

## User Manual of Local Control Node Module (LCNM-001)

### 1. Product description:

The Local Control Node Module (LCNM-001) uses Zigbee wireless control method and protocol ( IEEE.802.15.4) as Wireless Intelligent Street Light control System to control LED lamps on/off and to detect Street light function, to achieve the effective energy-conservation and reciprocate state of LED light immediately.

### Specification:

**Input Voltage: 12~ 60Vdc**

**Max operated Current : 20mA**

**Power consumption : < 1W**

**Environmental temperature : -40 ~ 85℃**

### 2. Appearance :

**PCB Dimension: 95mm (Length) ; 45mm (Wide)**

**Please refer to the photo (A) and (B)**



Photo (A) : Front view of PCB



Photo (B) : Back view of PCB

## 2.1 Key Components:

**UBEC zigbee module U-POWER1000D**

**Microchip MCU PIC18F26K20**

**AnaChip step-down DC/DC converter**

**Fairchild MOS HEF40106BT**

**VISHAY MOSFET IRF540**

**STMicroelectronics Amplifier LM324DT**

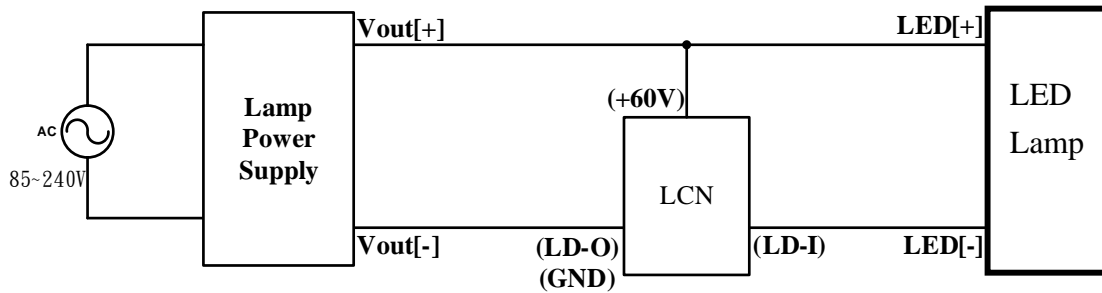
## 2.2 Interface description:



Photo (C) : Interface description

- (1) **Pin (+60V) : connected to power supply positive voltage.**
- (2) **Pin (GND) : connected to power supply negative voltage.**
- (3) **Pin (LD-O) : load output pin is same as GND pin.**
- (4) **Pin (LD-I) : Load input pin.**

### 3. The Configuration of LCN Module and illustration of street LED lamp installation



The DC power of LCN module is via Lamp power supply Voltage output(+) 60V , and parallel connected with LED Lamp.

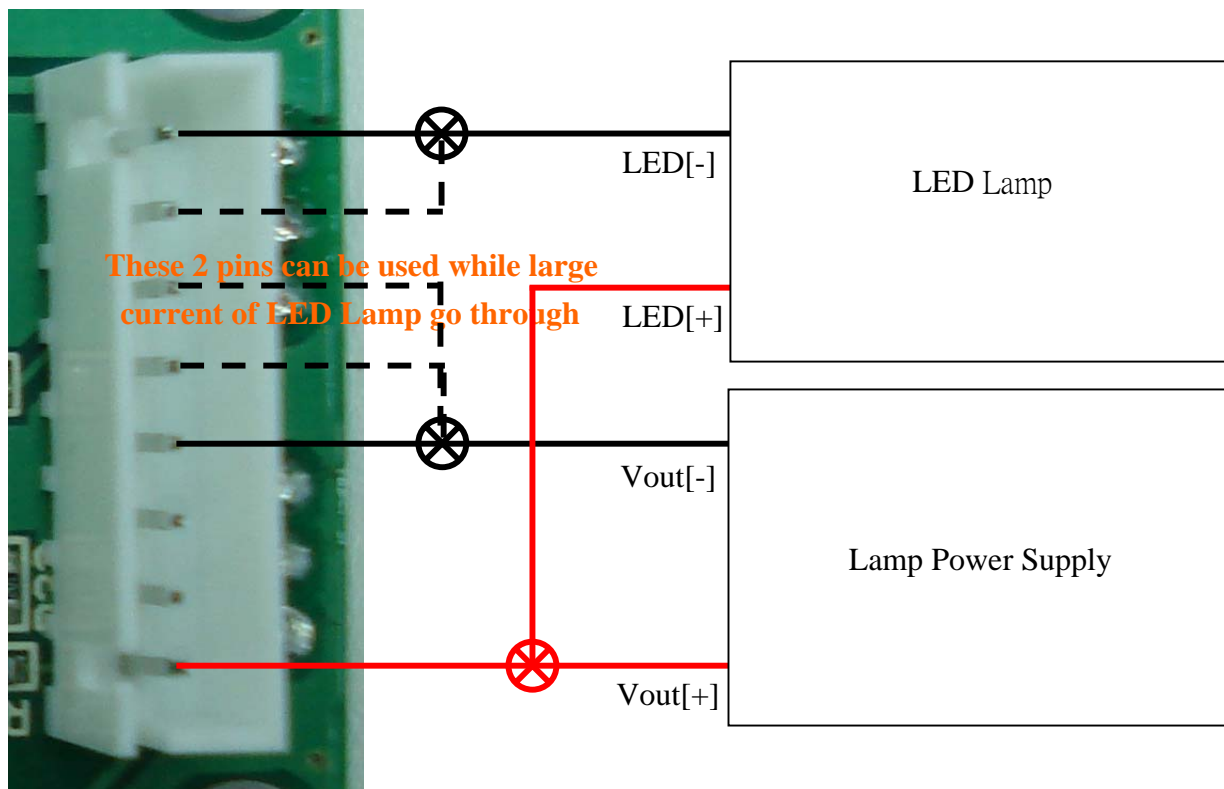
**+60V :** on LCN there are 2 pins connected together

