SEMS-TC09E Series Data Sheet

1. Product Introduction

Iotcomm's Plug & Play Wi-SUN Lighting Controller with Remote Monitoring, Dimming, GPS, Metering and Sensor Input Capabilities.Specially designed and optimized for Wi-SUN (Mesh RF networks). Supported frequencies: Wi-SUN (IEEE 802.15.4g RF MESH) 433MHz / 470Mhz / 868MHz / 915MHz / 923MHz.

2. Model Naming Rule

SEMS-TC09E XX XX/XX-YY
① ② ③ ④

- PID
  - ①Communication mode
  - ②Appearance type
  - ③Dimming way
  - ④Customized functions
- Model Name

①Communication mode

WS: Wi-SUN (IEEE 802.15.4g RF MESH)

②Appearance type

N0: NEMA ;

③Dimming mode

A: 0-10V dimming. **P:** PWM dimming. **D:** DALI dimming. **AA:** Two way 0-10V dimming.

Default：0-10V dimming.

④Customized function

R: Self running. **G:** GPS .

Eg. Controller has one way 0-10V dimming, with "self-running", "GPS" functions, it is named:

Model: SEMS-TC09E

PID: WSN0/A-RG

3. Main Technical Features

- **Self Running(optional function):** Iotcomm's controllers operate immediately upon installation without dependency on the network.
- **GPS in Each Controller(optional function):** GPS capabilities reduce install times and eliminate future mapping issues. GPS coordinates for each controller are sent automatically to cloud-based Central Management System for overlay on a Google Maps interface. Without GPS, installers must manually record the pole ID,

UID and its Latitude/Longitude location to map them correctly.

- **Full ANSI C136.41 7-pin Dimming Receptacle Support:** Iotcomm's controllers work with any lamp type or manufacturer with full support for all 7 pins on the ANSI C136.41 dimming receptacle for true “plug and play” installation. Iotcomm's controllers support the addition of digital or analog sensors, such as motion, vehicle counts or environmental sensors through pins 6 and 7.
- **Revenue Grade Energy Metering:** Iotcomm's controllers monitor Current, Voltage, Frequency, Power Factor, kW and kWh, and offer metering accuracy as high as 2% for accurate consumption data and billing.
- **Fault Tolerance:** Each IOTCOMM controller is a highly intelligent stand-alone device that utilizes the latest developments in self-organizing, self-healing, wireless technologies. Proper operation and execution of a light’ s schedule is not dependent on network communications.
- **Remote Control and Scheduling:** Iotcomm's controllers support multiple lamp control modes such as user configurable ON/OFF/DIM schedules programmed on a daily / monthly / special events basis, local ad-hoc control, photocell and astro-clock scheduling, and mixed mode scheduling incorporating sensor inputs, protected against unforeseen communication failure.
- **Flexible Dimming Control:** Iotcomm's controllers support dimming through 0-10 VDC, PWM or DALI interfaces.
- **Fault Monitoring:**Iotcomm's controllers provide extensive fault monitoring to report on lamp failure, over/under voltage, abnormal power consumption, low power factors, communication failures, customized function of leakage voltage

and pole tilt detection. All faults are sent to Iotcomm's cloud-based Central Management System for alarm routing, visualization and fault correction. Alerts are time stamped and contain key parameters associated with the fault/alarm.

- **Firmware Update:** Iotcomm's controllers firmware can be updated by local UART interface (from 2pin optional function) and over the air (OTA remote update).
- **Designed lifetime:** 10+ years.

