

Ohli Node



Fig. 1 - Ohli Node

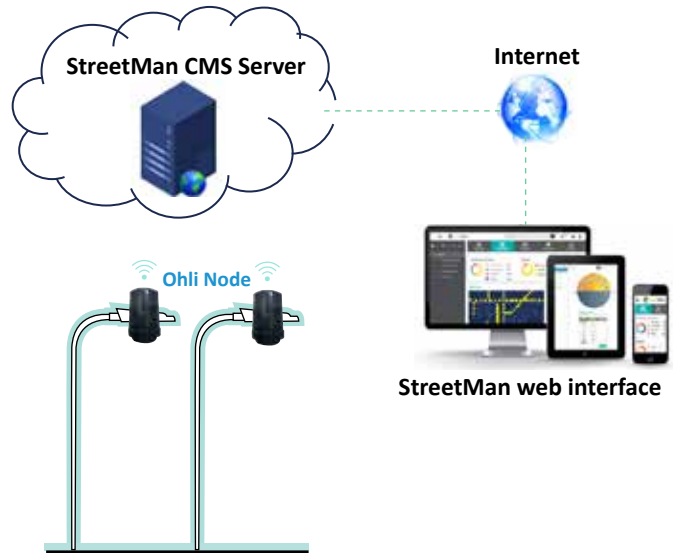


Fig. 2 – Smart Street Light Implementation

Overview

Ohli Node uses a built-in, industrially-rated, next generation, remotely programmable SIM card which works with multiple cellular providers (e.g. AT&T, Sprint, T-Mobile, Verizon, etc in the US; Vodafone, Deutsche Telekom, etc in Europe) and multiple networks (2G, 3G, 4G, LTE-M or NB-IoT) – out-of-the-box – in 170 countries..

Ohli Node NEMA Smart Light Controller as shown in Fig.1 is a remote-control device for HID or LED luminaires equipped with ANSI C136.41 NEMA receptacle. The controller connects with a cellular or NB-IoT network which in turn connects with Dhyan’s StreetMan central management system, as shown in Fig.2. The controller is exceptionally suitable for various terrains and environments and comes with built-in tilt sensor and Global Positioning System (GPS).

Features

- NEMA interface, compatible with standard ANSI C136.41
- Built-in standard NB-IoT/2G/3G/4G/LTE-M remotely programmable SIM card to realize long-distance transmission, low-power operation, large-capacity networking, and high-reliability communication
- Connects to supporting cellular networks and supports remote control such as on/off, dimming, status monitoring of the streetlight etc.
- Built-in electric energy metering chip with 1% accuracy
- Built-in with tilt sensor to detect the uprightness of lamp post
- Monitored parameters includes: voltage, power, current, energy consumption, power factor, temperature and frequency, etc.
- Option for built-in real-time clock, can store device energy consumption data per day
- Service life- > 5 years

Electrical & Hardware Parameters

| | | | |
|---------------------------|--|-----------------------------|-------------------------------------|
| Input Voltage | 110Vac~277VAC | Short Circuit Protection | No |
| Rated Voltage | 230VAC | Over-Temperature Protection | Yes |
| Operating Voltage | 105- 440 VAC (support for standard voltage 120V~ 277V and high voltage 120V ~480V) | Housing Material | Polycarbonate |
| Power Frequency | 47Hz to 63Hz | IP Protection | IP66 |
| Maximum Output Power | 500W | MTBF | >200K hours |
| Output Power | Class 5 (Typ. 21dbm) | Receiving Sensitivity | -135 dBm |
| Maximum Load Current | 4A | Operating Temperature | -40°C to +70°C |
| Standby Power Consumption | <2W | Storage Temperature | -40°C to +85°C |
| NB-IoT Frequency | B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B25/B26/B28/B66/B71/B85 | Dimensions (L*W*H) | 89mm*89mm*120mm |
| Dimming Output | • 0V-10V @ 27mA(max), PWM, DALI optional | Weight | 0.3kg |
| Metering Accuracy | <1% | Maximum Ambient Temperature | 80°C |
| ANSI standard | C136.41 NEMA 7-pin Smart City ready | Security | TLS/AES |
| OTA Support | Yes | Field firmware upgrades | Yes |
| THD | <10% | Safety Standard | CE |
| Tilt Sensor & GPS | Yes | Surge Protection | 320J, 6KV/3KA (option for 405~440J) |
| Overload Protection | Yes | Electro Magnetic Compliance | EN55015, EN55022, FCC |

