



L2-PDM

Power Distribution Module, 16 ports, 24-48Vin

This passive backplane module is mounted inside an L2-ENC wall enclosure and accepts up to 16 socket modules in its 16 Sockets^(A). 24-48V input power^(B) and a communication bus^(C) is connected to each Socket to power and control each inserted module. The Sockets are each connected to an adjoining RJ45 Port^(D) where the converted input power is merged with the communication data and accessory 12V power from an L2-APR inserted in the middle of the PDM. All three signal paths (Power, 12V accessory power, and Data) are sent over Cat5/6 wires from the RJ45 Port to the end devices located around the building. 16 Zone Control Channels^(E) create a matrix, allowing any Socket to write or read a control signal. Channels are used to group lights into zones. The communication bus can extend zones to other panels around a building, and the L2-EGW Ethernet Gateway provides virtually unlimited system size. Up to 8 PDMs can share channels, or they can be separated, creating up to a 128x128 matrix in a single enclosure.

INPUT POWER

Total Power per PDM	720W @ 48V supply 360W @ 24V supply 180W @ 12V supply
Power Input Connector	2 conductor screw clamp
Power Input Wire Gauge	12-14 AWG (2.0-3.5mm ²)
Power Input Voltage	24-48VDC
Input Voltage Maximum	60VDC
Input Current Maximum	15A

PORTS

Quantity Ports/Sockets	16
Voltage Maximum	65VDC
Current Maximum	1.2A
Power Maximum	60W
Connector Type	RJ45 (x16)
Accessory 12V Current Maximum	300mA
Accessory 12V Power Maximum	3.6W per port
Total Accessory 12V Power	up to 15W

RS485 CONTROL BUS

Management Speed	38,400 bps
Speed Maximum	1 Mbps
Connector	10-pin (top, bottom)
Port modules per PDMbus	128

CONTROL CHANNELS (Zones)

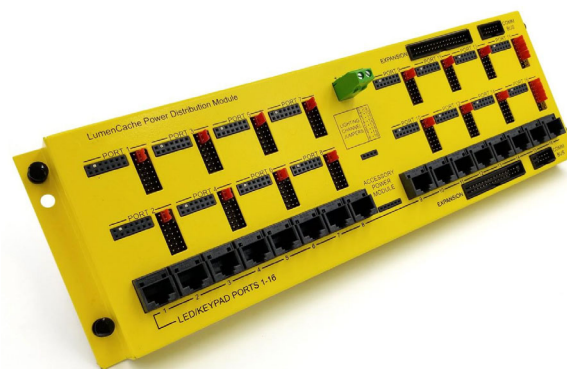
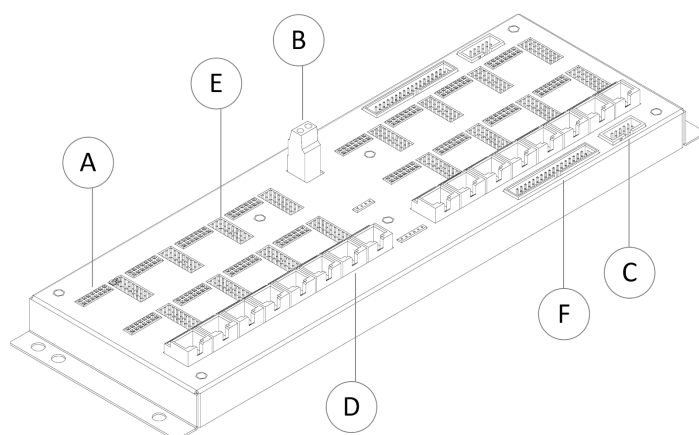
Signal Type	0-5VDC, PWM
Channels	16
Channel Expansion Bus Connector	34-pin (top, bottom)
PDMs connected	up to 8 (order ENC-to-ENC cable)
Sockets per channel	up to 128

PHYSICAL/ENVIRONMENTAL

Dimensions	13.15 x 4.15 x 1.19in (334 x 105 x 30mm)
Operating Temperature	+32°F to +122°F (0°C to +50°C)
Operating Humidity	5% to 95% Non-condensing
Rating	Dry Rated
Environmental	RoHS
Safety Certifications	ANSI/UL 2108, UL/CSA 60950-1, CAN/CSA C22.2#250.13, CSA C22.2#9.0, CSA C22.2#223 (Certification requires installation in L2-ENC28 enclosure)

WARRANTY

Duration	10 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
14020000.2	L2-PDM	Power Distribution Module, 16 ports, 24-48Vin



L2-APR

PDM Accessory Power Regulator, 24-48Vin, 12Vout, 6W or 12W

Motion sensors and other smart devices require a small amount of power for their microcontrollers, backlights, wireless radios, and sensors. This standby power is supplied to all the Power Distribution Module sockets by the L2-APR Accessory Power Regulator. Now each device does not need to adapt the relatively high voltage PDM power source to the tiny voltages the sensitive microcontrollers natively require. If no drivers require standby power, you can omit the L2-APR or only insert one when you add a device that requires it. The L2-APR regulates and filters standby power and provides secondary isolation from dangerous AC mains power and power surges. Electronic circuits within zone control modules, some drivers, L2-CH16, and L2-ONF16 use the 12V power for their microcontrollers and also send 12V to their associated RJ45 Port connected devices. A motion sensor or electronic touchpad switch receive power through their L2-DM module from the L2-APR. The APR has a connector to power and communicate with the L2-ENCFAN2 enclosure fan control module. Each L2-APR-6W can deliver enough power for up to 16 L2-DM plugged into a PDM. Use the 12W L2-APR-12W when an L2-EGW Ethernet Gateway is attached to the PDM, or if a large number of field sensors or smart keypads are attached to the Ports requiring more than 6W total power. The L2-APR does not power modules plugged into adjacent PDMs but it does power the top communication bus port allowing L2-CH16, L2-ONF16, and L2-EGW to be powered simply by plugging them into position.

INPUTS

PDM Power Input Voltage	24-65VDC
Input Voltage Maximum	65VDC
Bottom Connectors	4 pin and 6 pin APR Socket (center of PDM)
Standby power	0.2W

OUTPUT

Total power output	12W, 6W, or 4W
Accessory bus voltage	12VDC +/-0.1V
Fan Connector	4 pin, 12VDC
Power OK	Green LED indicator
Short circuit Protection	Hiccup, automatic reset
Load rating (typical)	Up to 16 L2-SW, L2-DM with each port device < 0.020mA

RS485 CONTROL BUS

Unmanaged

PHYSICAL/ENVIRONMENTAL

Dimensions	0.8 x 1.8 x 0.8in (20 x 45 x 21mm)
Operating Temperature	+32°F to +122°F (0°C to +50°C)
Operating Humidity	5% to 95% Non-condensing
Rating	Dry Rated
Environmental	RoHS
Safety Certifications	CE, UL, FCC

WARRANTY

Duration	5 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
15010020.0	L2-APR-4W	PDM Accessory Power Regulator, 24-48Vin, 12Vout, 4W
15010120.0	L2-APR-6W	PDM Accessory Power Regulator, 24-48Vin, 12Vout, 6W
15010220.0	L2-APR-12W	PDM Accessory Power Regulator, 24-48Vin, 12Vout, 12W



L2-EGW1

Ethernet Gateway, Wired and WiFi

What would a smart infrastructure be without an internet connected gateway. The L2-EGW Ethernet Gateway allows wired and wireless connection, control, and monitoring of up to 240 LumenCache modules. Add monitoring and control of every PDMbus device in one step by connecting the L2-EGW Ethernet Gateway. Automatically finds and identifies communicating devices creating an instant control interface via Smartphone and Tablets. Connect using wires or wireless to your local network router via wired Ethernet or Wifi wireless connection. Magnetically attaches to the top of the enclosure and connects to the communications expansion bus connector on the topmost PDM in the enclosure. The L2-EGW1 is powered by the L2-APR-12W through the comm bus cable (use only 12W APR when a gateway is attached). An expansion port allows connection of third-party control systems in addition to the LumenCache control APPs. The L2-EGW1 creates a WiFi hotspot for installations that do not have WiFi networks installed yet. The browser-based management console simplifies advanced installer settings. A connection to the internet is not required for operation. Connecting the EGW to the internet allows secure remote monitoring and control of your home or office in addition to managing accounts and device groups.