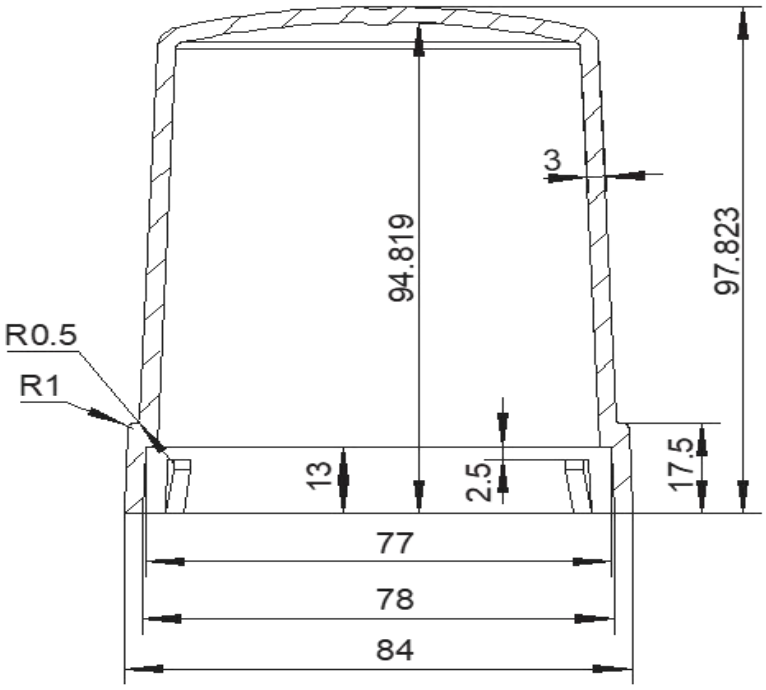
4. Technical Specifications

Controller	Powerful 32-bit Microcontroller
Connection	7pin NEMA socket (ANSI C136.41)
Power consumption	≤1.5W
Precision Real Time Clock (RTC)	Battery operated
Power metering	Parameters measured: Voltage, Current, Power Factor, Frequency, kW and kWh
Maximum lamp power	LED:800W HID:400W
Power supply	Universal AC input 86 V-305 V, 50/60 Hz
Surge protection	4KV
Communication protocol	Wi-SUN (IEEE 802.15.4g RF MESH)
RF spectrum	433MHz / 470Mhz / 868MHz / 915MHz / 923MHz

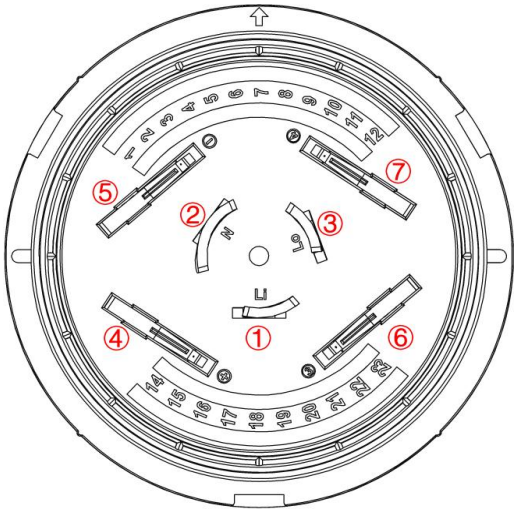
GPS Module Specifications (Optional)	Receiver Type: 22 Tracking/66 Acquisition Channel GPS Receiver GPS L1 C/A, GLONASS G1 FDMA, GALILEO, QZSS, SBAS, BDS B1I Support Max. Update rate: 10 Hz Sensitivity: Tracking: -162 dBm Reacquisition: -156 dBm Cold starts: -148 dBm Accuracy: Automatic Position: 10m/10m Horizontal/Vertical Speed: 0.1m/s Timing: 30ns
Dimming interface	0-10v Dimming: ±0.1V@0～30%，±0.2V@30～70%，±0.3V@70%～100% with Short Circuit protection or PWM Dimming: 5 V p-p, 400 Hz or DALI
Optional Sensor Inputs(Optional)	Provision of one Digital input and one Analog input that can be used for motion-based lighting controls, adaptive lighting or advanced lighting controls
Operating temperature range	-40°C to +85°C, 20% to 90% Rh non-condensing -25°C to +70°C, when with Self-running function
IP rating	IP66
Compliant standards	CE, RoHS
Central Management System	Web-based software allows remote configuration, monitoring, control, reporting and update

