LIGHTING CONTROL

Emergency Lighting Load Control Relays

Relay CU Series

LC-ESRLCU-003

Features

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

Emergency Load Relay Specification

- One (1) SPDT Continuous Duty Coil
- 1 Million Cycles Minimum Mechanical Lifetime
- Operate Time: 15mS
- Maximum Switching Load Voltage: 347Vac / 300Vdc
- Maximum Switching Load current: 6A Max.
- Maximum Switching Load power: 1150VA Max.

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

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CE LVLE

Intertek 5018360 CERTIFIED TO CSA STD.C22.22 No.141

RoHS COMPLIANT IP24

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

Advantages

- Control input on "After Switch" detects wall switch's on and off state , allowing emergency light to be used as normal light
- 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 jumper

Initial Wiring Verification

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

Field Inspection

1. Ensure Normal Power and Transfer Power are energized.
2. Turn OFF Wall Switch. Emergency Light will turn OFF.
3. 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-003
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 Typ. Output Voltage	15Vdc
DALI Guaranteed Output Current	200mA ±5%
DALI Max. Output Power	4W
Load relay control current	
Load relay control current	6A, Elect. Ballast @120Vac 5A, Elect. Ballast @230Vac 4A, Elect. Ballast @277Vac 3A, Elect. Ballast @347Vac 4A, Elect. Ballast @200Vdc 3A, Elect. Ballast @300Vdc
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

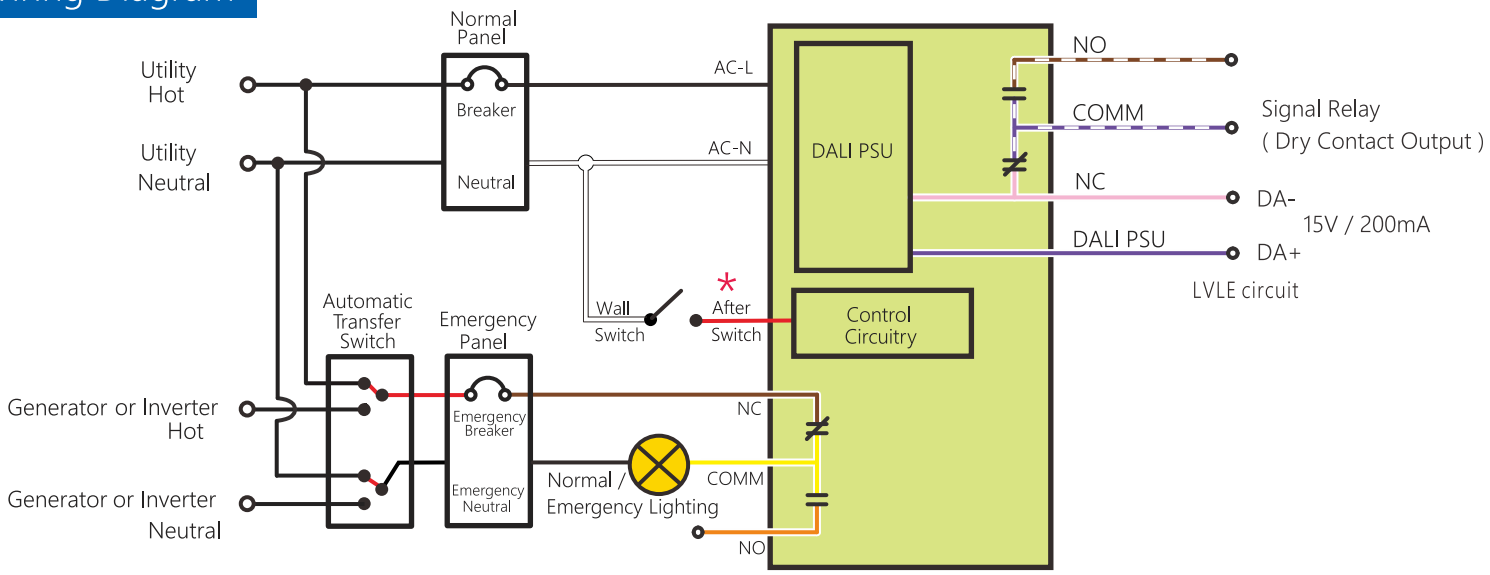
Isolation

Isolation	AC Input	Emergency Load Relay	DALI PSU / Signal Relay
AC Input	Not applicable	Basic	Double
Emergency Load Relay	Basic	Not applicable	Double
DALI PSU / Signal Relay	Double	Double	Not applicable

Basic: represents basic insulation.