POWER REQUIREMENTS

Peak Power Consumed	1.9 W (5W Peak) Requires 12W L2-APR on the same L2-PDM
Average Power Consumed	1.2 W
Input, Output Connectors	Female 10 pin
USB Connectors	4

RS485 CONTROL BUS

Communication Speed	38,400 bps
Control Protocol	Published LCbus protocol
Maximum devices per PDMbus	100 (1600 channel zones per system)

NETWORK

Wired	Gigabit RJ45 Ethernet port
Wireless	2.4GHz and 5GHz 802.11 b/g/n/ac
Access	AWS Services (optional)

SYSTEM

Memory	1 GB DDR2
Storage Memory	16 GB

PHYSICAL/ENVIRONMENTAL

Dimensions	3.5 x 2.75 x 1in (89 x 69 x 25mm)
Operating Temperature	+32°F to +122°F (0°C to +50°C)
Operating Humidity	5% to 95% Non-condensing
Rating	Dry Rated
Environmental	RoHS
Safety Certifications	CE, FCC

WARRANTY

Duration	5 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
16010000.0	L2-EGW1	Ethernet Gateway, Wired and WiFi



L2-DM

Switch/Keypad Input and 1 Zone PDM Controller, dimming, communicating

The Dimming Module controls a Zone of lights by reading input signals from attached switches or keypads connected to the PDM Port, and creates a Channel signal on the PDM. Up to 128 driver modules can listen to the Channel creating a group, or Zone, of lights. The L2-DM can be “stacked” underneath any driver so both switch inputs and lights can be attached to the same PDM Port. Only one L2-DM is allowed per Channel to create the PWM Channel signal. The L2-DM also sends 12VDC Accessory Power from the Accessory Power Regulator (L2-APR) to the RJ45 Port through a protection fuse. An L2-APR is required to power the microcontroller in the L2-DM. Up to 16 L2-DM are powered by the L2-APR in the middle of the PDM. L2-DM can receive commands and transmit their output status over the PDM communication bus to interface to third party control systems and the L2-EGW Ethernet Gateway. Solving many more roles than just a dimmer for lighting, eleven modes of operation allow the L2-DM to read on/off, momentary, top/bottom switches, motion sensing, occupancy sensing, exhaust fan controls, ceiling fan controls, doorbells, and 1 to 8 button keypads. No software or gateway is required for most configuration, even setting basic lighting scenes thanks to 1 button macros. Advanced settings can be accessed using the L2-EGW.

POWER & CONNECTIONS

Power consumed	0.2 W (Requires L2-APR on the same L2-PDM)
Top connector	Female 14 pin, 1 alignment pin (plugged)
Bottom connector	Male 14 pin, 1 alignment pin (clipped)
PDM voltage	12-65VDC (pass through)
Port voltage maximum	65VDC (pass through)
Current maximum	1.5A (pass through)
Port current maximum	1.25A
Accessory 12V protection	1.2A non-resettable fuse

RS485 CONTROL BUS

Communication speed	38,400 bps
Control protocol	Published dimming module protocol

ZONE CHANNEL OUTPUT

Control channel signal type	0-5VDC, PWM Broadcast
Maximum drivers controlled	128

PORT SWITCH INPUT

Switch types	1 button momentary, Top/Bottom momentary 2 button, 1-8 button keypad, ON/OFF switch, Motion detector, Occupancy detector, Ambient light threshold sensor, Sensor relay (leaks, temperature, etc)
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PHYSICAL/ENVIRONMENTAL

Dimensions	1 x 1.25 x 1.1in (25 x 34 x 30mm)
Operating temperature	+32°F to +122°F (0°C to +50°C)
Operating humidity	5% to 95% Non-condensing
Rating	Dry Rated
Environmental	RoHS
Safety certifications	FCC, CE

WARRANTY

Duration	5 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
17070210.1	L2-DM	Switch/Keypad Input and 1 Zone PDM Controller, dimming, communicating

L2-DM



L2-DM SET button and indicator LED operation:

The green LED indicator on the front face of the L2-DM indicates one of 11 Mode states (0..10) by flashing the Mode number, then a small pause, then repeating the cycle. Wait for the pause and count the number of flashes to obtain the mode.

Press the SET button on the face of the L2-DM to increment the Mode and cycle from 0 (solid LED indicator) to 10 flashes (Mode 10). Pressing the SET button when you see 10 flashes will return to Mode 0 (LED on solid).

MODE	MODE NAME	PORT DEVICES	DESCRIPTION
0	Remote Only	n/a	Ignores all switch inputs from the Port. Only responds to serial data commands via the Comm Bus.
1	Normally Open Switch	N/O door switch, Relay	Sets zone to OFF when the switch input is shorted. Sets zone to 100% when the switch input is open. Used for toggle switches or automatic door pushbuttons.
2	Normally Closed Switch	N/C door switch, Relay	Opposite action of Mode 1. Turns on the zone when the input is an open circuit.
3	Button Toggle ON/OFF	Buttons, L3-KP1, L3-TP1	Toggles output between OFF and 100% each time the momentary button is released. Top and Bottom buttons do the same function when using an L3-KP1.
4	Top/Bottom Switch w/ Restore Level	L3-WK1	Two momentary buttons: Tap the UP button to set output to Restore Level. Tap UP button again to set output to 100%. Tap the DOWN button to turn OFF the zone.
(5)	Top/Bottom Switch w/ Restore Level and Dim/Raise	L3-WK1	Tap the UP button to set output to Restore Level. Tap the UP button again to set output to 100%. Tap the DOWN button to set output to OFF. Hold the UP button to raise output to 100%. Hold the DOWN button to lower output to 1%. Default mode.
6	Button Toggle ON/OFF w/ Dim/Raise	L3-KP1, L3-TP1	Tap to cycle between A)Restore Level, B)100%, and C)OFF. Hold when output is below 50% to raise output level. Stops at 100%. Hold when above 50% to dim output. Stops at 1%. Alternate mode is selectable via Gateway commands. Top and Bottom buttons on an L3-WK-D respond the same to the tap feature.
7	Silent Follower	n/a	Ignores all switch inputs and responds to level replies from DM messages with the same ID. This mode does not send a reply message to a level change.
8	Keypad, Touchpad	L3-KP*, L3-TP*	Performs one of 4 functions responding to one of 8 keypad buttons being pressed. Any of the buttons can A)Request a Scene, B)Toggle a Zone ID, C)Toggle a Scene on/off, D)Raise the last zone button pressed, or E)Dim the last zone button pressed. Buttons 1..8 can be spread across multiple attached keypads attached to the L2-DM in groups of 4.
9	Timer Fan	L3-KP*, L3-TP*	Allows exhaust fans to be controlled by a 4 button keypad as follows: Top button toggles the Fan on/off. Buttons 2,3,4 start a countdown timer of 15, 30, and 60 minutes.
10	Doorbell	Buttons, Relays, L3-DB*	Momentarily turns on the PDM channel output for 1 second each time the doorbell is pressed.

Manually set and view the ID number:

Typically the ID #s will be assigned by the L2-EGW Gateway. To manually assign an ID # of an L2-DM, Hold the SET button for 3 seconds and release. Then tap the SET button the number of times of the ID. The green LED will flash each time you press the SET button. Wait 5 seconds without pressing the button and the LED will remain solid for 2 seconds indicating the ID has been stored. To check the ID, hold the SET button for 3 seconds, release, and count the LED flashes.

L2-DM



Tool-free commissioning using Configuration Macros:

In addition to selecting the 11 Modes of operation, the SET button can be used to run configuration macros that store advanced settings like Scenes and Keypad buttons.

