



LC-101H/LC-102H

1-CH Lighting Control Module with AC Load Current Measurement (1 Relay output with 1 AC AI + 1 AC DI)

2-CH Lighting Control Module with AC Load Current Measurement (2 Relay output with 2 AC AI + 2 AC DI)

Features

- Each lighting circuit can be controlled for on/off through RS-485 communication
- Each lighting circuit can also be controlled for on/off via physical switches
- Remote control via communication and physical switches can be used separately or combined
- The lighting circuit output relay is Form C, allowing for dual-loop designs with physical switches
- The current value on the lighting circuit can be read back via RS-485 communication to determine if any lights are faulty, and whether the lights on the dual-loop are on or off
- The current value on the lighting circuit ranges from 0 to 5 A
- Recommended number of lights that can be connected:
 - Incandescent Lamp: 40 W/ 220 VAC * 6 units
 - LED(Electronic ballast): 40 W/ 220 VAC *8 units



Introduction

LC-101H and LC-102H are lighting control modules designed specifically for smart home applications, with the former being a single-loop and the latter a dual-loop model, both equipped with AC load current measurement capabilities. These modules not only effectively control lighting circuits but also provide real-time monitoring of load current, giving users an intuitive understanding of the lighting system's operational status.

Since the lighting circuits typically use inductive loads, switching can generate strong inrush currents (approximately 10 to 20 times the working current), which may damage the relays within the modules. The LC-101H and LC-102H are equipped with high-power relays that are resistant to inrush currents, allowing them to withstand these surges, prolonging their lifespan and reducing maintenance needs.

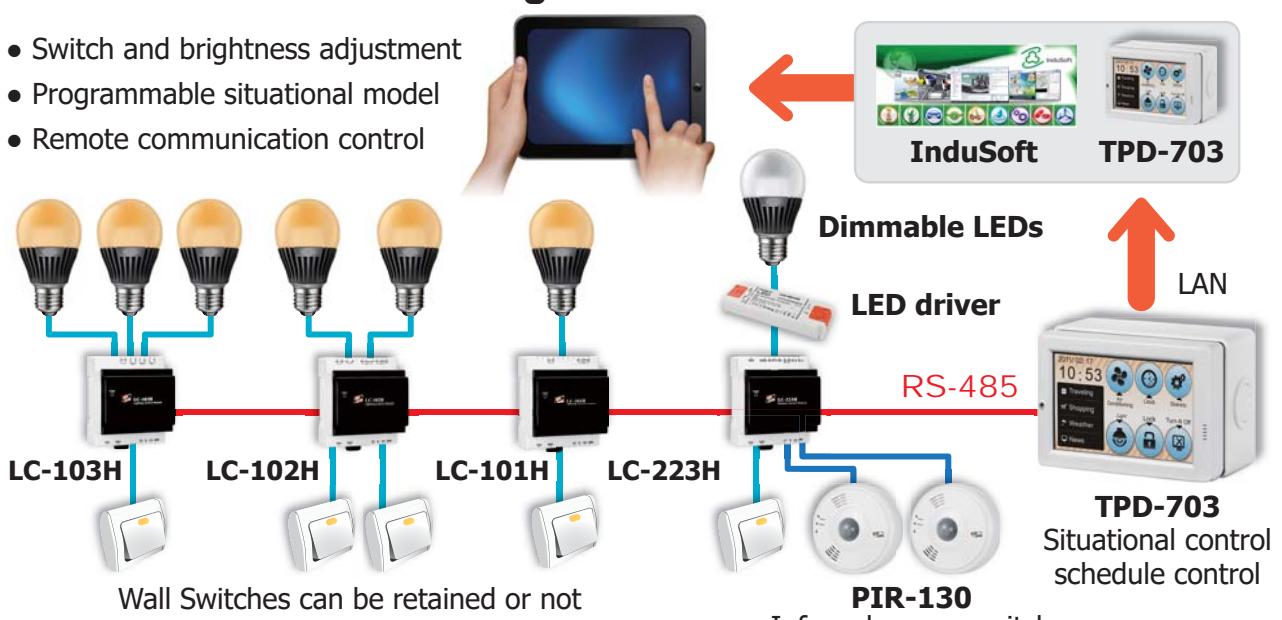
When users turn the lights on or off, the modules can detect the relay's switching state by measuring the load current, ensuring the normal operation of the lighting control system and promptly identifying any issues. Additionally, the relays in these modules utilize a Form C design, supporting dual-loop configurations with physical switches, providing users with greater flexibility and convenience. The current measurement feature also helps users monitor load current and check the relay's switching status, ensuring that the load operates correctly in the lighting circuit and preventing relay sticking.

The LC series lighting control modules are user-friendly, allowing for installation and operation without professional skills, and can control lighting channels without the need for software. When software control is required, programming can be done via the Modbus RTU communication protocol, and the Modbus RTU communication address can be set by hardware.