5. Dimensions

Unit: mm



NEMA controller dimensions (side view)



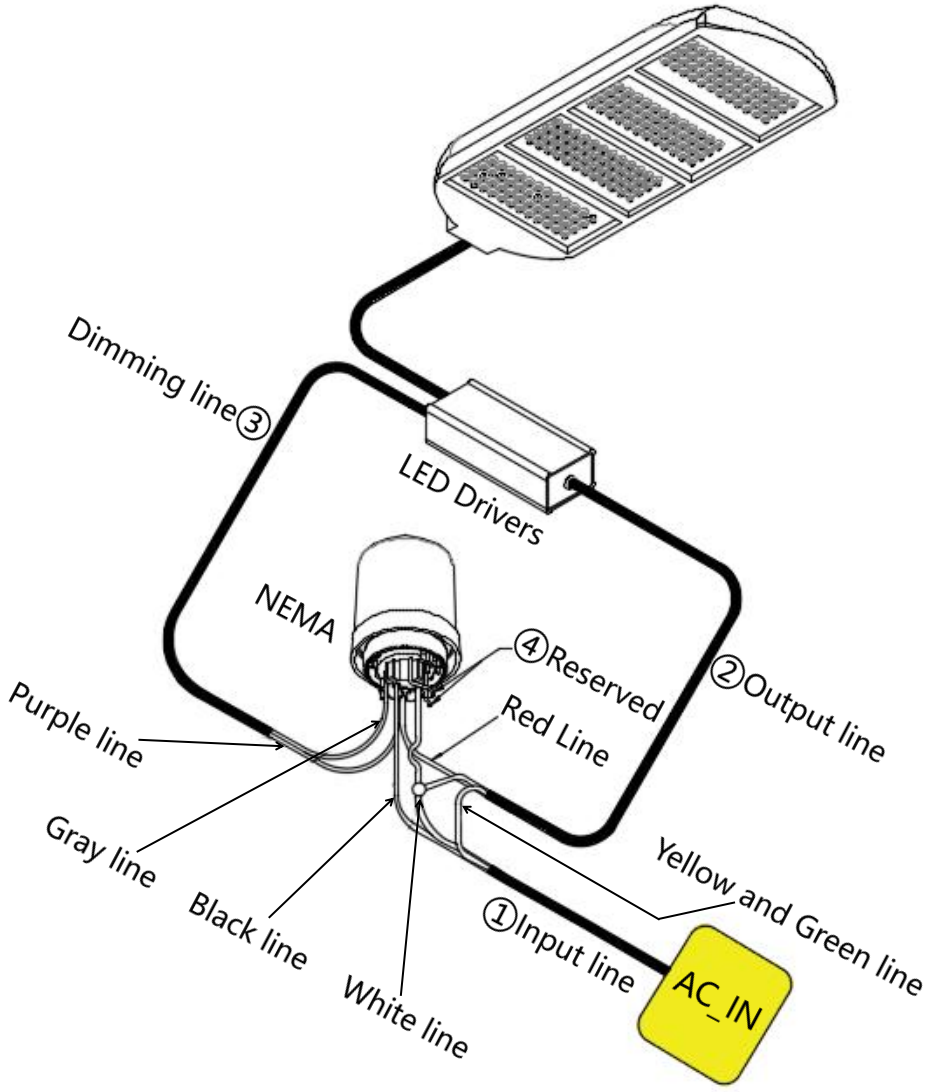
NEMA interface diagram

①: L_IN；②：N；③：L_OUT；④: Dim1+；⑤：Dim1-；

*⑥: Customize，（Dim2+，Upgrade port clock）*⑦: Customize，（Dim2-，Upgrade port data）

*Note: ⑥、⑦ Default upgrade interface .

6. Installation



①	AC_IN	Black: L White: N	
②	AC_OUT	Red: L White: N	
③	Dimming	0-10V purple+ gray-	Choose one
		PWM purple+ gray-	
		DALI purple+ gray-	
④	Reserve		

FCC Statement

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

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions (1)this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.