To Reset or Store values in the L2-DM memory, count the LED indicator flashes and set the current Mode to one of the modes in the table below, then hold the SET button for 6 seconds or until you see fast flashes. This will run the Configuration Macro as follows:

SET button RESET/STORE functions (HOLD 6 seconds to perform configuration macros)		
MODE	DESCRIPTION	FUNCTION(S) PERFORMED
0	"CC Lights"	Resets min/max to 30/220. Mode is set to 5.
1	"SV Bulbs"	Resets min/max to 25/220. Mode is set to 5.
2	"SV Strips"	Resets min/max to 1/255. Mode is set to 5.
4	"Fans"	Resets min/max to 255/255. Mode is set to 4.
5	"Factory Default"	Resets min/max to 30/220. Mode is set to 5. Reset ID to 0. Erase scenes. Reset EEPROM.
6	"Scenes"	Add Scene 1 at the current level. Add Scene 2 at 255"ON" level. Add Scene 3 at 0"Off" level. Mode is set to 5.
7	"KP: 2 zones"	Set buttons 1..4 as: 1)MyZone, 2)MyZone+1, 3)Dim, 4)Raise. Mode is set to 8. If ID was 0 (default) it is set to ID 3.
8	"KP: Scenes"	Sets buttons 1..4 as: 1)Scene 1, 2)MyZone, 3)Scene2:"AllOn", 4)Scene3:"AllOff". Mode remains at 8. If ID was 0 (default) it is set to ID 3.
9	"Timer Fan"	Sets buttons 1..4 as: 1)Zone x"self", 2)15min, 3)30min, 4)60min. Mode remains 9.

Configuration Example 1: Three lighting zones and a keypad in a Scenes configuration.

The factory default is Mode 5 (5 flashes) so each example assumes each L2-DM starts in Mode 5.

Kitchen CC-type lights and a wall switch attached to PDM port with DM+CC stacked in one port

Set a dim level Use wall switch (Press the top button of the switch, then hold bottom to dim to level)
Mode 6 then Reset Stores the scenes and current level scene 1

Kitchen Pendants and a 4-button Keypad attached to PDM Port with DM+SV stacked

Mode 1 then Reset Sets the min/max for the SV-Bulb recommend range
Set dim level Use keypad buttons 1 (Up) and 3 (Down)
Mode 6 then Reset Stores the scenes and current level scene 1
Mode 8 then Reset Set "Scenes sample configuration" for the keypad buttons

Under Cabinet Strips and a wall switch attached to PDM Port with DM+SV stacked

Mode 2 then Reset Sets the min/max for the SV-Strips recommend range
Set dim level Use wall switch
Mode 6 then Reset Stores the scenes and current level scene 1

To operate from the keypad:

Press keypad button 1 for the "Welcome Scene" which recalls the dimmed levels stored before the Mode 6+Reset.
Press keypad button 2 to toggle the pendant zone on/off.
Press keypad button 3 for All On 100% Scene.
Press keypad button 4 for All Off Scene.



L2-DM

Configuration Example 2: Three lighting zones and a keypad in a Scenes configuration.

To change the keypad to control the downlights and the pendants with Zone toggle buttons, and Raise and Dim buttons, at the Keypad L2-DM, we need to assign an ID to the downlight zone and change the keypad configuration as follows:

Kitchen CC lights zone L2-DM:

Hold the SET button 3 seconds to enter "Ready to assign ID state".

Press the SET button 4 times only. Wait 5 seconds. To confirm ID, Hold SET button 3 seconds and count flashes (4).

Kitchen Pendants zone with the keypad attached to the L2-DM:

Mode 7 then Reset Sets "2 zones+raise/dim sample configuration" for the keypad buttons

To operate from the keypad:

Press keypad button 1 to toggle the pendant zone on/off (Zone ID 3, same as keypad)

Press keypad button 2 to toggle the downlight zone on/off (Zone ID 4, the keypad DM ID+1)

Press keypad button 3 to raise the last zone tapped

Press keypad button 4 to dim the last zone tapped



L2-SW

Basic switch module, no dim, no communication

Sometimes all you need is a light switch. The L2-SW module controls a Zone of lights by reading input signals from attached switches connected to the PDM Port, and creates a Channel signal on the PDM. Up to 128 driver modules can listen to the Channel creating a group, or Zone, of lights. The L2-SW can be “stacked” underneath any driver so both switch inputs and lights can be attached to the same PDM Port. Perfect for closets and single-fixture rooms that require only one PDM port. Only one L2-SW is allowed per Channel to create the PWM Channel signal. The L2-SW also sends 12VDC Accessory Power from the Accessory Power Regulator (L2-APR) to the RJ45 Port through a protection fuse. An L2-APR is required to power the microcontroller in the L2-SW. Up to 16 L2-SW are powered by the L2-APR in the middle of the PDM. The L2-SW is a low cost switch solution and does not communicate over the PDM comm bus. Use an L2-DM if remote control or keypad input is desired. Because the L2-SW uses the same LumenCache wall switches as the L2-DM, upgrading to the controlled L2-DM takes just seconds. The L2-SW includes 6 Modes of operation to support all kinds of basic switch and button inputs. It can read on/off, momentary, top/bottom switches, and occupancy sensing. The occupancy sensor enabled modes have setup macros allowing dimmed automatic restore based on occupancy detection, and can be overridden to full On by pressing a wall switch button.

POWER & CONNECTIONS

Power consumed	0.2 W (Requires L2-APR on the same L2-PDM)
Top connector	Female 14 pin, 1 alignment pin (plugged)
Bottom connector	Male 14 pin, 1 alignment pin (clipped)
PDM voltage	12-65VDC (pass through)
Port voltage maximum	65VDC (pass through)
Current maximum	1.5A (pass through)
Port current maximum	1.25A
Accessory 12V Protection	1.2A non-resettable fuse

ZONE CHANNEL OUTPUT

Control channel signal type	0-5VDC, PWM Broadcast
Maximum drivers controlled	128

PORT SWITCH INPUT

Switch types	1 button momentary, Top/Bottom momentary 2 button, ON/OFF switch, Occupancy detector, Ambient sunlight sensors
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PHYSICAL/ENVIRONMENTAL

Dimensions	1 x 1.25 x 1.1in (25 x 34 x 30mm)
Operating temperature	+32°F to +122°F (0°C to +50°C)
Operating humidity	5% to 95% Non-condensing
Rating	Dry Rated
Environmental	RoHS
Safety certifications	FCC, CE

WARRANTY

Duration	5 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
17070300.0	L2-SW	Basic switch module, no dim, no communication

L2-SW



L2-SW SET button and indicator LED operation:

The green LED indicator on the front face of the L2-SW indicates one of 6 Mode states (0..5) by flashing the Mode number, then a small pause, then repeating the cycle. Wait for the pause and count the number of flashes to obtain the mode.

Press the SET button on the face of the L2-SW to increment the Mode and cycle from 0 (solid LED indicator) to 5 flashes (Mode 5). Pressing the SET button when you see 5 flashes will return to Mode 0 (LED on solid).

MODE	MODE NAME	PORT DEVICES	DESCRIPTION
0	Always OFF	n/a	Output zone channel remains OFF. Ignores all switch inputs from the Port. Helpful during installation or when a channel needs to always be commanded OFF.
1	Normally Open Switch	N/O door switch, Relay	Sets zone to OFF when the switch input is shorted. Sets zone to 100% when the switch input is open. Motion sensor will set output level to Motion Level. Used for toggle switches or automatic door pushbuttons. 4700k-ohm resistor in series with switch to allow occupancy features.
2	Normally Closed Switch	N/C door switch, Relay	Opposite action of Mode 1. No occupancy detection. Turns on the zone when the input is an open circuit.
3	Button Toggle ON/OFF	Buttons, L3-KP1, L3-TP1	Toggles output between OFF and 100% each time the momentary button is released. Top and Bottom buttons do the same function when using an L3-KP1. No occupancy detection.
(4)	Top/Bottom Switch	L3-WK1	Two momentary buttons: Tap the Top button to set output to ON. Tap the Bottom button to turn OFF the zone. Occupancy detected will set output level to Motion Level if the light is Off. Occupancy ending will turn Off the output. Default mode.
5	Always ON	n/a	Output zone channel remains ON. Ignores all switch inputs from the Port. Helpful during installation or when a channel needs to always be commanded ON.