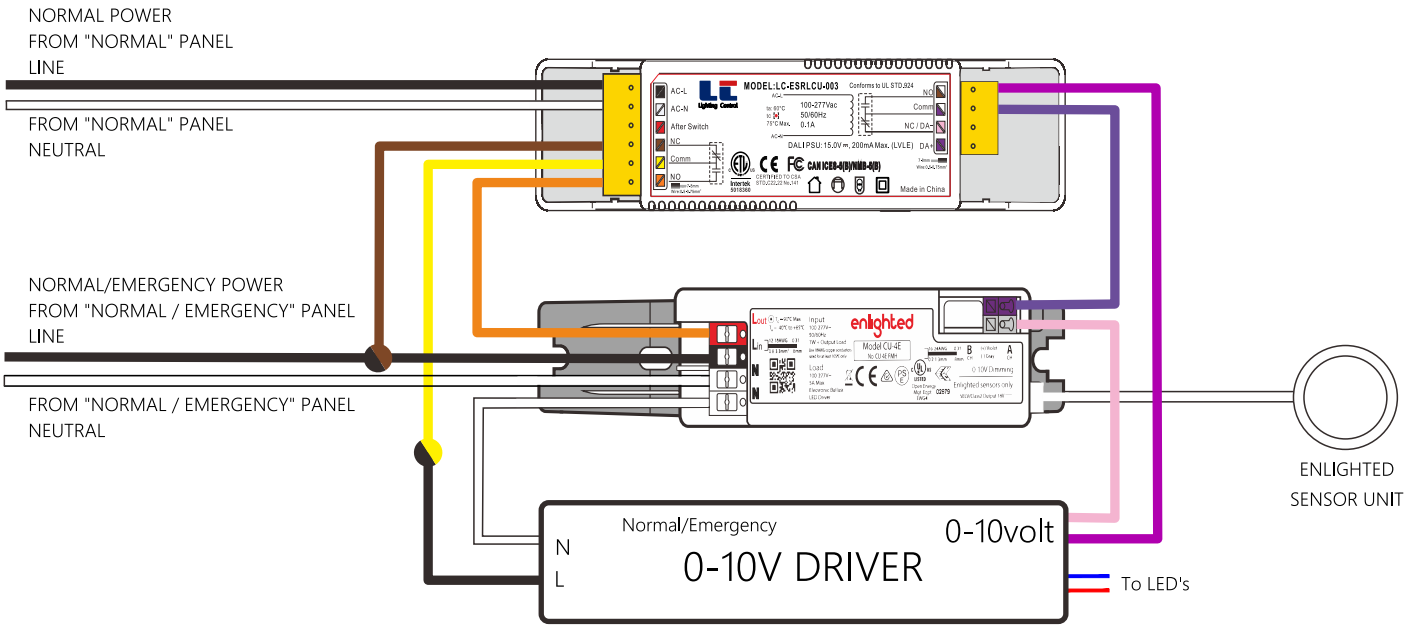
Double: represents double or reinforced insulation.

Wiring Diagram



* NOTES:
1. The "After Switch" input shall be connected to AC-L or AC-N.
2. Connecting "After Switch" after Wall Switch makes manual override control of the emergency load relay is possible when utility power is available.
3. The "After Switch" input has no effect on the contacts of signal relay.

LINE DIAGRAM - Normal / Emergency - 0-10V Driver - w/ Relay CU - w/ CU (0-10V Dimming) - 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 emergency load relay are closed.

In this case, emergency power flows through the Enlighted Control Unit via the "N/O" contacts of emergency load relay and into the dimming ballast / driver. The Enlighted Control Unit will operate normally.

