



# Emergency Lighting Load Control Relays

Relay CU Series

LC-ESRLCU-001

## Features

- Emergency lighting load control relays
- Conforms To UL STD 924
- Operating Voltage: 100Vac to 277Vac / 140Vdc to 390Vdc
- Operating Temperature: -25°C to +60°C
- Built-in DALI PSU, 15V / 200mA

### Signal Relay Specification

- One (1) SPDT Continuous Duty Coil
- 1 Million Cycles Minimum Mechanical Lifetime
- Operate Time: 3mS
- Maximum Switching Load Voltage: 250Vac / 30Vdc
- Maximum Switching Load Current: 1A



CONFORMS TO UL  
STD.924

Intertek  
5018360

CERTIFIED TO CSA  
STD.C22.22 No.141

CE LVLE

RoHS  
COMPLIANT IP24



CAN ICES-5(B)/NMB-5(B)



## Advantages

- Built-in DALI PSU for powering sensor, wireless device etc.
- Large operating window for maximum compatibility
- Multiple combined functions adapt to various emergency management
- Can be used for a variety of lighting fixture and troffers
- DALI PSU output current selectable at 55mA or 200mA via DIP switch

## Initial Wiring Verification

1. Turn OFF Normal Power, Transfer Power.
2. Wire relay according to wiring diagram.
3. Energize Transfer Power. Emergency Light should illuminate.
4. Energize Normal Power. Emergency Light will turn OFF.

## Field Inspection

1. Ensure Normal Power and Transfer Power are energized.
2. Turn OFF Normal Power. Emergency Light will illuminate.

## Electrical Specifications

All parameters NOT specially mentioned are typical and measured at 230V input, rated current and at 25°C of ambient temperature.

### Ordering Information

Full Product Code	LC-ESRLCU-001
Full Product Name	Relay CU

### Input Information

Input Voltage	100 ~ 277Vac / 140 ~ 390Vdc
Input Current	0.1A max.
Input Frequency	50 / 60Hz
Min. Operational Voltage	85Vac / 100Vdc
Max. Operational Voltage	300Vac / 420Vdc
Start Time	≤ 0.5S
Inrush Current	Cold start ≤ 45A @ 277Vac (twidth=200us measured at 10% Ipeak), per NEMA 410

### DALI PSU Information

DALI Output Voltage Range	14Vdc to 17Vdc
DALI Max. Output Voltage	17Vdc
DALI Typ. Output Voltage	15Vdc
DALI Min. Output Voltage	14Vdc
DALI Guaranteed Output Current	55mA / 200mA
DALI Max. Output Current	62mA / 210mA
DALI Max. Output Power	4W
DALI Output Voltage Ripple	≤ 5% @ guaranteed output current

### Environment & Approbation

Protection Rating	IP24
Ambient Temperature Range	-25°C to +60°C
Max. Case Temperature (Tc)	85°C (please refer to Tc point location)
Operating Condition	Damp and dry
Safety Standards	UL 924: 2016 Ed.10+R: 01 May 2018, CSA C22.2 # 141: 2015 Ed.5 IEC 61347-1, IEC 61347-2-13
EMC Emission	Compliance to FCC Part 15, CAN ICES-005, IEC 55015
EMC Immunity	Compliance to IEC 61000-4-2,6, IEC 61547
Audible Noise	< 24dB Class A