Tool-free commissioning using Configuration Macros:

In addition to selecting the 6 Modes of operation, the SET button can be used to run configuration macros that store advanced settings.

To Reset or Store values in the L2-SW memory, count the LED indicator flashes and set the current Mode to one of the modes in the table below, then hold the SET button for 6 seconds or until you see fast flashes. This will run the Configuration Macro as follows:

SET button RESET/STORE functions (HOLD 6 seconds to perform configuration macros)		
MODE	DESCRIPTION	FUNCTION(S) PERFORMED
0	"Low Dimmed"	Resets max to 64. Mode is set to 4.
1	"Half Dimmed"	Resets max to 128. Mode is set to 4.
2	"Motion to 25%"	Resets motion level to 16 (low restore level). Mode is set to 4.
3	"Motion to 50%"	Resets motion level to 64 (medium restore level). Mode is set to 4.
4	"Factory Default"	Resets max to 220. Motion is set to 255 (full on). Mode is set to 4. Reset EEPROM.
5	"Full ON"	Resets max to 255. Mode is set to 4.



L2-CC

Constant Current Driver, Dimmable, 30W, Output: 75/150/300/600mA, 9-60Vdc

The L2-CC driver converts main PDM power into constant current regulated power. It plugs into a Power Distribution Module (PDM) Socket and sends power to one or more LEDs attached to the associated RJ45 Port. This is used for LED fixtures requiring constant current where a driver or regulator is not inside the bulb. This module does not require an L2-APR. Its output level is controlled by a Channel Zone Controller like an L2-DM, L2-SW, or L2-CH16. The L2-CC driver automatically adjusts its power output to maintain accurate current regardless of the length of Cat5/6 attached. This ensures consistent fixture intensity. Small LED lights can be connected in Series. LEDs in series must have an identical Current requirement of each other and the L2-CC current DIP switches must be set to match the LED current requirement. L2-CC are full range buck-boost drivers so the total attached LED voltage can be anywhere from the minimum to the maximum total voltage. Choose from 75mA, 150mA, 300mA, or 600mA current settings.

POWER

Power output	20W (12-24VDC supply) 30W (40-65VDC supply) (recommended)
Output current	Selectable: 75mA, 150mA, 300mA, 600mA
LED output voltage	9 - 65VDC
PDM input voltage	12 - 56VDC
Regulator frequency	250kHz
Efficiency	88%
Absolute maximum voltage	60VDC

ZONE CHANNEL INPUT

Control channel signal type	Controlled by 0-5VDC, PWM dimming
Channel frequency	122-2000Hz

PHYSICAL/ENVIRONMENTAL

Dimensions	1.65 x 0.95 x 0.23in (42 x 24 x 6mm)
Operating temperature	+32°F to +122°F (0°C to +50°C)
Operating humidity	5% to 95% Non-condensing
Environmental	RoHS
Safety certifications	ANSI/UL 2108, UL/CSA 60950-1, CAN/CSA C22.2#250.13, CSA C22.2#9.0, CSA C22.2#223, FCC, CE

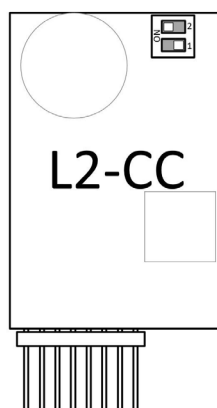
Rating Dry Rated

WARRANTY

Duration 5 Years

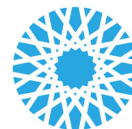


L2-CC DIP Current Settings		
SW1	SW2	CURRENT OUTPUT
OFF	OFF	600mA
OFF	ON	300mA (default)
ON	OFF	150mA
ON	ON	75mA



ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
17020110.0	L2-CC	Constant Current Driver, Dimmable, 30W, Output: 75/150/300/600mA, 9-60Vdc



L2-CC50

PRELIMINARY SPEC

Constant Current Driver, Dimmable, 50W, Output: 600, 800, 1000mA, 48-60Vdc

The L2-CC59 driver converts main PDM power into constant current regulated power. It plugs into a Power Distribution Module (PDM) Socket and sends power to one or more LEDs attached to the associated RJ45 Port. This is used for LED fixtures requiring constant current where a driver or regulator is not inside the bulb. This module does not require an L2-APR. Its output level is controlled by a Channel Zone Controller like an L2-DM, L2-SW, or L2-CH16. The L2-CC50 driver automatically adjusts its power output to maintain accurate current regardless of the length of Cat5/6 attached. Small LED lights can be connected in Series. LEDs in series must have an identical Current requirement of each other and the L2-CC50 current selector switch must be set to match the LED current requirement. This driver is 95% efficient. It requires the PDM supply voltage to be at least 8V higher than the attached LED array maximum voltage to ensure long life and consistent fixture intensity. Select 600mA, 800mA, and 1000mA current settings.

POWER

Power output	20W (20-28VDC supply) 50W (50-60VDC supply) (recommended)
Output current	Selectable: 75mA, 150mA, 300mA, 600mA
LED output voltage	PDM Vin - 8v
PDM input voltage	48 - 60VDC
Regulator frequency	350kHz
Efficiency	95%
Absolute maximum voltage	65VDC (1 second)

ZONE CHANNEL INPUT

Control channel signal type	Controlled by 0-5VDC, PWM dimming
Channel frequency	122Hz

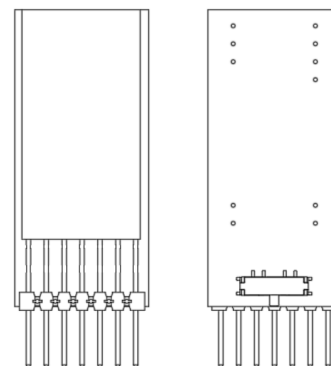
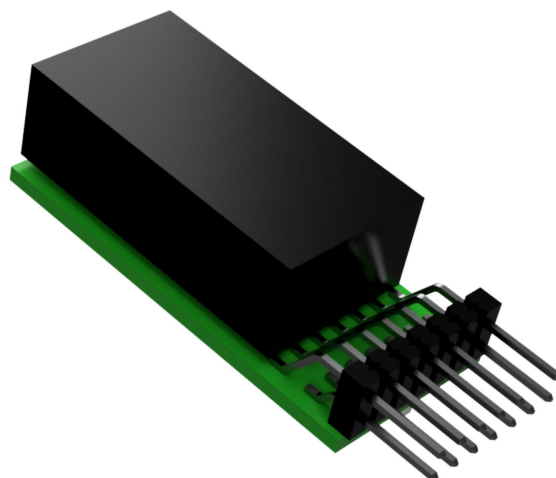
PHYSICAL/ENVIRONMENTAL

Dimensions	1.65 x 0.95x 0.23in (42 x 24 x 6mm)
Operating temperature	+32°F to +122°F (0°C to +50°C)
Operating humidity	5% to 95% Non-condensing
Environmental	RoHS
Safety certifications	ANSI/UL 2108, UL/CSA 60950-1, CAN/CSA C22.2#250.13, CSA C22.2#9.0, CSA C22.2#223, FCC, CE

Rating Dry Rated

WARRANTY

Duration 5 Years



L2-CC50 Current Settings	
POS	CURRENT OUTPUT
A	1000mA (default)
B	800mA
C	600mA

ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
17020200.0	L2-CC50	Constant Current Buck Driver, Dimmable, 50W, Output: 600/800/1000mA, 48-60Vdc