When utility power is NOT available:

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

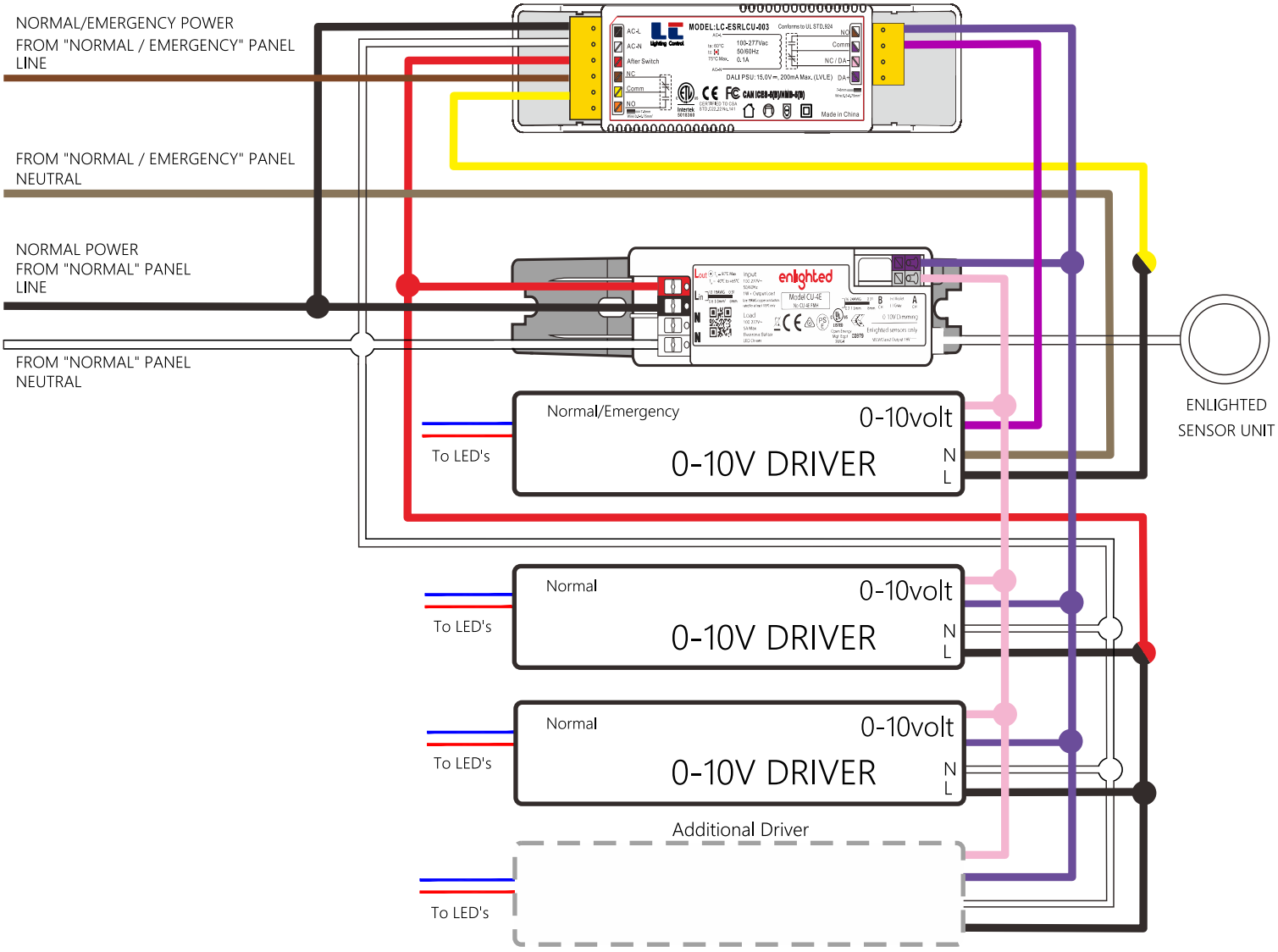
The "N/O" contacts of emergency load relay are now open and the "N/C" contacts are now closed.

In this case, emergency power flows DIRECTLY to the dimming ballast / driver via the "N/C" contacts of emergency load relay.

The 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.