Applications

Light control

- Switch and brightness adjustment
- Programmable situational model
- Remote communication control



(For example: when 10 lamps are normally connected, the current is 2.2A. When the reading is less than 2.2A, it can be judged that there is a lamp failure and it needs to be repaired)

■ Specifications

| Model | LC-101H | LC-102H |
|-----------------------------|---|------------|
| Software | | |
| Function | Local and Remote Direct Control Relay ON/OFF and Remote Status Monitoring | |
| EMS Protection | | |
| ESD (IEC 61000-4-2) | ± 4 kV Contact for each Terminal | |
| EFT (IEC 61000-4-4) | ± 4 kV for Power | |
| SURGE (IEC 61000-4-5) | ± 2 kV for Power | |
| LED Indicators | | |
| Status | 1 LED as Power Indicator | |
| Digital Input | | |
| Channels | 1 | 2 |
| Type | Wet Contact, 90 ~ 240 VAC | |
| ON Voltage Level | 65 VAC | |
| OFF Voltage Level | 56 VAC | |
| Input Impedance | 68 K Ω , 2W | |
| Isolation | 3000 VDC | |
| Relay Output | | |
| Channels | 1 | 2 |
| Type | Power Relay, Form C (SPDT N.O+N.C..) | |
| Contact Rating | 30 A @ 250 VAC | |
| AC Load Current Measurement | Yes, 0 ~ 5 A range with 3% of FSR Accuracy. | |
| Operate Time | 15 ms Max | |
| Release Time | 22 ms Max. | |
| Electrical Endurance | 100,000 ops. | |
| Mechanical Endurance | 10,000,000 ops | |
| Power on Value | Yes | |
| Safe Value | Yes | |
| Application Specification | (1) Incandescent Lamp: 40W/ 220 VAC * 5 Sets (2) LED(Electronic ballast): 40W/ 220 VAC *8 Sets | |
| Ethernet | | |
| Node Address | 32 to 63 for hardware configuration | |
| COM Ports | | |
| Ports | 1 x RS-485 | |
| Baud Rate | Hardware Configuration: Fixed 9600 bps Software Configuration: 1200 to 115200 bps | |
| Data Format | N,8,1/O,8,1/E,8,1/N,8,2 | |
| Protocol | Modbus RTU/DCON | |
| Power | | |
| Reverse Polarity Protection | Yes | |
| Input Range | 10 ~ 30 VDC | |
| Consumption | 1.9 W Max. | 2.8 W Max. |
| Mechanical | | |
| Dimensions (mm) | 72 × 95 ×57 (W × L × H) | |
| Installation | DIN-Rail | |
| Environment | | |
| Operating Temperature | -25 ~ +75°C | |
| Storage Temperature | -30 ~ +75°C | |
| Humidity | 10 ~ 95% RH, Non-condensing | |

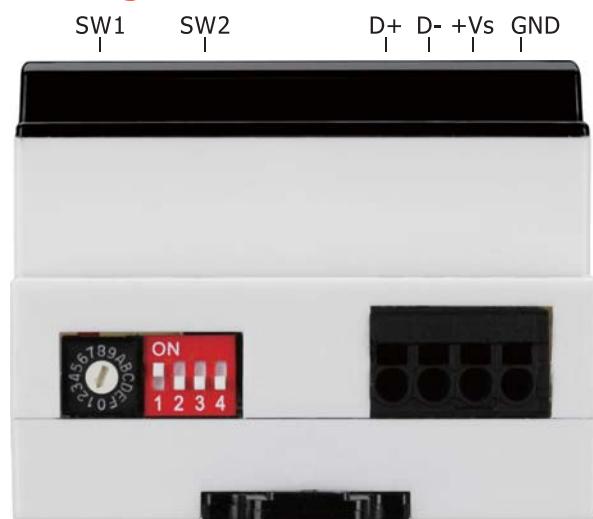
■ LC-10xH comparison

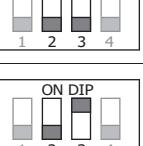
| Model | LC-101H | LC-102H | LC-103H |
|-----------------------------|---|---------|---|
| Digital Input | 1 | 2 | 1 |
| Relay Output | 1 | 2 | 3 |
| Max. Load Current | 30 A (Resistive Load, recommend working current is 1.0 A with 220 VAC) | | 16 A (Resistive Load, recommend working current is 1.5 A with 220 VAC) |
| Max. Lighting Loads | (1) Incandescent Lamp: 6 units (2) LED (Electronic ballast): 8 units | | (1) Incandescent Lamp: 8 units (2) LED (Electronic ballast): 10 units |
| Load Current Readback | Yes. | | No |
| AC Load Current Measurement | 0 ~ 5 A | | No |
| Function | Local and Remote Direct Control Relay ON/OFF and Remote Status Monitoring | | |

