

GW-180-TC09CNBN-SPC-7P SPECIFICATION

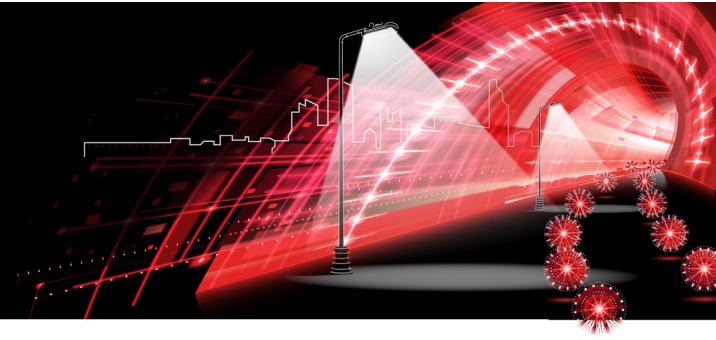
Product introduction

GATEWAY's Plug & Play NB-IOT Lighting Controller with Remote Monitoring, Dimming, GPS, Metering and Sensor Input Capabilities

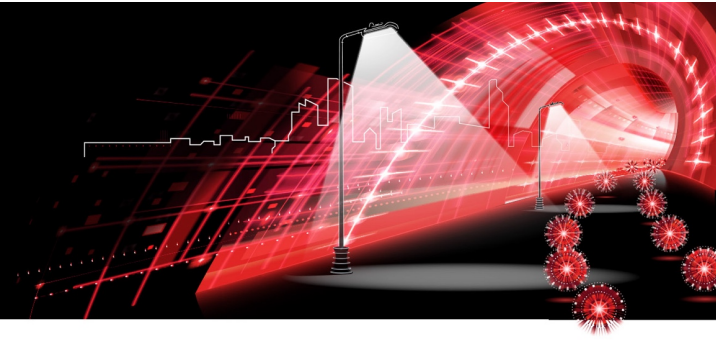


2. Main Technical Features

- **Photocell in Each Controller:** GATEWAY's controllers operate immediately upon installation without dependency on the network.
- **GPS in Each Controller:** 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.
- **Extended Surge Protection:** CATB surge protection is standard, while CATC surge protection is available as an option.
- **Full ANSI C136.41 7-pin Dimming Receptacle Support:** GATEWAY'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. GATEWAY'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:** GATEWAY's controllers monitor Current, Voltage, Frequency, Power Factor, kW, and kWh, and offer metering accuracy as high as 1% for accurate consumption data and billing.

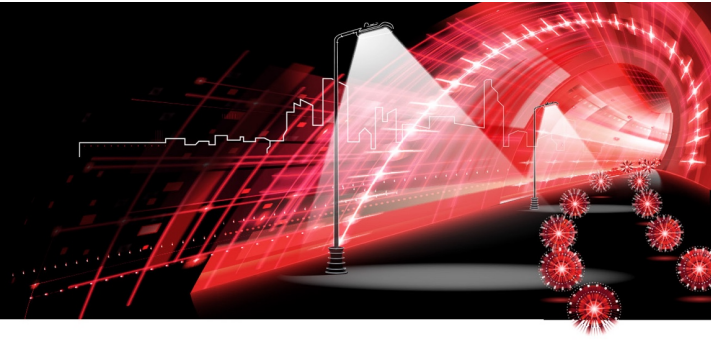


- **Fault Tolerance:** Each GATEWAY controller is a highly intelligent stand-alone device that utilizes the latest developments in self-organizing, self-healing, wireless technologies. Proper operation and execution of a light's schedule is not dependent on network communications.
- **Remote Control and Scheduling:** GATEWAY'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:** GATEWAY's controllers support dimming through 0-10 VDC, PWM or DALI interfaces.
- **Fault Monitoring:** GATEWAY's controllers provide extensive fault monitoring to report on day burners, burnouts, lamp cycling, ballast failures, over/under voltage, abnormal power consumption, low power factors, communication failures, leakage voltage (for safety) and pole tilt by MEMS sensor. All faults are sent to GATEWAY's cloud-based Central Management System for alarm routing, visualization, and fault correction. Alerts can be sent directly to relevant users via emails or text messages (SMS) immediately when they occur. Alerts are time stamped and contain key parameters associated with the fault/alarm.
- **Firmware Update:** GATEWAY'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.