LINE DIAGRAM - Normal / Emergency - 0-10V Driver - w/ Relay CU - w/ CU (0-10V dimming) - w/ SU-5 Sensors (0-10V Dimming)

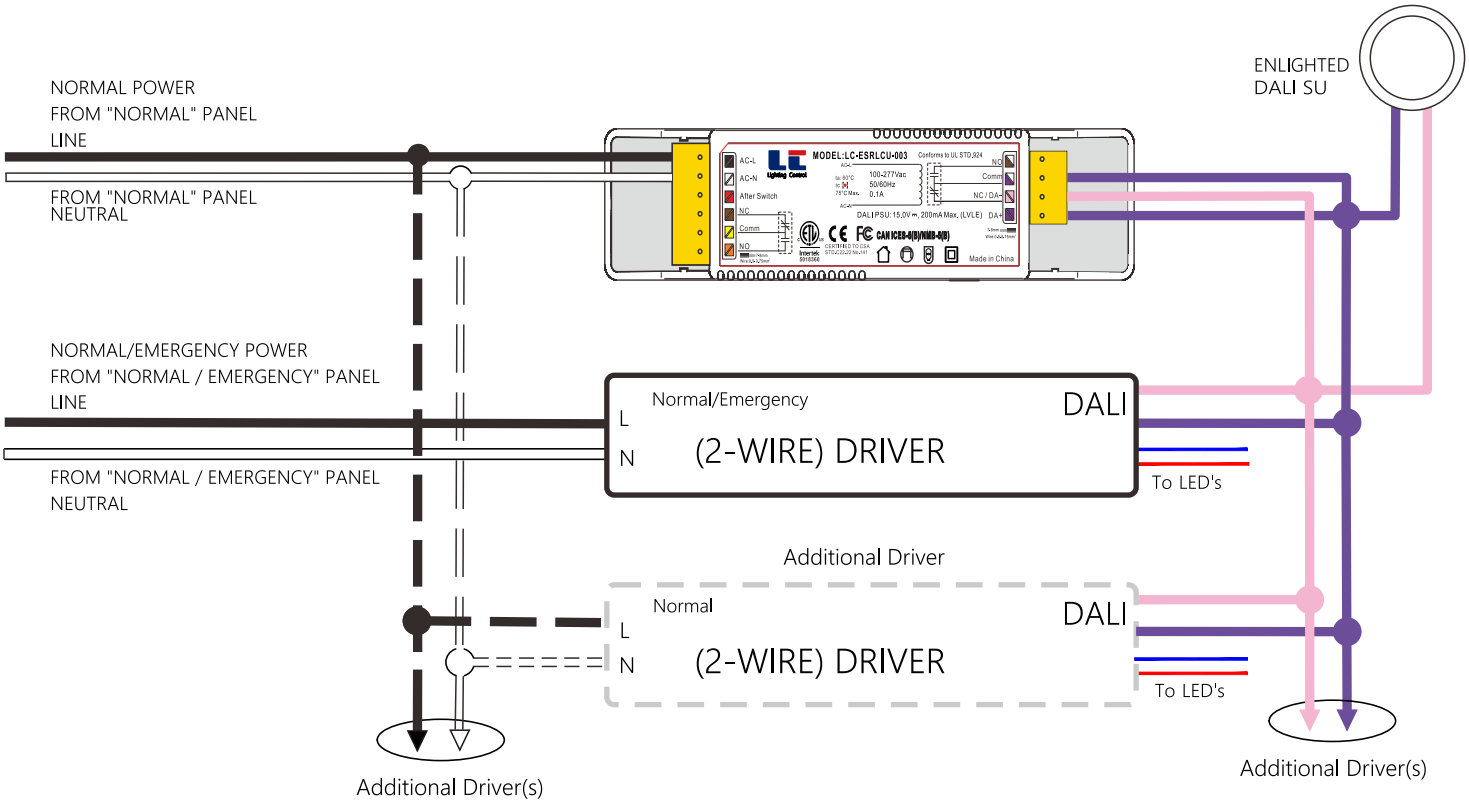


Description of Operation:

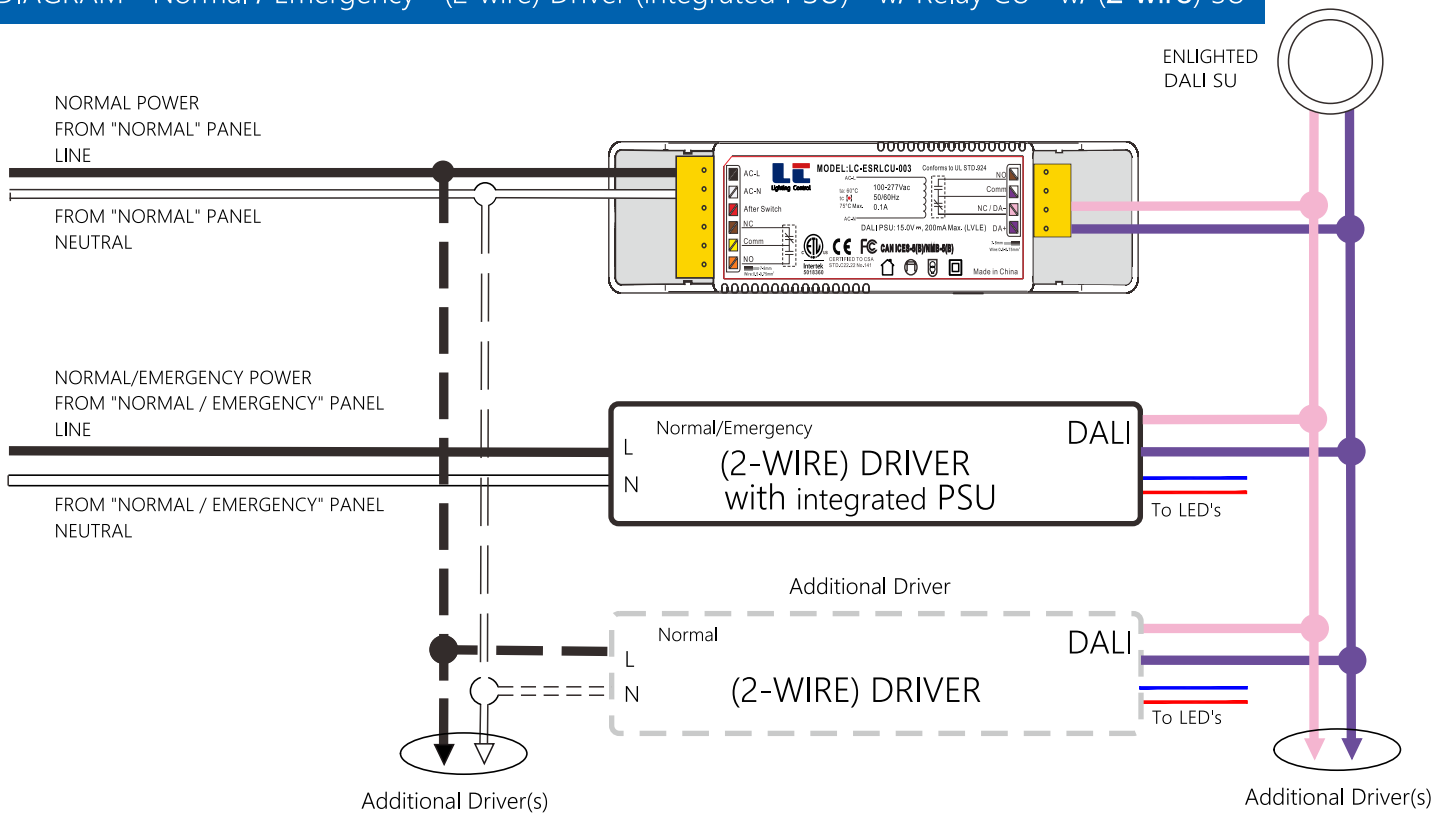
When utility power is available:
The Relay CU is energized and the "N/O" contacts of emergency load relay are closed.
In this case, emergency power flows through the Relay CU via the "N/O" contacts of emergency load relay and into the dimming normal / emergency ballast / driver.
Normal power flows through the Enlighted Control Uint and into the dimming normal ballasts / drivers.
0-10V dimming control signal passes through the Relay CU via the "N/O" contacts of signal relay and into the normal / emergency dimming ballast / driver. Fixture will operate normally,
but the Enlighted Control Unit will only detect the power of normal dimming ballasts / drivers.

When utility power is NOT available:
The Relay CU is NOT energized and will return to its default state.
The "N/O" contacts of emergency load relay are now open and the "N/C" contacts are now closed.
In this case, the normal power of normal dimming ballasts / drivers will be lost.
Emergency power flows to the dimming normal / emergency ballast / driver via the "N/C" contacts of emergency load relay.
0-10V dimming control signal of normal dimming ballasts / drivers is now lost since the "N/O" contacts of signal relay are now open. Dimming is automatically set to full bright by default.