L2-SV

Switched Voltage Bulb/Strip Driver, Dimmable, 50W, 24-48V, 1.2A

L2-SV drivers are used when the connected devices have their own regulators built in. This includes strip LEDs and screw-in or plug-in style bulbs. The L2-SV sends the same voltage as the PDM supply voltage to the devices at the end of the Cat5/6 wires connected to the PDM port. It does not regulate the voltage except to control it on and off by listening to the zone control channel for the PDM socket it is plugged into. A replaceable 1.2A fuse protects against over-current or short-circuit conditions. This module does not require an L2-APR. Its output level is controlled by a Channel Zone Controller like an L2-DM, L2-SW, or L2-CH16. An indicator LED shows when the L2-SV is commanded ON. For large commercial projects, a spread-spectrum slew feature reduces large in-rush currents to protect power supplies. As a high-speed solid-state switch, the L2-SV can follow the control channel signal to PWM dim the attached strip or bulb, allowing fine control over the dimming smoothly down to 1%. Check the bulb specifications for dimming capability. LED strip lights can have uneven intensity end-to-end or have shimmer or flicker due to wire voltage drop or battery charging voltage changes. LumenCache LED strips have regulators that maintain perfect consistency across the length of the strip and will not shimmer when the PDM is powered by a battery and charger. L2-SV are ideal for powering sconces and other multi-bulb fixtures.

POWER

Power switching 60W @ 48VDC PDM Input Voltage
30W @ 24VDC PDM Input Voltage

Output current Up to 1.2A

Absolute maximum voltage 60VDC

Signal conditioning Spread-spectrum slew

Channel frequency 122-2000Hz

ZONE CHANNEL INPUT

Channel frequency 122-2000Hz

Control channel signal type Controlled by 0-5VDC, PWM dimming

PHYSICAL/ENVIRONMENTAL

Dimensions 1.65 x 0.95x 0.23in (42 x 24 x 6mm)

Operating temperature +32°F to +122°F (0°C to +50°C)

Operating humidity 5% to 95% Non-condensing

Environmental RoHS

Safety certifications ANSI/UL 2108, UL/CSA 60950-1,
CAN/CSA C22.2#250.13, CSA C22.2#9.0,
CSA C22.2#223, FCC, CE

Rating Dry Rated

WARRANTY

Duration 5 Years



ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
17010210.1	L2-SV	Switched Voltage Bulb/Strip Driver, Dimmable, 50W, 24-48V, 1.2A
	FUSE1-PK10	Pack of 10 Fuses



L3-WK-D

Wall Switch, Decora

Wall switch has a top and bottom momentary button with a gentle tactile feel when pressed. Use with L2-DM or L2-SW to control zones of lights. These provide an intuitive user experience with familiar decora shape and operation. For 3-way and multi-way switching, simply add more L3-WK-D to the Cat5/6 wire. Two RJ45 jacks on the back allow switches to be connected in series, or connect a splitter/combiner to join two wires into a single PDM port. The L3-WK-D has an orientation and should always be installed with the Top button at the top. Lights can be powered passing through switches but it is recommended to place switches after lights as the wires leave the PDM ports. Refer to the system overview to understand how LumenCache inputs and outputs apply to wiring design. Four colors are available. Custom colors are available for special order. Use any standard Decora-style cover plates.

ELECTRICAL

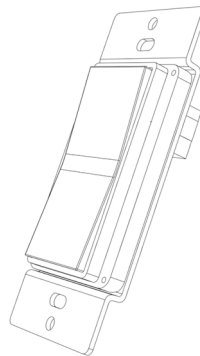
Voltage	5VDC
Power	0.0W (passive)
Input module	Use L2-DM or L2-SW at the PDM Socket

PHYSICAL/ENVIRONMENTAL

Cover plate shape	Decora style and shape
Construction	Metal carrier, plastic buttons
Height	106 mm
Width	44.3 mm
Depth	16.19 mm
Operating temperature	0°F to +122°F (-17°C to +50°C)
Operating humidity	5% to 95% Non-condensing
Safety certifications	FCC, CE
Rating	Damp Rated

WARRANTY

Duration	5 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
22010110.0	L3-WK-D-WH	Wall Switch, Decora, White
22010111.0	L3-WK-D-BK	Wall Switch, Decora, Black
22010112.0	L3-WK-D-BR	Wall Switch, Decora, Brown
22010113.0	L3-WK-D-GY	Wall Switch, Decora, Gray



L3-TP-_-D-_-

Wall TouchPad, 1-4 button, Decora

Wall touchpad has 4 gently backlit touch zones with a positive indication of button presses. Use with an L2-DM to control zones of lights or lighting scenes. For multiple keypad locations, simply add more L3-TP4-D to the Cat5/6 wire. Each unit has a selector switch to choose between buttons 1-4 and 5-8, allowing up to 8 button actions to be sensed by the L2-DM at the PDM. Two RJ45 jacks on the back allow touchpads to be connected in series, or connect a splitter/combiner to join two wires into a single PDM port. The L3-TP4-D can be installed in any orientation. Lights can be powered passing through touchpads but it is recommended to place touchpads and switches after lights as the wires leave the PDM ports. Refer to the system overview to understand how LumenCache inputs and outputs apply to wiring design. Two rim colors are available. Custom rim colors are available for special order. Use any standard Decora-style cover plates. The tempered glass touch face can have custom artwork and is quickly field replaceable.

ELECTRICAL

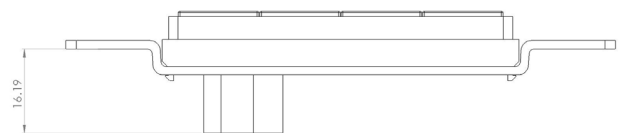
Voltage	5VDC, 12VDC from L2-APR at the PDM
Power	0.1W
Input Module	Use L2-DM at the PDM Socket

PHYSICAL/ENVIRONMENTAL

Cover plate shape	Decora style and shape
Construction	Metal carrier, tempered glass face
Height	106 mm
Width	44.3 mm
Depth	16.19 mm
Operating temperature	32°F to +122°F (0°C to +50°C)
Operating Humidity	5% to 95% Non-condensing
Safety Certifications	FCC, CE
Rating	Dry Rated

WARRANTY

Duration	5 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
23040110.0	L3-TP-1111-D-WH	Wall TouchPad, 4 button, 1111 layout, Decora, White
23040111.0	L3-TP-1111-D-BK	Wall TouchPad, 4 button, 1111 layout, Decora, Black



L2-CH16

PRELIMINARY SPEC

Zone controller module, 16 PDM Channels, dimming, communicating

The L2-CH16 controls up to 16 zone channels of lighting from one device. The zones are controlled via PDMbus protocol commands including scenes or zone level commands. Each channel can command up to 64 drivers with a total limit of 128 drivers across 8 L2-DMs. With an L2-CH16 attached to each L2-PDM, an enclosure can have up to 128 independently controlled zones via the PDMbus. This module fits into the top channel expansion connector and communication bus connector of the L2-PDM. It requires accessory power from an L2-APR. Channels 1-8 must be controlled by the L2-CH16. DIP selector switches allow channels 9-16 to be controlled either by the L2-CH16 (enable position) or by an L2-DM, L2-SW, or L2-ONF16. 16 indicators LEDs show the commanded status of each channel including the dimmed level by intensity. They are also used to indicate selected modes and configuration information. Two control buttons and status LED create a simple user interface to allow manual control of any of the channels for commissioning and configuration of the module. The L2-CH16 appears like 16 L2-DM with a subset of configuration settings.

