LC-305

LC-305/DIN

5-channel AC Load Current Measurement Module User Manual

Version: 1.0.0
Date: Jan. 2018

Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser.

Warning

ICPDAS assumes no liability for damages consequent to the use of this product. ICP DAS reserves the right to change this manual at any time without notice. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, not for any infringements of patents or other rights of third parties resulting from its use.

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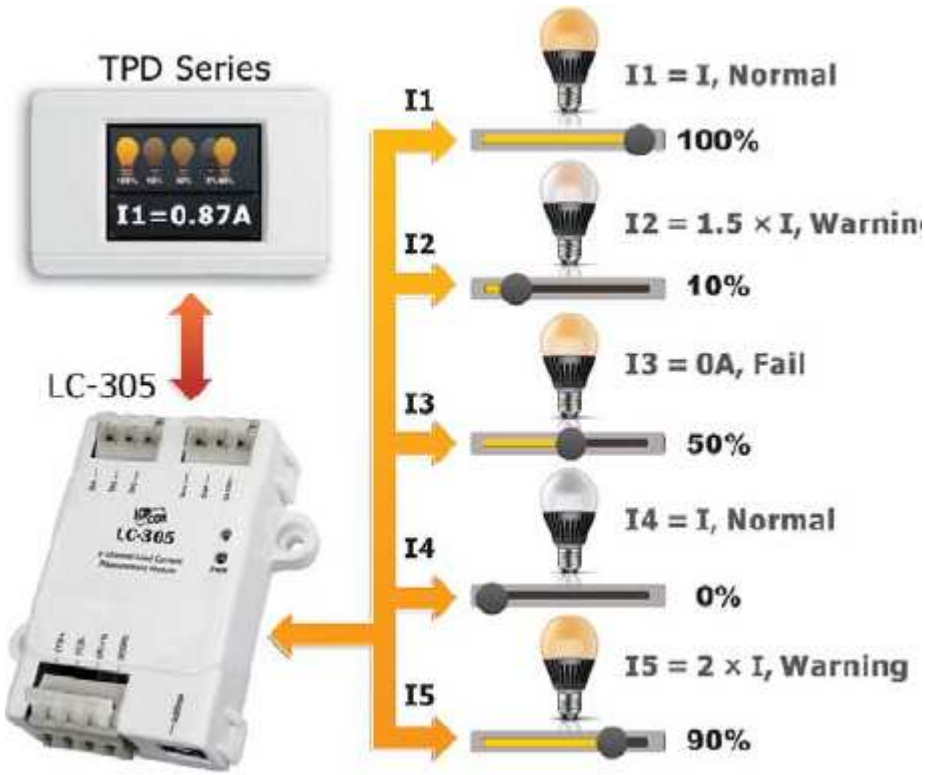
If you have any questions, please feel free to contact us via email at:
Service@icpdas.com

Table of Contents

1. Introduction

The LC-305 is a 5-channel AC Load Current Measurement Module. LC-305 is fully RoHS-compliant and has qualification for 4 kV ESD protection and 2000 VDC intra-module isolation is also provided. When required, communication with the LC-305 is programmable based on the Modbus RTU protocol, and an added benefit is that different addresses can be set via hardware configuration. The module can measure the load current of each lamp to verify if the lamp is normal or failed; check if the bulb begins to fade and needs to be replaced; and see if there is carbon-buildup depositing on the relay contacts which may makes the relay become sticky.



Characteristics

- 5-channel AC Load Current Measurement
- AC Current Input Ranges from 0 to 5 A
- Load Current Measurement Accuracy 3%
- Dual Watchdog
- Support DCON and Modbus RTU Protocol
- Wide Operating Temperature Range: -25 to +75℃
- Tiny Form Factor with Easy Screw Mounting