■ Pin Assignments



■ Configuration

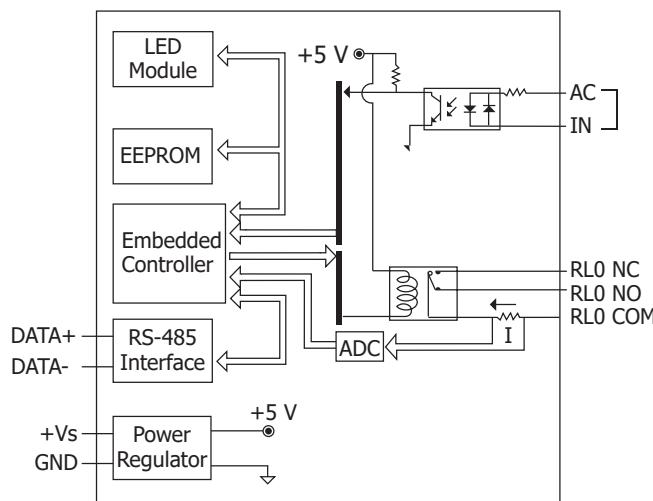


| | | |
|-----|---|--|
| SW1 |   | 0 to F for Address 32-47 (Node Address - Low) |
| | | 0 to F for Address 48 -63 (Node Address - High) |

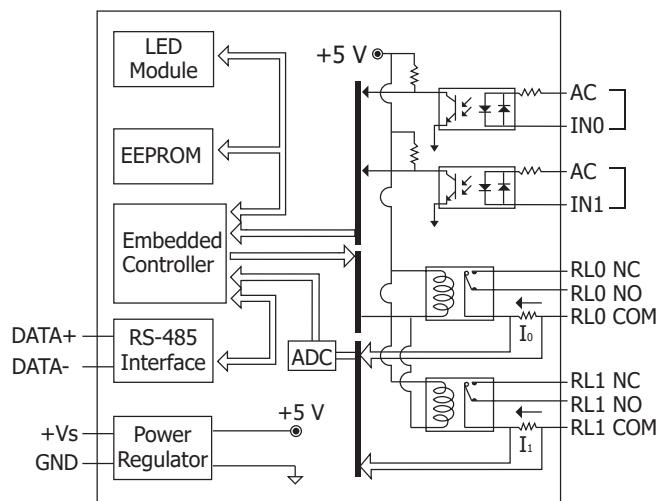
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|-----|-----|----|------------------------|
| SW2 | 1 | ON | DCON Protocol |
| | OFF | | Modbus RTU Protocol |
| | 2 | ON | Software Configuration |
| | OFF | | Hardware Configuration |
| | 3 | ON | Node Address (High) |
| | OFF | | Node Address (Low) |
| | 4 | ON | INIT Mode |
| | OFF | | Normal Mode |

Internal I/O Structure

LC-101H



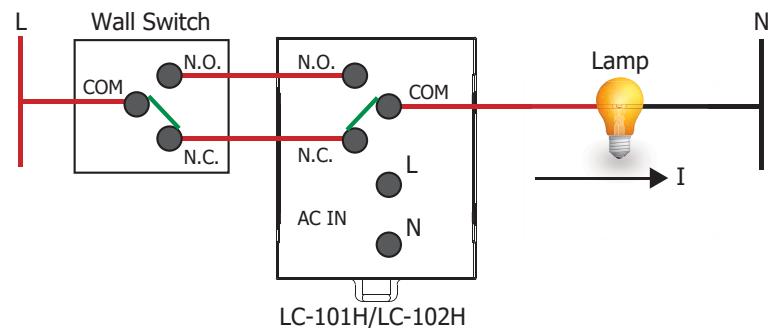
LC-102H



Wire Connections

| DIO Wire Connections | | |
|----------------------|----|-----------------------------|
| DI | | |
| | AC | ACx INx |
| Relay Output ON | | |
| | AC | RLx NC RLx COM RLx NO |
| Relay Output OFF | | |
| | AC | RLx NC RLx COM RLx NO |

Wiring Application



Ordering Information

| | |
|------------|--|
| LC-101H CR | 1-CH Lighting Control Module with AC Load Current Measurement (1 Relay output with 1 AC AI + 1 AC DI) (RoHS) |
| LC-102H CR | 2-CH Lighting Control Module with AC Load Current Measurement (2 Relay output with 2 AC AI + 2 AC DI) (RoHS) |

Accessories

| | | | | | |
|--|-------------|-----------------------------------|--|------------|--|
| | tM-7520U CR | RS-232 to RS-485 converter (RoHS) | | I-7514U CR | 4-channel RS-485 Hub (RoHS) |
| | tM-7561 CR | USB to RS-485 converter (RoHS) | | TPD-280 CR | 2.8" Touch HMI device with RS-485 (RoHS) |