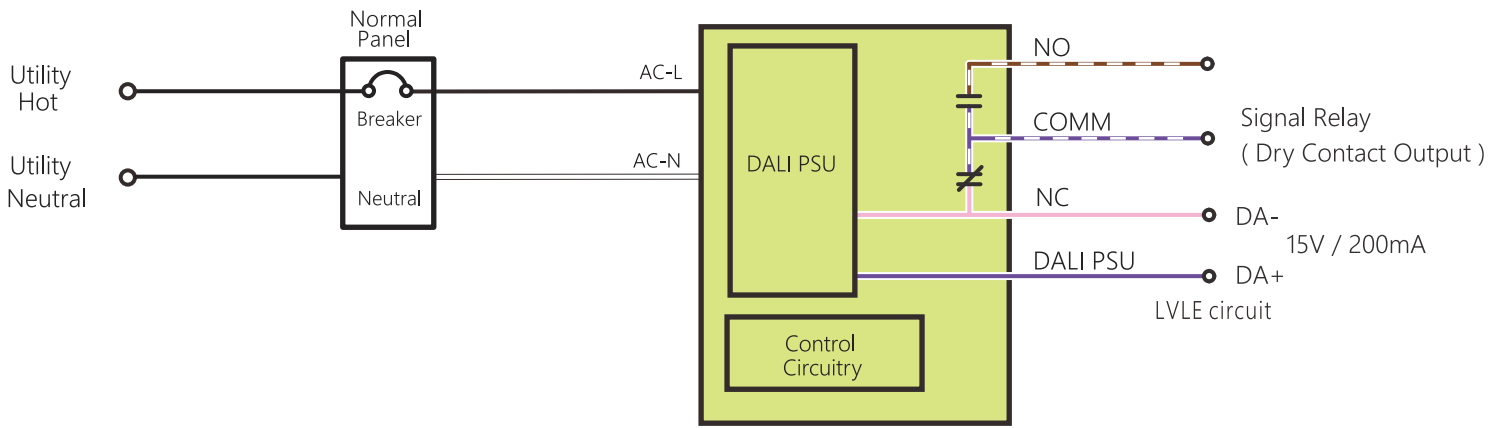
## Isolation

Isolation	AC Input	DALI PSU / Signal Relay
AC Input	Not applicable	Double
DALI PSU / Signal Relay	Double	Not applicable

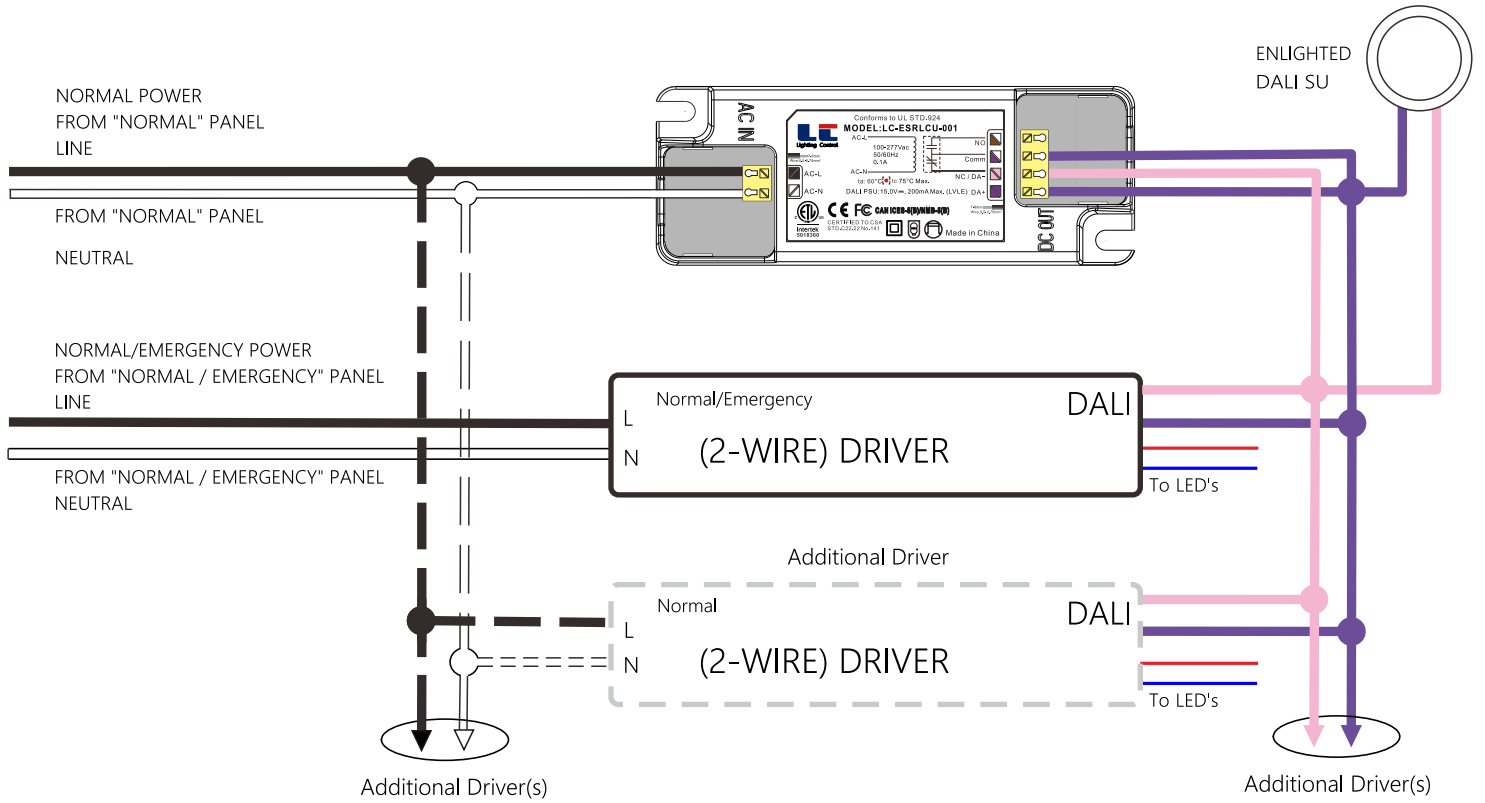
Basic: represents basic insulation.