2. Hardware

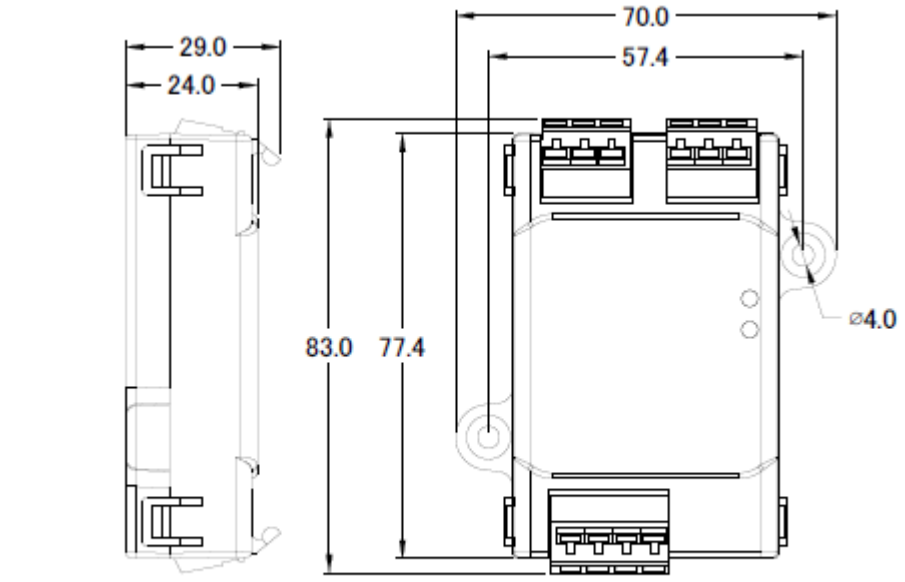
2.1 IO Specifications

Current Input	
Channels	5
Wiring	Single-ended
Input Current	0 to 5A
Input Frequency	50/60 Hz
Max. Load Current	10 A / Module COM point , MAX. Single Load Current 5 A at 25℃
Accuracy	3% of FSR
Data Update Rate	1 Second

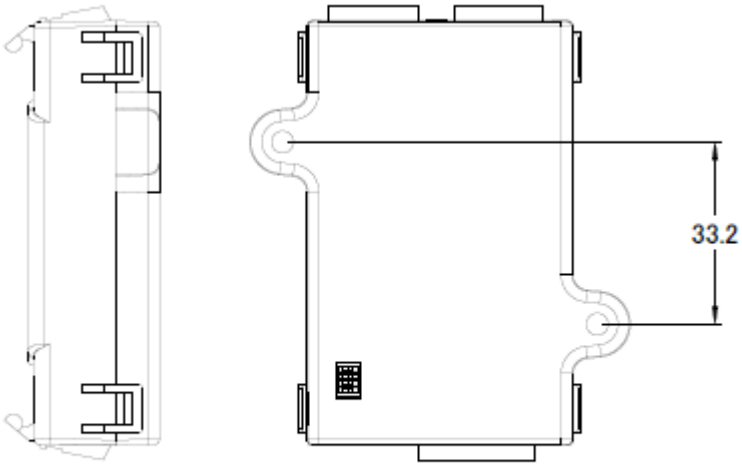
2.2 System Specifications

Communication	
Interface	RS-485
Data Format	N,8,1 / O,8,1 / E,8,1 / N,8,2
Baud Rate	1200 to 115200 bps
Protocol	Modbus RTU or DCON
Node Addresses	96 to 127
LED Indicators	
Power	1 LED as power indicator
EMS Protection	
ESD (IEC 61000-4-2)	±4 kV contact for each terminal
EFT (IEC 61000-4-4)	±4 kV for power and communication
	±4 kV Air for Random Point
Power	
Reverse Polarity Protection	Yes
Input Voltage Range	+10 to +30 VDC
Consumption	0.7 W Max.
Mechanical	
Dimensions (L x W x H)	83 mm x 70 mm x 29 mm
Installation	Screw Mounting / DIN Rail mount
Environment	
Operating Temperature	-25 to +75°C
Storage Temperature	-30 to +80°C
Humidity	10 to 95% RH, Non-condensing

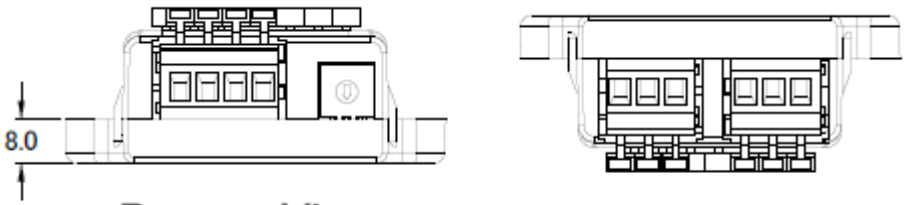
2.3 Dimensions (unit: mm)