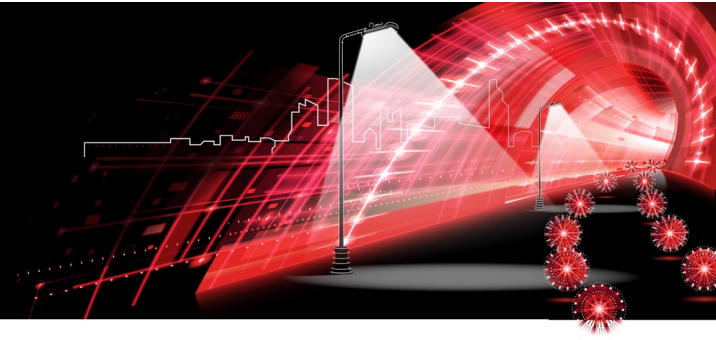
3. Technical Specification

Controller	Powerful 32-bit Microcontroller
Real Time Clock	Battery-Backed RTC
Power Metering	Parameters measured: Voltage, Current, Power Factor, Frequency, kW, and kWh
Switching Capacity	16 A Max
Power Supply	Universal AC input 86 V-305 V, 50/60 Hz
Radio Communication	<p>Cat NB1, single-tone uplink (up to 27.2kbps DL, 62.5kbps UL)</p> <p>3GPP Release 13</p> <p>Supported frequencies: Band 3, 5, 8, 20, 26, 28(Optional according to requirement).</p> <p>Data Transfer: Non-IP based Small Data over NAS(SDoNAS), IP based SDoNAS</p> <p>Network Type: Paging, Idle and Connected DRX, Deep sleep mode, Power saving mode</p>
GPS Module Specifications (Optional)	<p>Receiver Type: 22 Tracking/66 Acquisition Channel GPS Receiver GPS L1 C/A, GLONASS G1 FDMA, GALILEO, QZSS, SBAS, BDS B1I Support</p> <p>Max. Update rate: 10 Hz</p> <p>Sensitivity:</p> <p>Tracking: -162 dBm</p> <p>Reacquisition: -156 dBm</p> <p>Cold starts: -148 dBm</p> <p>Time-To-First Fix:</p> <p>Cold starts: 32s (typical)</p> <p>Warm starts: 1s</p> <p>Accuracy:</p> <p>Automatic Position: 2.5m/5m Horizontal/Vertical (CEP50)</p> <p>Speed: 0.1m/s</p> <p>Timing: 30ns</p>
Dimming Interface	<p>Control Voltage: 0-10 V</p> <p>Maximum Current: 10 mA</p>

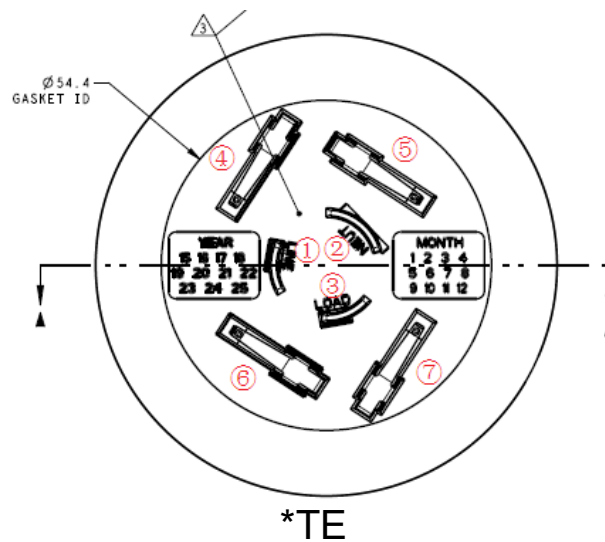
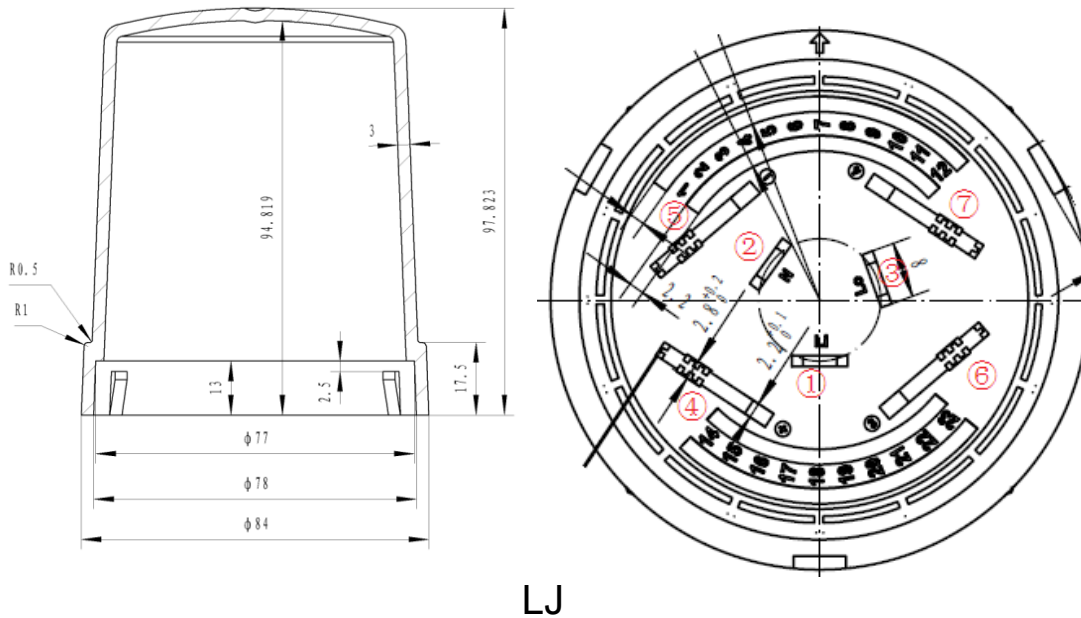