Double: represents double or reinforced insulation.

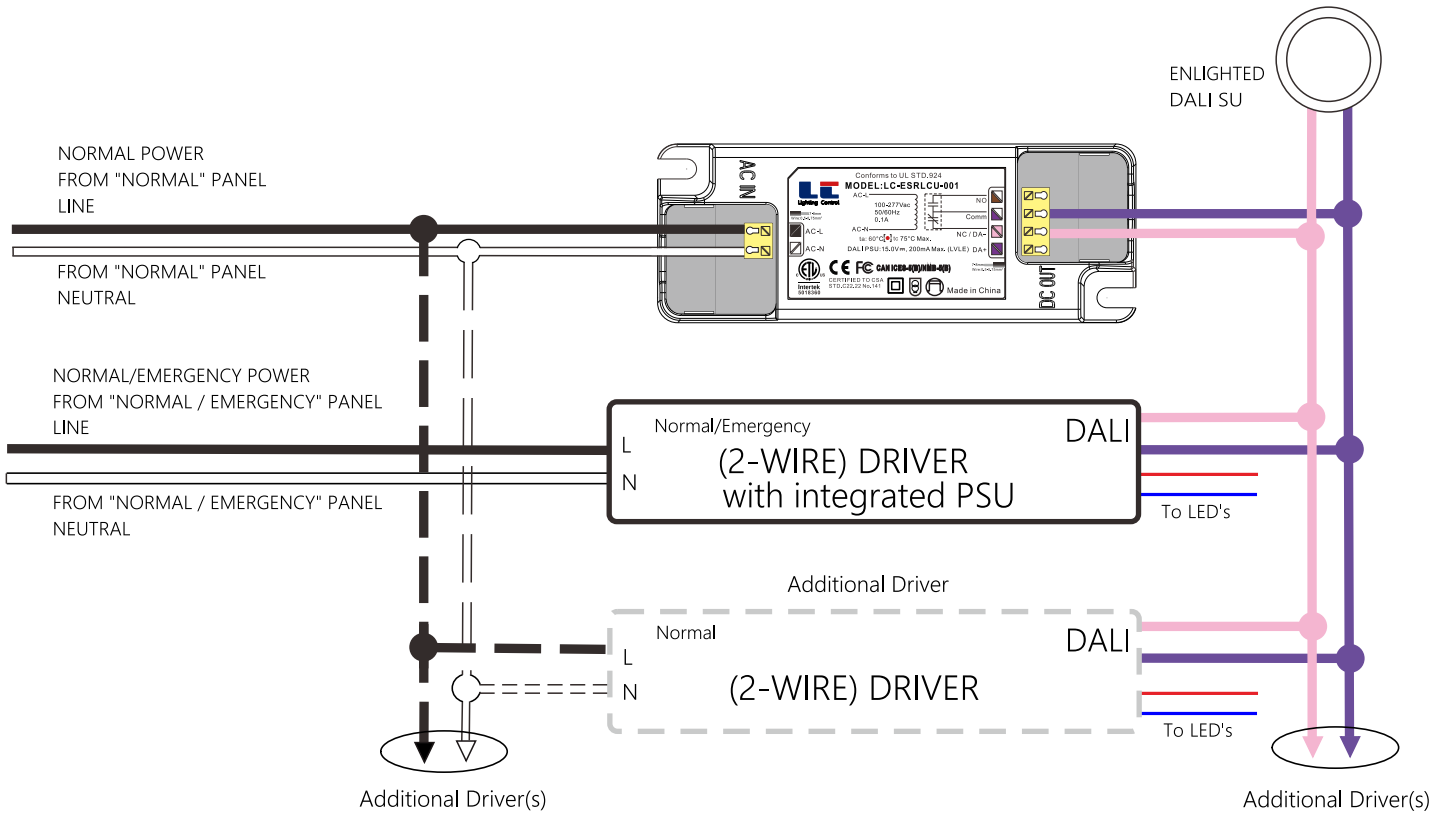
## Wiring Diagram



## LINE DIAGRAM - Normal / Emergency - (2-wire) Driver - w/ Relay CU (integrated PSU) - w/ (2-wire) SU



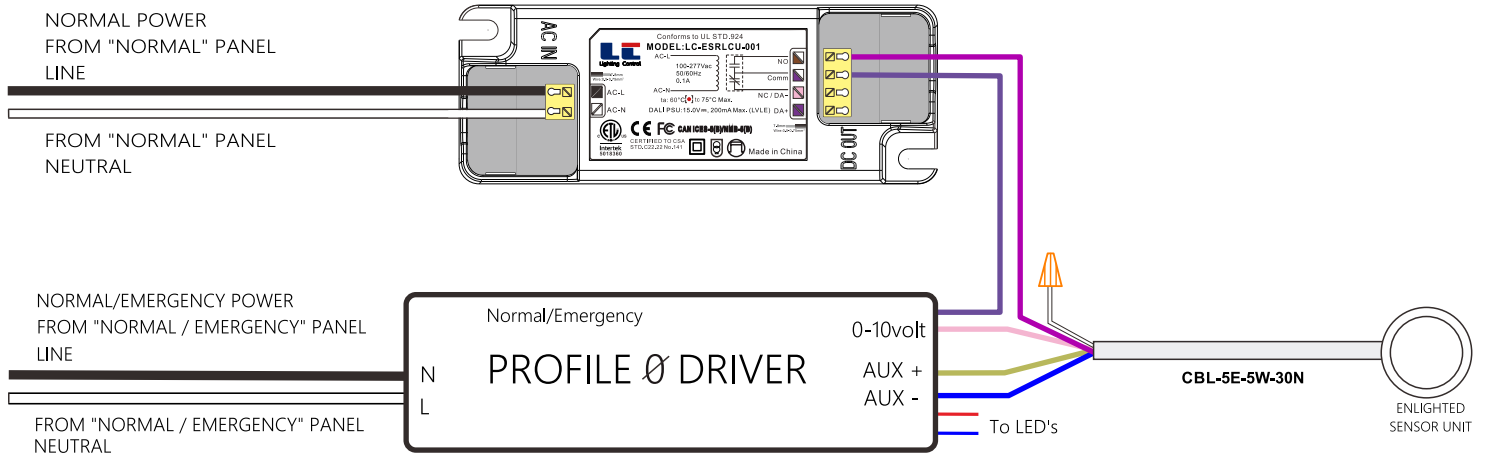
## LINE DIAGRAM - Normal / Emergency - (2-wire) Driver (integrated PSU) - w/ Relay CU - w/ (2-wire) SU