Fault Alerts and Resulting Operations

| Fault Alert | Conditions | Resulting Operations | Notes |
|--------------------------|---|---|---|
| Over Temperature | $>95^{\circ}\text{C}\pm 2^{\circ}\text{C}$ | Reports fault alert, shutdown, recovers to pre-shutdown condition ¹ @ temperature $<90^{\circ}\text{C}\pm 2^{\circ}\text{C}$ | Ohli Node internal temperature, not environment temperature |
| Under Temperature | $<-25^{\circ}\text{C}\pm 2^{\circ}\text{C}$ | Reports fault alert, no shutdown, removes fault alert @ temperature $>-25^{\circ}\text{C}\pm 2^{\circ}\text{C}$ | Ohli Node internal temperature, not environment temperature |
| Open Circuit (at Output) | Power $<5\text{W}\pm 1\text{W}$ | Reports fault alert @ Power $<5\text{W}\pm 1\text{W}$, no shutdown, removes fault alert @ $>5\text{W}\pm 1\text{W}$ | |
| Over Power | $>520\text{W}\pm 5\text{W}$ or $>4.2\text{A}\pm 200\text{mA}$ | Reports fault alert, shutdown, resets ² , then recovers. | |
| Over Voltage | $>285\text{V}\pm 3\text{V}$ | Reports fault alert, shutdown, recovers to pre-shutdown condition @ $<280\text{V}\pm 3\text{V}$ | |
| Under Voltage | $<95\text{V}\pm 3\text{V}$ | Reports fault alert, shutdown, recovers to pre-shutdown condition @ $>100\text{V}\pm 3\text{V}$ | |

Note: 1. State before shutdown: Working state of the product when no alarm is generated, if the product fails at 50% dimming, it will be restored to this state after the failure is removed.

2. Restart: The product needs to be powered off and then powered on again.

3. Execution actions: All execution within 4 seconds

Smart Functions Details

| Smart Function | Details |
|-----------------|---|
| Dimming | Dimming control is carried out over NB-IoT with 0-10V output and PWM output. PWM outputs 0-100% at $<2\%$ accuracy, non-polarity |
| Energy Metering | Integrated with metering circuitry at 2% accuracy reading Input Voltage, Input Current, Active Power. Power Factor and Temperature. Performs electrical parameter read-back via NB-IoT. |
| Fault Reporting | Reports real-time fault conditions such as Open-Loop, Over-Voltage, Under-Voltage, Temperature etc. |

Dimensions

The overall dimensions of Ohli Node are shown in Fig. 3.

