.tech
- Toll-Free: 1-888-771-7879
- Direct: 1-202-800-1890

Appendix B. Installation Checklist

Use the table below to verify you have the correct quantities of NoTraffic provided hardware and to procure any necessary auxiliary hardware.

Equipment	Provided By	Specification	Qty
Nexus Omni	NoTraffic	1 per intersection	1
Sensor & Sensor-V2X	NoTraffic	1 Sensor for each approach, one of which is the V2X Sensor.Ex: A 4-leg intersection has 1 Sensor-V2X and 3 Sensors	Varies by intersection
Antenna	NoTraffic	1 per intersection	1
SDLC Cable (15-pin, 25-pin BIU/SIU)	NoTraffic	1 per intersection using SDLC for detection where needed	1
C1 Smart Harness	NoTraffic	1 of each cable per Caltrans TEES cabinet where needed	1
Sensor Power Unit	NoTraffic	1 per Intersection where at least 1 Sensor is powered from the cabinet	1
NEMA Tap	NoTraffic	1 per Sensor powered by a luminaire	1
Power Cable	Agency / Contractor	14–18 /3 stranded copper, outdoor rated; route through existing conduit to reach cabinet-powered Sensors from the cabinet.	# feet as required
Camera Mounting Assembly	Agency / Contractor	1 per Sensor mounted to the mast arm. Pelco Assembly AS-0170 with Bracket SH-0514. Typical riser height is 6 feet.	1
Below – Auxiliary items only for large intersections or Ethernet cables to Sensors			
Ethernet repeater kit	NoTraffic	1 per 300 feet of Ethernet cable	Varies by length
Wi-Fi Repeater kit	NoTraffic	1 for any Sensors further than 270 feet from cabinet	Varies by length
Outdoor-rated Ethernet cable + RJ45 Plugs	Agency / Contractor	At least Cat 5e to reach the Wi-Fi repeater or each Sensor.	# feet as required

Appendix C. Regulatory Information

Nexus Omni Certifications

- PTCRB compliant
- FCC compliance

Contains the following certified components:

Certification Body	FCC ID	IC ID
FCC / IC	N7NEM75T	2417C-EM75T
FCC / IC	N7NWP76B	2417C-WP768
FCC / IC	Z9W-HAB	11468A-HAB
FCC / IC	2AC7Z-ESP32WROOM32U	21098-ESPS3WROOM1

Sensor FCC compliance

FCC ID	IC ID
2AVKZRM68-NTA	2690-RM68NTA
2AE3B-AEX-AR95X	20662-AEXAR95X
2AC7Z-ESP32WROOM32U	21098-ESPS3WROOM1

FCC Statements

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

1. The device must not cause harmful interference.
2. The device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance will void the user's authority to operate the equipment.

Surge Protection Requirement

To maintain Overvoltage Category II of the Sensor power unit, install suitable surge suppressor devices as close as possible to outputs of the Sensor power unit to limit the expected transients to Overvoltage Category II values.

TUV Safety

This product has been tested and certified by TÜV (Technischer Überwachungsverein – Technical Inspection Association) to meet applicable safety and quality standards.

Installation Access Requirements

Installation is performed by authorized personnel only. No public access is allowed to the operational area during installation.

Warning

 AC voltage is present at the product outputs. Output voltage levels correspond to the country of installation.