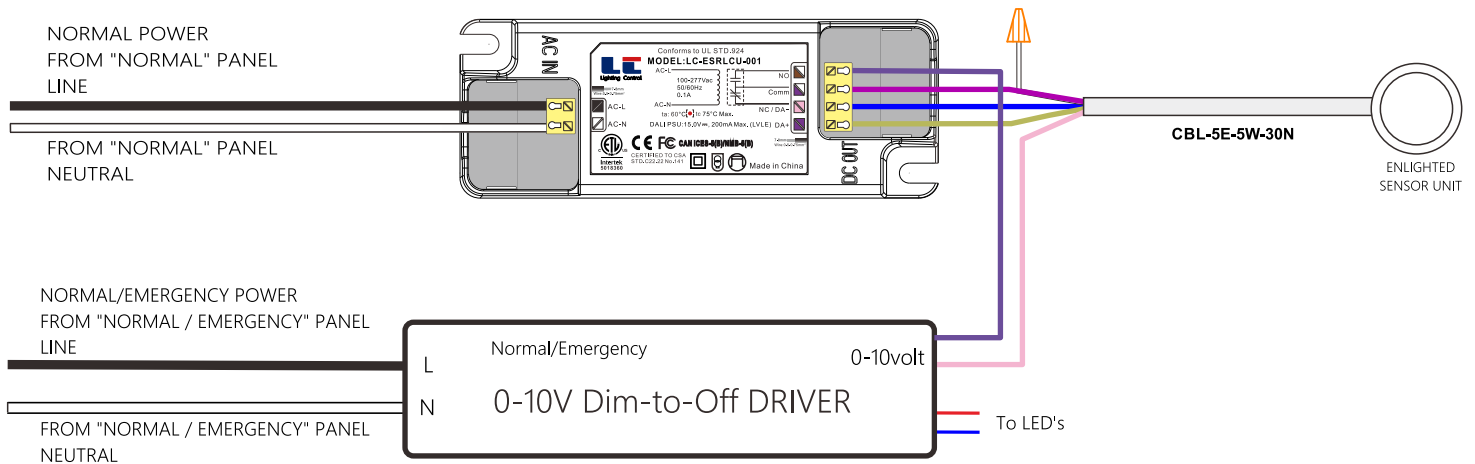
### NOTES:

1. The "N/C" contacts of signal relay will close on loss of NORMAL power, causing the (2-wire) bus to fault to (0V), which causes the energized Emergency driver to go into "SYSTEM FAILURE" (Lights "ON" level).  
The "N/O" contacts of signal relay will open on loss of NORMAL power, isolating the sensor and PSU from the driver(s).  
This will leave the sensor energized and operational as long as NORMAL/EMERGENCY power is available.
2. Driver(s) powered from NORMAL power will be off during an Emergency condition.
3. Up to four (2-wire) drivers may be connected to one (2-wire) sensor.