with Short Circuit protection
or
PWM Dimming: 5 V p-p, 400 Hz
Maximum Current: 10 mA (Sink)
or
DALI

Optional Sensor Inputs	Provision of one Digital input and one Analog input that can be used for motion-based lighting controls, adaptive lighting, or advanced lighting controls
Surge Protection	Standard: 410 Joule CATB (6 kV/3 kA), Optional: 700 Joule CATC (20 kV/10 kA)
Operating Conditions	-40°C to +85°C, 20% to 90% Rh non-condensing; IP66
Central Management System	Web-based software allows remote configuration, monitoring, control, reporting and update



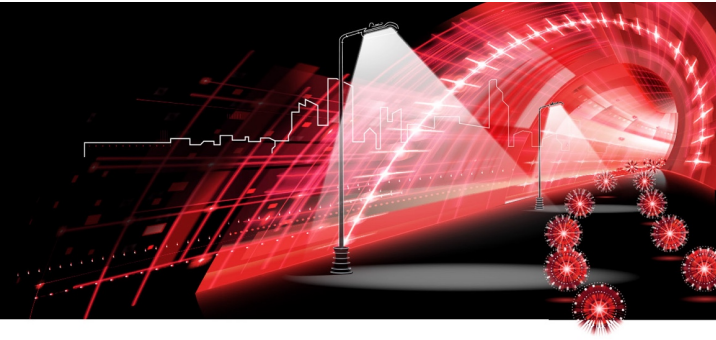
4. Dimensions



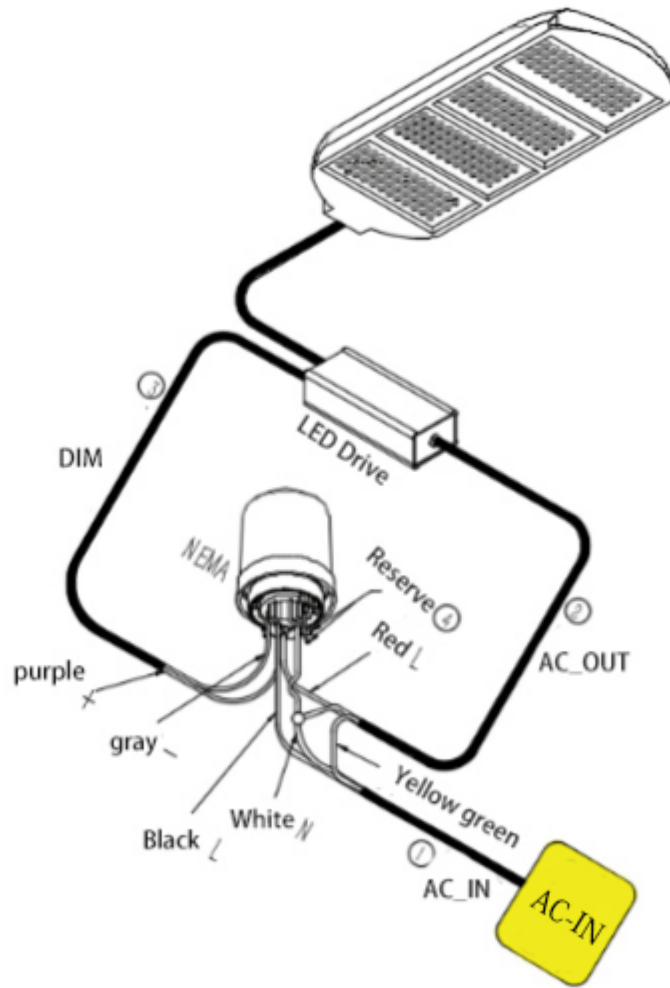
①: L_IN; ②: N; ③: L_OUT; ④: Dim1+; ⑤: Dim1-;

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

*Note: ⑥、⑦ Default upgrade interface.



5. Installation



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