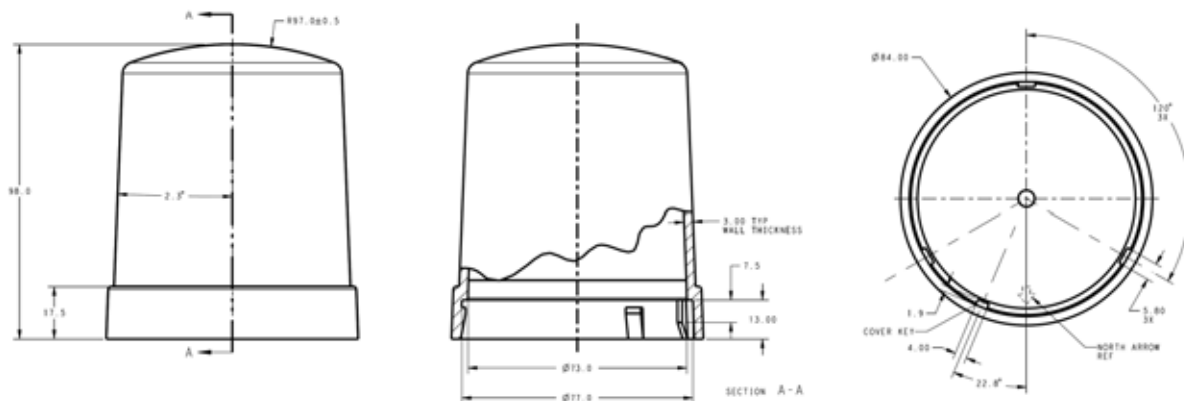


Fig. 3 - Ohli Node Dimensions

Wiring and Installation

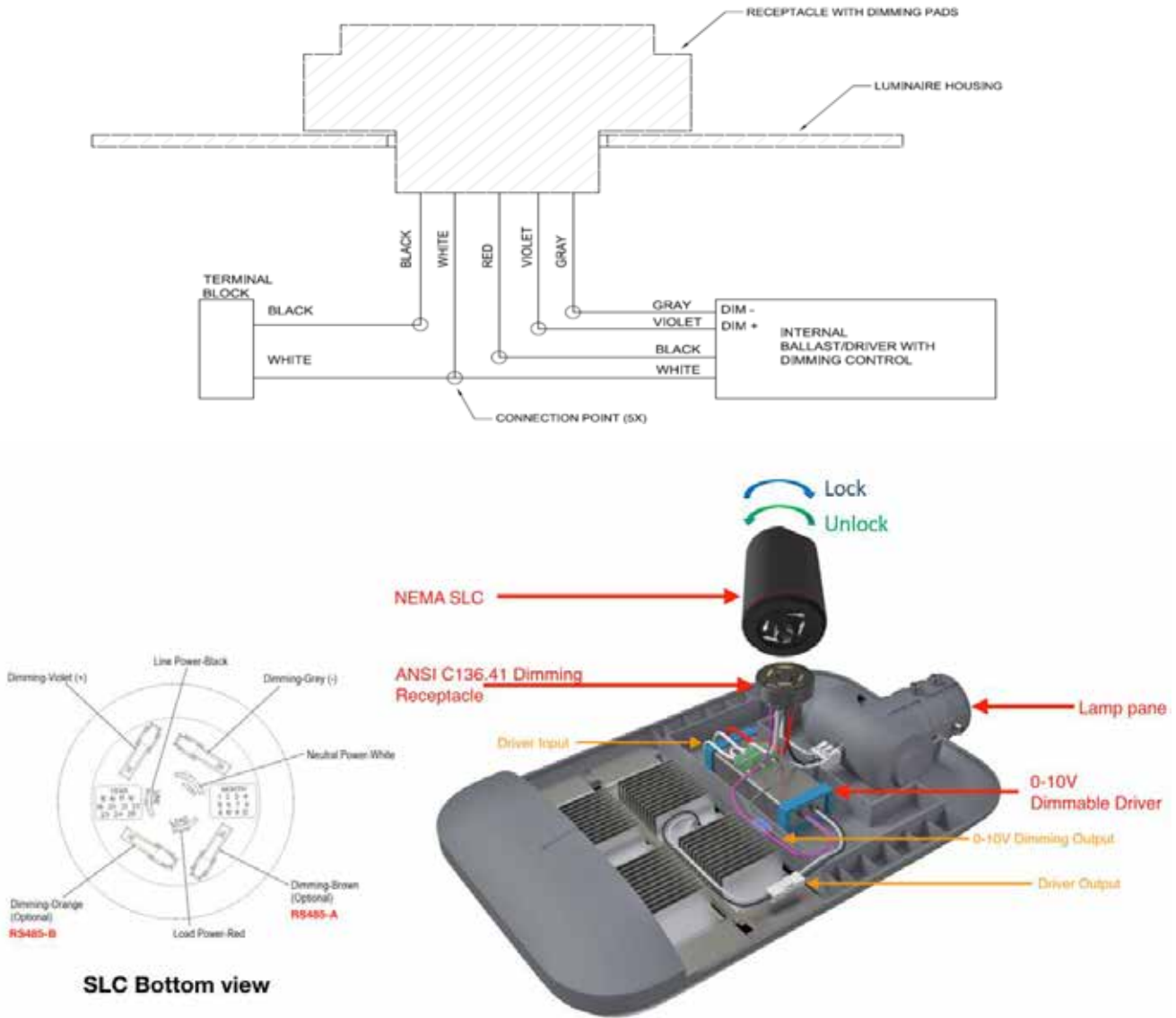


Fig. 4 – Ohli Node Installation Diagram

To lock the Ohli Node onto the NEMA-enabled lamp, align the pins and mount the unit onto the NEMA adaptor in clockwise manner. To unlock, turn anti-clockwise.

Contact Information

For more information regarding the Ohli Node including pricing, and ordering please contact:
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