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



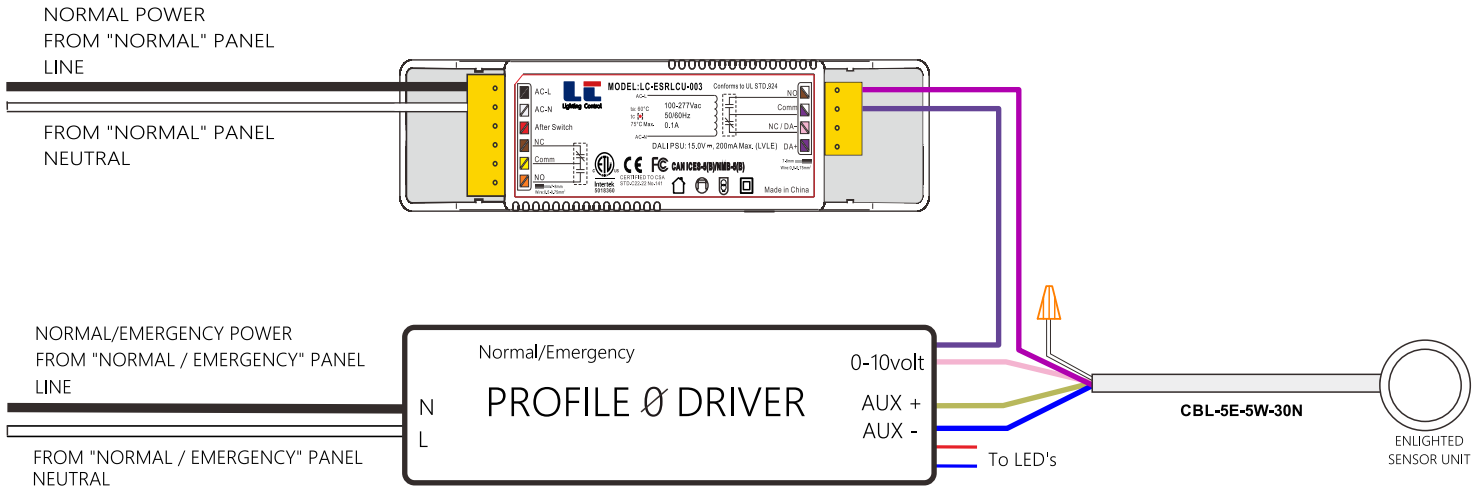
LINE DIAGRAM - Normal / Emergency - (2-wire) Driver (integrated PSU) - w/ Relay CU - w/ (2-wire) SU



NOTES:

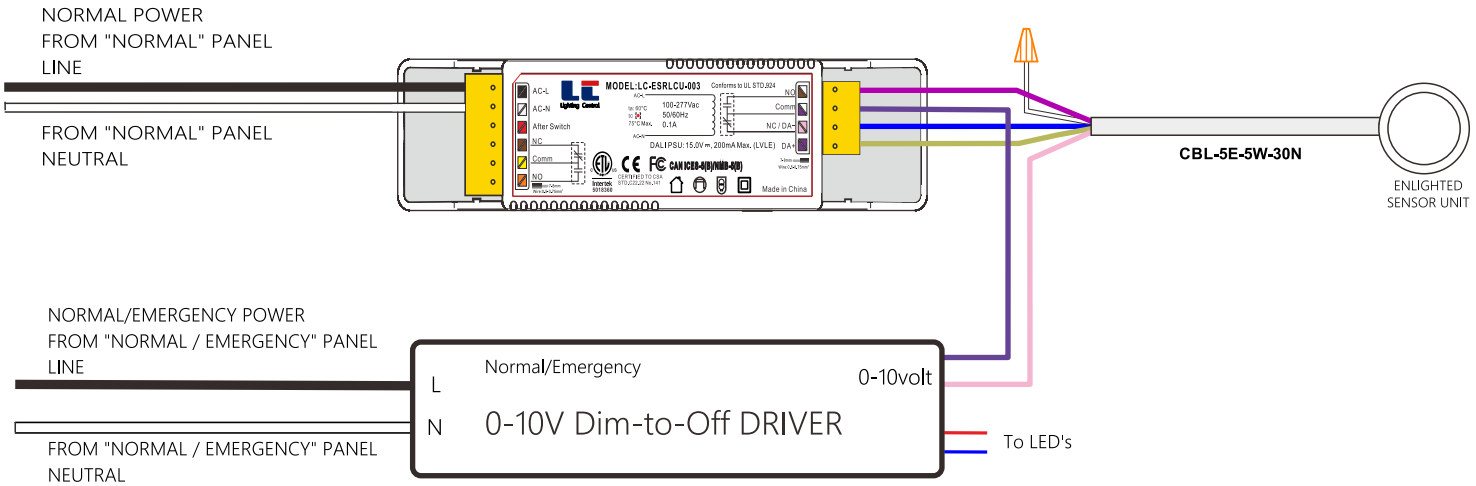
1. The "N/C" contacts of signal relay will close on loss of NORMAL power, causing the (2-wire) bus to fault to (0V), which causes the energized Emergency driver to go into "SYSTEM FAILURE" (Lights "ON" level).
   The "N/O" contacts of signal relay will open on loss of NORMAL power, isolating the sensor 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)