## LINE DIAGRAM - Normal / Emergency - IoT Ready Profile Ø, 0-10V Driver - w/ Relay CU - w/ SU-5 Sensors (0-10V Dimming)



## LINE DIAGRAM - Normal / Emergency - 0-10V Dim-to-Off Driver - w/ Relay CU - w/ SU-5 Sensors (0-10V Dimming)



### Description of Operation:

When utility power is available:

The Relay CU is energized and the "N/O" contacts of signal relay are closed.

In this case, 0-10V dimming control signal passes through the Relay CU via the "N/O" contacts of signal relay and into the dimming ballast / driver. Fixture will operate normally.

When utility power is NOT available:

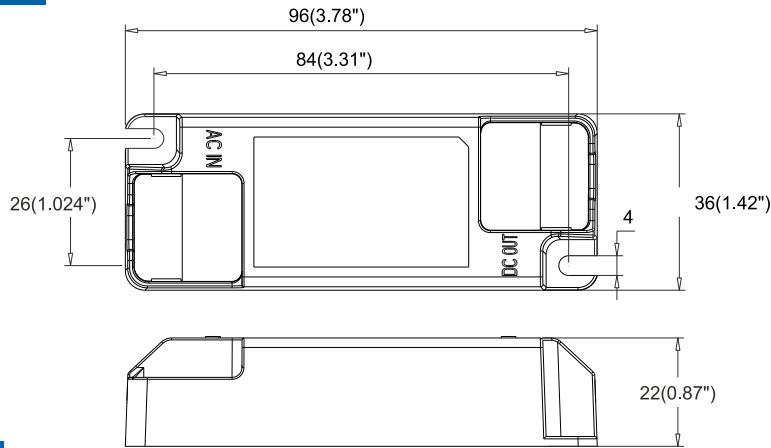
The Relay CU is NOT energized and will return to its default state.

The "N/O" contacts of signal relay are now open and the "N/C" contacts are now closed.

In this case, 0-10V dimming control signal is now lost since the "N/O" contacts of signal relay are now open.

Dimming is automatically set to full bright by default.

## Dimensions & Weight



## Cable Specification

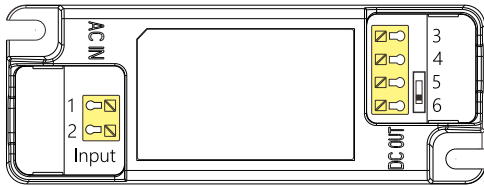
- Install in accordance with National and Local Electrical Codes.
- Input and output cable requirements  
Preparation for Input and output



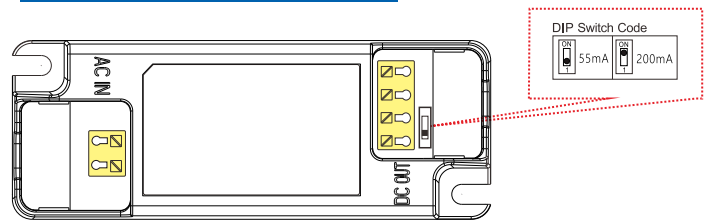
Solid conductor:  
Input 0.5...0.75 mm<sup>2</sup> / 20...18 AWG.  
Output 0.5...0.75 mm<sup>2</sup> / 20...18 AWG.

	inch	mm
Case Length	3.78"	96
Case Width	1.42"	36
Case Height	0.87"	22
Mounting Length	3.31"	84
Mounting Width	1,024"	26
Weight	0.104lb/0.047Kg	

## Connector Definition

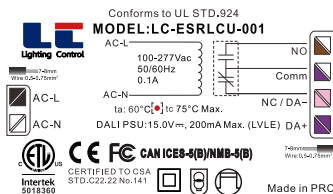


## Output Current Adjustment



Input		Output	
No.	Connector definition	No.	Connector definition
1	AC Input Line	3	Signal Relay ( N/O )
2	AC Input Neutral	4	Signal Relay ( COMM )
		5	DA- / Signal Relay ( N/C )
		6	DA+

## Label



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