**GND Pin:** There are 2 GND pins connected to "Vout[-]" of Lamp Power Supply.

**LD-I:** Two pins of LD-I shall be connected to negative ("LED[-]") of LED lamp, due to large current flow will pass through this conductor, therefore shall pay more attention to the wire gage connecting to these pins.

**LD-O:** These 2 I/O pins are parallel connected to "Vout[-]" of Lamp Power Supply,

The load current of LED lamp will flow through this path, shall be careful the wire gage is sufficient for large load current.



#### 4. Application Scope

Item		LED Lamp Current	LED Power consumption	Output Voltage	Voltage difference between Load and Unload
Fixed Power voltage					---
Constant Current	With VR control	<15A	<150W	12V ~ 60V	1. The voltage difference less than <8V : OK 2. Adjust VR I to control voltage difference <8V : OK 3.If adjust VR, Voltage difference between Load and unload is still > 8V, is not recommend to use.
	Without VR control				1. The voltage difference less than <8V : OK 2. If voltage >8V : is not recommend to use.

## **5. Precaution**

- 5.1. Please confirm first before installing whether POWER voltage (no load and full load) is on the scope of application item 4, if exceed proposing this module is not recommend using.**
- 5.2. If POWER is adjustable in order to make the electric current and voltage (have VR), try one's best to adjust and is close with the difference of pressing of load and unload first before installing, can't be greater than 8V.**
- 5.3. Please state and connect the circuit according to this installation manual, there is danger causing the module group or the lamps and lanterns to burn out in the installation mistake.**
- 5.4. Need to pay attention to the current Amps which can be born in wiring, for example the Amps of LED light is 10A, then the wiring of its 2Pin of LD-I & LD-O must exceed 10A to always bear by load current.**
- 5.5. This module is without waterproof protection, have to pay attention to the waterproof measure during the installation.**
- 5.6. The LCN module is using “U-POWER1000D” Zigbee package to transmit of 2.4GHz RF signal, the antenna can't be changed at will, it must be exposed outside of metal shelter while installation,**
- 5.7. If any difference happened or found while installing or testing, please get in touch with GRT engineer in order to distinguish question.**
- 5.8. The label content of end product must include this module certified ID No. : “Contains FCC ID Y9NLCNM-001” during application.**

## **6. CAUTION**

**This LCN Zigbee Module complies with FCC CFR 47 Regulation as Following:**

### **FCC 15.19 a3**

**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**

### **FCC 15.21**

**Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment. In cases where the manual is provided only in a form other than paper, such as on a computer disk or over the Internet, the information required by this section may be included in the manual in that alternative form, provided the user can reasonably be expected to have the capability to access information in that form.**

### **RF exposure**

**A minimum separation distance (20 cm) must be maintained between the user/by stander and the antenna to satisfy FCC RF exposure requirements.**



### **CAUTION:**

- 1. To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.**
- 2. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter**

### **FCC 15.105**

**Note: 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.

### Label & Label Location (FCC ID: Y9NLCNM-001)



Wide: 12 mm

Length: 29 mm