* Note: No Energy Metering

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



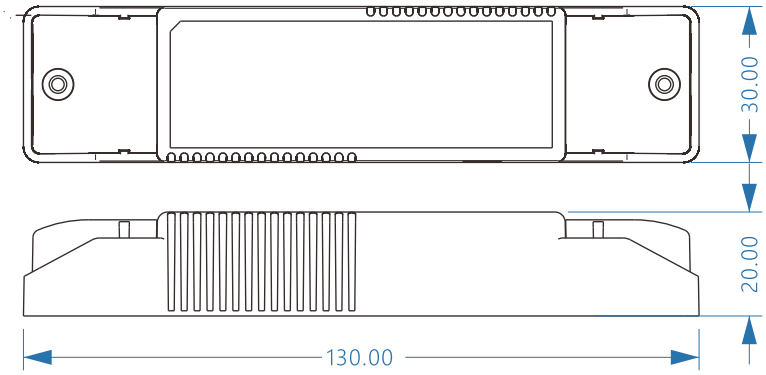
* Note: No Energy Metering

Description of Operation:

When utility power is available:
The Relay CU is energized and the "N/O" contacts of emergency load 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 emergency load 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

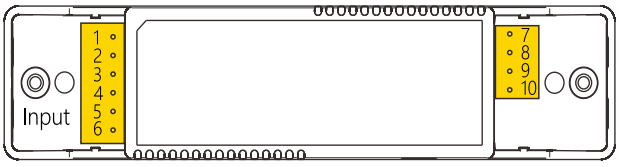
- Install in accordance with National and Local Electrical Codes.
- Input and output cable requirements

Preparation for Input and output

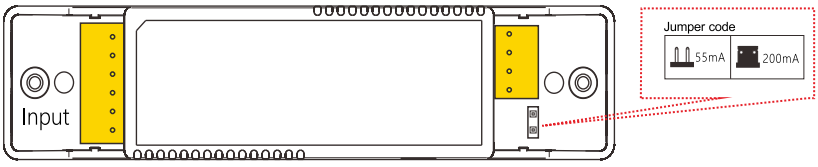
Solid conductor:
Input 0.5...0.75 mm² / 20...18 AWG.
Output 0.5...0.75 mm² / 20...18 AWG.

	inch	mm
Case Length	5.11	130
Case Width	1.18	30
Case Height	0.78	20
Mounting Length	4.13	105
Weight	0.22lb / 0.1Kg	

Connector Definition

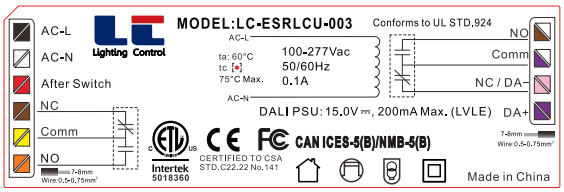


Output Current Adjustment



Input		Output	
No.	Connector definition	No.	Connector definition
1	AC Input Line	7	Signal Relay (N/O)
2	AC Input Neutral	8	Signal Relay (COMM)
3	After Switch	9	DA− / Signal Relay (N/C)
4	Emergency Load Relay (N/C)	10	DA+
5	Emergency Load Relay (COMM)		
6	Emergency Load Relay (N/O)		

Label



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