Left Side View　　Front View

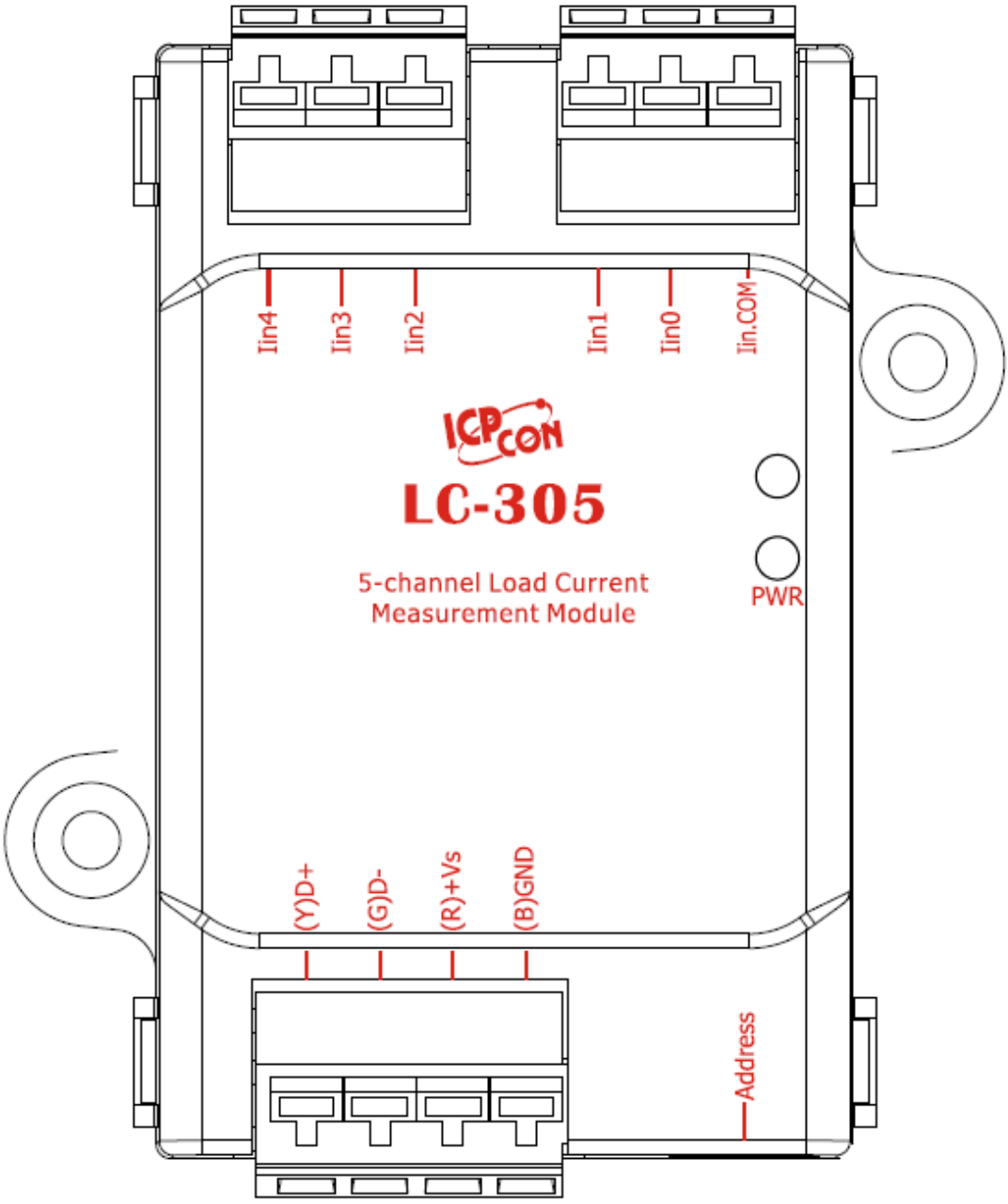


Right Side View　　Rear View

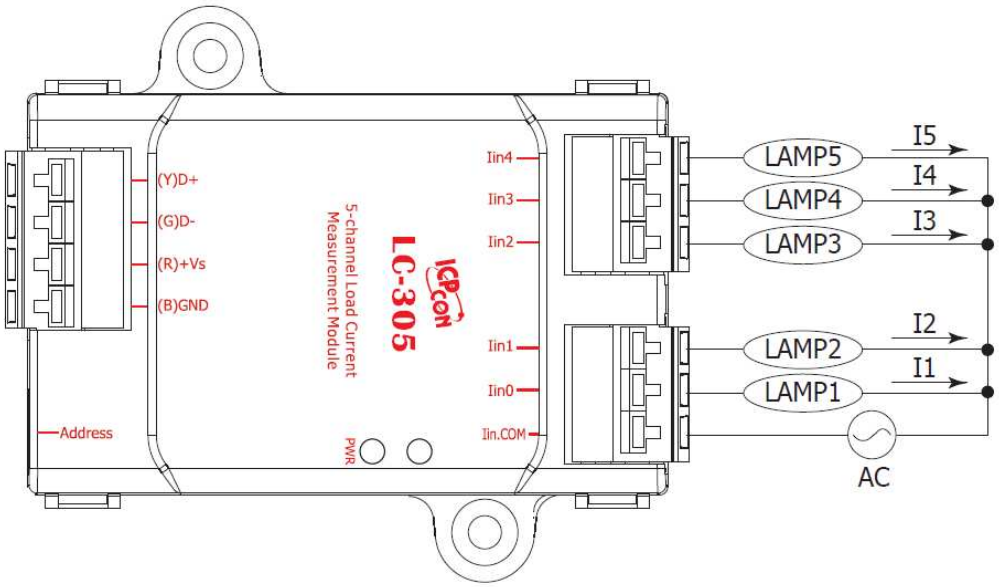


Bottom View　　Top View

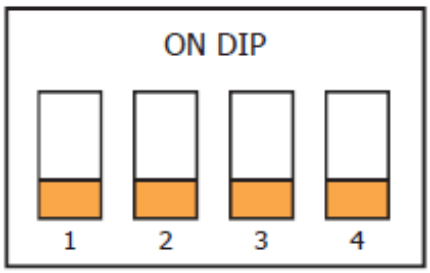
2.4 Pin Assignments



2.5 Wire Connections



DIP Switch and Jumper Settings

DIP Switch Description			
	SW1	ON	DCON Protocol
		OFF	Modbus RTU Protocol
	SW2	ON	Software Configuration
		OFF	Hardware Configuration
	SW3	ON	High Node Address
		OFF	Low Node Address
	SW4	ON	INIT Mode
		OFF	Normal Mode

Address Settings via Hardware Configuration

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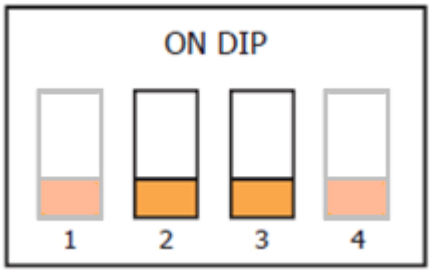
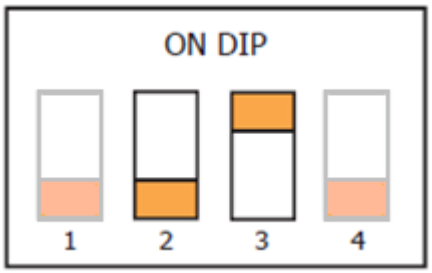
<tr><td> 
</td><td>0~F for Addresses 96 ~ 111

(Low Node Address)</td></tr>
<tr><td> 
</td><td>0~F for Addresses 112 ~ 127

(High Node Address)</td></tr>
</table>

3. Modbus Address Mapping

Address	Description	Attribute
30001 ~ 30005 40001 ~ 40005	Current input value of channel 0 to 4 in mA	R
40481	Firmware version (low word)	R
40482	Firmware version (high word)	R
40483	Module name (low word)	R
40484	Module name (high word)	R
40485	RS-485 module address, 1 to 247	R/W
40486	RS-485 baud rate and parity settings Bits 5:0 Baud rate, valid range: 3 ~ 10 Bits 7:6 00: no parity, 1 stop bit 01: no parity, 2 stop bit 10: even parity, 1 stop bit 11: odd parity , 1 stop bit	R/W
40488	RS-485 response delay time in ms, valid range, 0 ~ 30	R/W
00257	Protocol, 0: DCON, 1: Modbus RTU	R/W
00273	Reset status, 1: first read after powered on, 0: not the first read after powered on	R

Ordering Information

LC-305 CR	5-channel AC Load Current Measurement Module (RoHS)
LC-305/DIN CR	5-channel AC Load Current Measurement Module (DIN Rail mount) (RoHS)

Revision History

Revision	Date	Description
1.0.0	2018/Jan.	First released