POWER & CONNECTIONS

Power consumed	0.3 W (Requires L2-APR on the same L2-PDM)
Top connector	Male 34 and 10 pins (Channel and PDMbus)
Bottom connector	Female 34 and 10 pins (Channel and PDMbus)

ZONE CHANNEL OUTPUT

Channel Outputs	1-8 always controlled 9-17 optional via DIP selectors
Channel slew	Staggered channel timing
Control channel signal type	0-5VDC, PWM Broadcast
Maximum drivers controlled	128

RS485 CONTROL BUS

Communication speed	38,400 bps
Control protocol	Published dimming module protocol
Scenes	11

PHYSICAL/ENVIRONMENTAL

Dimensions	4.3 x 1.48 x 1.2in (110 x 36 x 30mm)
Operating temperature	+32°F to +122°F (0°C to +50°C)
Operating humidity	5% to 95% Non-condensing
Rating	Dry Rated
Environmental	RoHS
Safety certifications	FCC, CE

WARRANTY

Duration	5 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
17080100.0	L2-CH16	Zone controller module, 16 PDM Channels, dimming, communicating

L2-CH16

PRELIMINARY SPEC



L2-CH16 SET button and indicator LED operation:

The green LED indicator on the lower-right, front face of the L2-CH16 indicates one of 11 Mode states (0..10) by flashing the Mode number, then a small pause, then repeating the cycle. Wait for the pause and count the number of flashes to obtain the mode.

Press the SET button on the face of the L2-DM to increment the Mode and cycle from 0 (solid LED indicator) to 10 flashes (Mode 10). Pressing the SET button when you see 10 flashes will return to Mode 0 (LED on solid).

MODE	MODE NAME	DESCRIPTION
0	Automatic	Channels are controlled by the protocol commands like scenes or value change commands.
1-16	Override	Toggle zone channel 1-16 ON or OFF using the Select button. All channel indicator LEDs are on low intensity except the selected channel which will be on High or Off.

Manually set and view the ID number:

Typically the ID #s will be assigned by the L2-EGW Gateway. To manually assign an ID # of an L2-CH16, Hold the SET button for 3 seconds and release. Then tap the SET button the number of times of the ID. The green LED will flash each time you press the SET button. Wait 5 seconds without pressing the button and the LED will remain solid for 2 seconds indicating the ID has been stored. To check the ID, hold the SET button for 3 seconds, release, and count the LED flashes.

Tool-free commissioning using Configuration Macros:

In addition to selecting the 17 Modes of operation, the SET button can be used to run configuration macros that store advanced settings like Scenes.

To Reset or Store values in the L2-CH16 memory, count the LED indicator flashes and set the current Mode to one of the modes in the table below, then hold the SET button for 6 seconds or until you see fast flashes for 3 seconds. This will run the Configuration Macro as follows:

SET button RESET/STORE functions (HOLD 7 seconds to perform configuration macros)		
MODE	DESCRIPTION	FUNCTION(S) PERFORMED
0	"Factory Default"	Resets min/max to 30/220/ch. Mode is set to 0. Reset ID to 0. Erase scenes.
1	"SV Bulbs"	Resets min/max to 25/220/ch. Mode is set to 0.
2	"SV Strips"	Resets min/max to 1/255/ch. Mode is set to 0.
3	"Scenes"	Add Scene 1 at the current levels. Add Scene 2 at 255"ON" level. Add Scene 3 at 0"Off" level. Mode is set to 0.



L2-ONF16

Manual On/Off module, 16 PDM Channels

The L2-ONF16 controls up to 16 zone channels of lighting from one device. The zones are controlled via 16 DIP switches to turn ON the channels when the DIP switch is set in the ON position. When in the OFF position, the L2-ONF16 produces a slight OFF signal to keep driver input signals from floating. This module fits into the top channel expansion connector and communication bus connector of the L2-PDM. It requires accessory power from an L2-APR. 16 indicators LEDs show the status of each channel including the dimmed level by intensity. The channel indication feature makes the L2-ONF16 an excellent commissioning tool. It can also be used as a low-cost ON command during construction or for zones that must be commanded On full time like USB outlets or locally switched fans and devices.

POWER & CONNECTIONS	
Power consumed	0.1 W (Requires L2-APR on the same L2-PDM)
Top connector	Male 34 and 10 pins (Channel and PDMbus)
Bottom connector	Female 34 and 10 pins (Channel and PDMbus)

ZONE CHANNEL OUTPUT	
Channel Outputs	1-16 forced On or Off via DIP selectors
Control channel signal type	0-5VDC, PWM Broadcast
Maximum drivers controlled	128

PHYSICAL/ENVIRONMENTAL	
Dimensions	4.3 x 1.48 x 1.2in (110 x 36 x 30mm)
Operating temperature	+32°F to +122°F (0°C to +50°C)
Operating humidity	5% to 95% Non-condensing
Rating	Dry Rated
Environmental	RoHS
Safety certifications	FCC, CE

WARRANTY	
Duration	7 Years



ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
17080200.0	L2-ONF16	Manual On/Off module, 16 PDM Channels



L2-ENC28

Wall Enclosure, 28", Recessed/Surface back box

The wall enclosure is installed pre-construction between studs or on a wall surface. It provides protection of the wires and modules as well as easy access for servicing. The enclosure back box, door, and fan kits are provided separately to match the installation phase of typical construction. Install the L2-ENC28 during pre-wire phase and protect the wires inside from dust and paint with the included dust cover. Metal knockouts on the sides, and top/bottom left side provide sufficient access for clean and trouble-free installation in both wood, metal, and concrete construction. AC or DC power can enter the enclosure at the bottom/top right side in addition to a square knockout for a standard junction box. The L2-ENC28 allows many configurations of components including: Power Distribution Modules (PDMs), Battery Shelves, AC/DC and DC/DC Power Supplies, and DIN rail mounted accessories. See L2-ENC-DOOR for door and fan information. Do not install the enclosure in confined spaces without adequate ventilation to dissipate the maximum heat produced in the enclosures. **The L2-ENC is wider than a standard 16"-on-center wall stud spacing.** See riser drawing for recommended stud spacing and wall placement.

PHYSICAL

Construction	Painted Steel, White
Height	28 in (713 mm)
Width	15.75 in (400 mm)
Depth	3.9 in (99 mm)

ENVIRONMENTAL

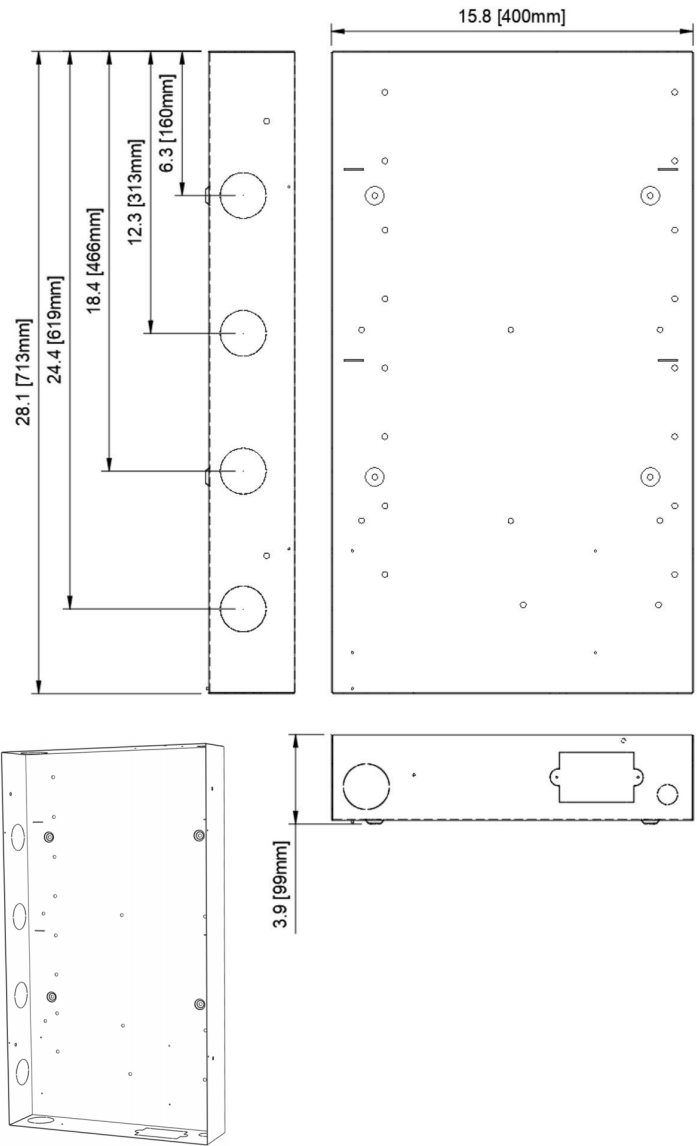
Operating Temperature	+32°F to +122°F (0°C to +50°C)
Operating Humidity	5% to 95% Non-condensing
Safety Certifications	ANSI/UL 2108, UL/CSA 60950-1, CAN/CSA C22.2#250.13, CSA C22.2#9.0, CSA C22.2#223
Rating	Dry Rated

WARRANTY

Duration	20 Years - Enclosure
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DOOR DIMENSION Not included, for reference only

Height	27.65 in (702 mm)
Width	17.25 in (438 mm)
Depth	1.25 in (32 mm)
Position	Wall surface. Hinge at right



ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
10010210.0	L2-ENC28	Wall Enclosure, 28", Recessed/Surface back box



L2-ENC28

Recommended installation and wall riser drawing

Recommended installation and wall riser drawing

Recommended AC Electrical connection to junction box drawing



L2-ENC28-DOOR

Enclosure Door, 28", Locking

The locking door provides protection and ventilation of the component inside the L2-ENC28 enclosure. The door includes a wall trim for a clean installation during the finish phase of construction. The door is installed with the hinge at the right and the LumenCache logos at the top. If one or more Power Distribution Modules (PDM) are installed in the enclosure, an L2-ENCFAN2 Fan Kit must be used to ensure adequate component temperature is maintained. The enclosure back box, door, and fan kits are provided separately to match the installation phase of typical construction.

PHYSICAL

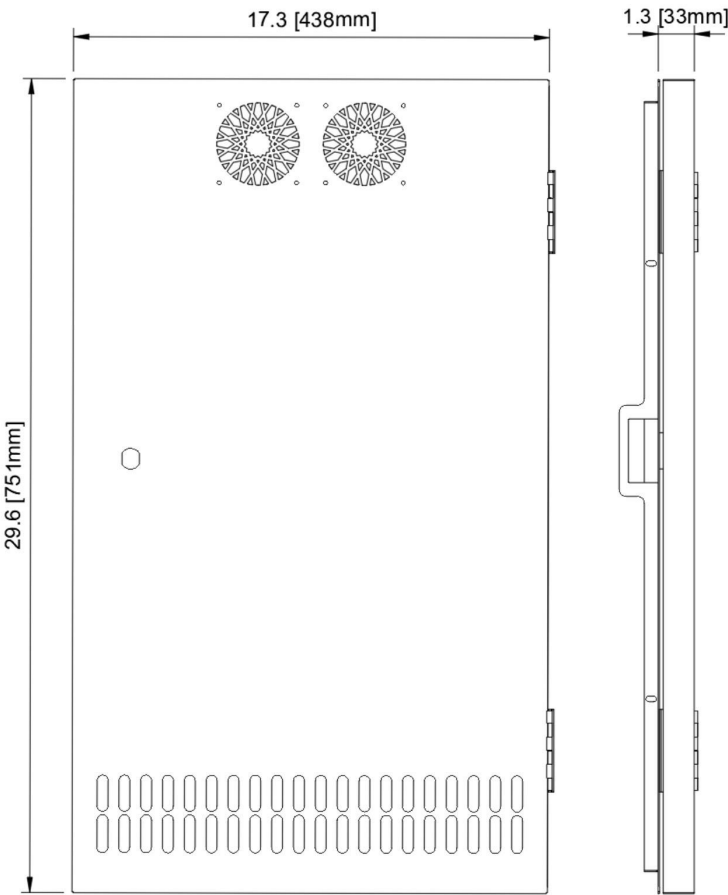
- Construction Painted Steel, White
- Height 29.6 in (751 mm)
- Width 17.3 in (438 mm)
- Depth 1.3 in (33 mm)
- Door Position Wall surface. Hinge at left

ENVIRONMENTAL

- Operating Temperature +32°F to +122°F (0°C to +50°C)
- Operating Humidity 5% to 95% Non-condensing
- Safety Certifications ANSI/UL 2108, UL/CSA 60950-1, CAN/CSA C22.2#250.13, CSA C22.2#9.0, CSA C22.2#223
- Rating Dry Rated

WARRANTY

- Duration 20 Years - Enclosure
- 7 Years - Fans



ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
10010220.0	L2-ENC28-DOOR	Wall Enclosure, 28", Recessed/Surface back box



L2-ENCFAN2

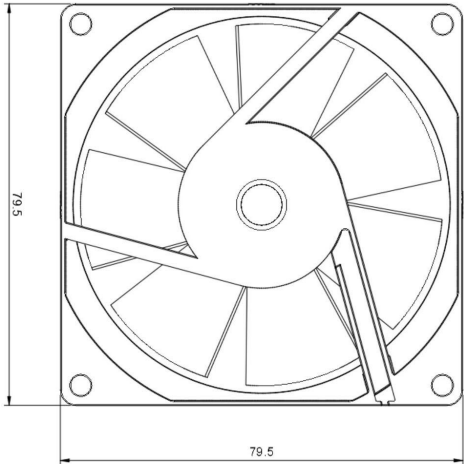
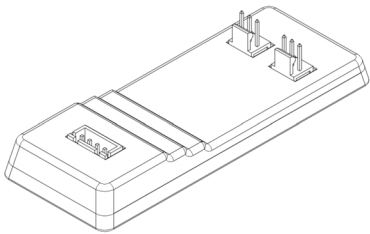
PRELIMINARY SPEC

Enclosure Fan Controller w/2 80mm Fans

Two 80mm ultra-quiet fans and an electronic speed controller reduce the fan speed to nearly silent (<21 dB) as needed to keep the L2-ENC enclosure at optimum operating temperature. The lockable door uses free ventilation (fans off) when the modules are under low load. The fan controller magnetically attaches to the door face and is powered by an Accessory Power Regulator (L2-APR). Temperature and Humidity sensor data is available over the PDM data bus and may be monitored and used in control rules to further protect the lifespan of the modules in the enclosure. The L2-ENCFAN2 is required to meet the UL Certification requirements.

CIRCULATION FANS

Noise Level	26 dB
Voltage	12VDC
Power	1W (x2) at full speed
Speed	Variable 0-2500 RPM
Air Volume	32 CFM (x2)
Minimum ON Temperature	79 F (26 C)
Full Speed Temperature	104 F (40 C)
Dimensions	80*80*25mm
Connector	3-pin w/Tachometer



FAN CONTROLLER

Connectors	4-pin, Fan Power, Control (2) 3-pin Fan Connectors
Sensors	Fan speed, Temperature, RH%
Protocol	RS485 LibRE L2 Protocol
Management Speed	38,400 bps

REQUIRED ACCESSORIES

12V Accessory Power Module	L2-APR-6, L2-APR-12
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ENVIRONMENTAL

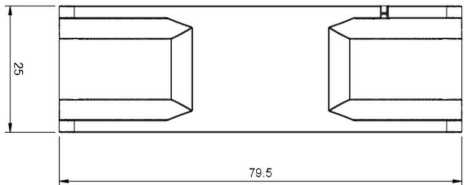
Operating Temperature	+32°F to +122°F (0°C to +50°C)
Operating Humidity	5% to 95% Non-condensing
Safety Certifications	FCC, CE
Rating	Dry Rated

WARRANTY

Duration	3 Years, Fans and Controller
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CONTENTS

- (2) 80mm Fans
- (10) Rubber Fan mounts, 2 spares
- Fan Controller
- 1m 4c APR power cable



ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
10010230.0	L2-ENCFAN2	Enclosure Fan Controller w/2 80mm Fans



L2-ENC-SHELF

Battery Shelf, holds 2x 12V AGM

The locking door provides protection and ventilation of the component inside the L2-ENC28 enclosure. The door includes a wall trim for a clean installation during the finish phase of construction. The door is installed with the hinge at the right and the LumenCache logos at the top. If one or more Power Distribution Modules (PDM) are installed in the enclosure, an L2-ENC28 Fan Kit must be used to ensure adequate component temperature is maintained. The enclosure back box, door, and fan kits are provided separately to match the installation phase of typical construction.

PHYSICAL

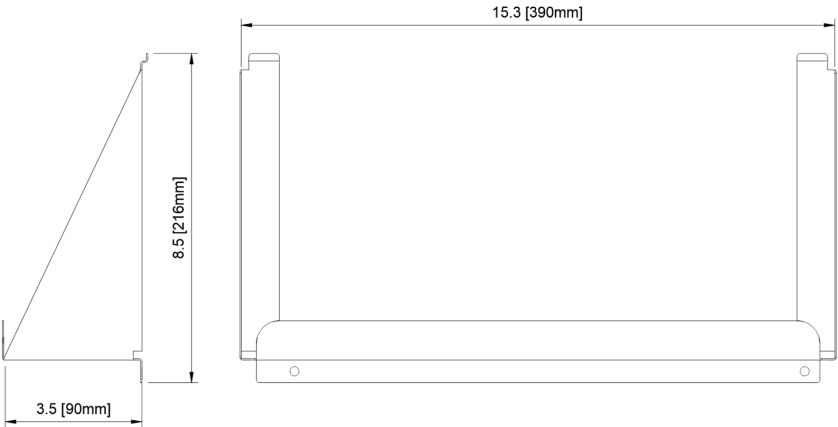
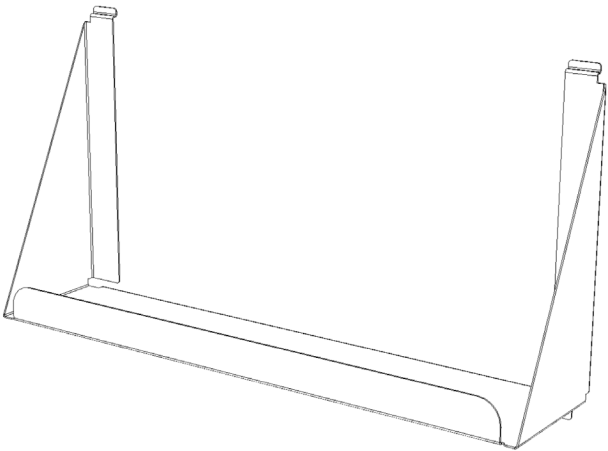
Construction	Painted Steel, White
Height	8.5 in (216 mm)
Width	15.3 in (390 mm)
Depth	3.5 in (90 mm)
Mounting Position	Two positions inside L2-ENC28

ENVIRONMENTAL

Operating Temperature	+32°F to +122°F (0°C to +50°C)
Operating Humidity	5% to 95% Non-condensing
Safety Certifications	CE
Rating	Dry Rated

WARRANTY

Duration	20 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
10010240.0	L2-ENC-SHELF	Battery Shelf, holds 2x 12V AGM



L2-ENC28-WH-A

Enclosure Wiring Harness for 1-4 PDM & AC/DC Supply

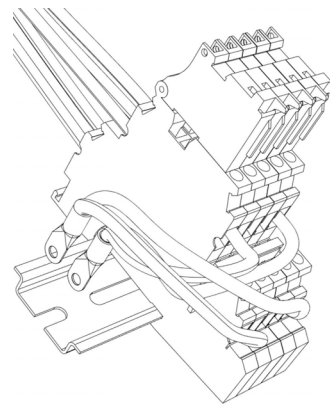
The wiring harness provides DC power to the PDMs in the enclosure.

Connects these devices:

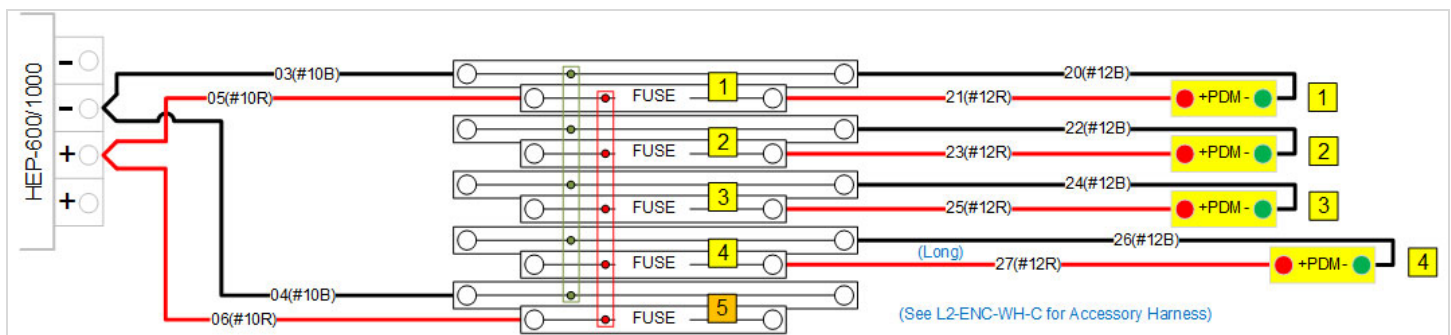
- 1 600/1000W Power Supply
- 1-4 PDM (3 first, 1 second)
- 1 AC Outlet to Power Supply

Partially Assembled Kit Includes:

- 4 PDM Fuses with Negative PassThru
- 8 #12 AWG wires from Fuses to PDM
- 4 #10 AWG wires from PS to Fuses
- 1 Accessory Fuse w/Negative PassThru
- 2 5 position power bus bars
- 4 PDM wire end insulators
- 1 6.5cm DIN
- 1 AC Ground Lug w/self tap screw
- 1 NEMA 5-15 Right Angle AC



Circuit Diagram:



ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
10010250.0	L2-ENC28-WH-A	Enclosure Wiring Harness for 1-4 PDM & AC/DC Supply



L2-ENC28-WH-A

WIRE MAP:

<u>WIRE</u>	<u>AWG</u>	<u>LENGTH</u>	<u>END</u>	<u>DEVICE</u>
03	#10 BLK	29cm	Strip-10mm, Ring#8-3M	PS- / Fuse-PassThru
04	#10 BLK	28cm	Strip-10mm, Ring#8-3M	PS- / Fuse-PassThru
05	#10 RED	22cm	Strip-10mm, Ring#8-3M	PS+ / Fuse+
06	#10 RED	25cm	Strip-10mm, Ring#8-3M	PS+ / Fuse+
20	#12 BLK	85cm	Strip-10mm, Strip-6mm	Fuse-PassThru / PDM-
21	#12 RED	88cm	Strip-10mm, Strip-6mm	Fuse+ / PDM+
22	#12 BLK	116cm	Strip-10mm, Strip-6mm	Fuse-PassThru / PDM-
23	#12 RED	120cm	Strip-10mm, Strip-6mm	Fuse+ / PDM+
24	#12 BLK	149cm	Strip-10mm, Strip-6mm	Fuse-PassThru / PDM-
25	#12 RED	152cm	Strip-10mm, Strip-6mm	Fuse+ / PDM+
26	#12 BLK	376cm	Strip-10mm, Strip-6mm	Fuse-PassThru / PDM-
27	#12 RED	350cm	Strip-10mm, Strip-6mm	Fuse+ / PDM+
G	#18 GRN	57cm	Ring#12-3M, Strip-8mm	PS Ground / Enclosure

DIN MODULES INCLUDED IN HARNESS:

<u>QTY</u>	<u>PART#</u>	<u>MODEL</u>	<u>DESCRIPTION</u>
5	3214325	UT-4-L-HESI-5X20	2 Layer Fuse and PassThru
2	3030349	FBS-5-6	Bridge 5pos 6.3mm Red
2	0800886	E/NS 35 N	Locking End Cap
1			DIN Rail, 35mm x 6.5cm



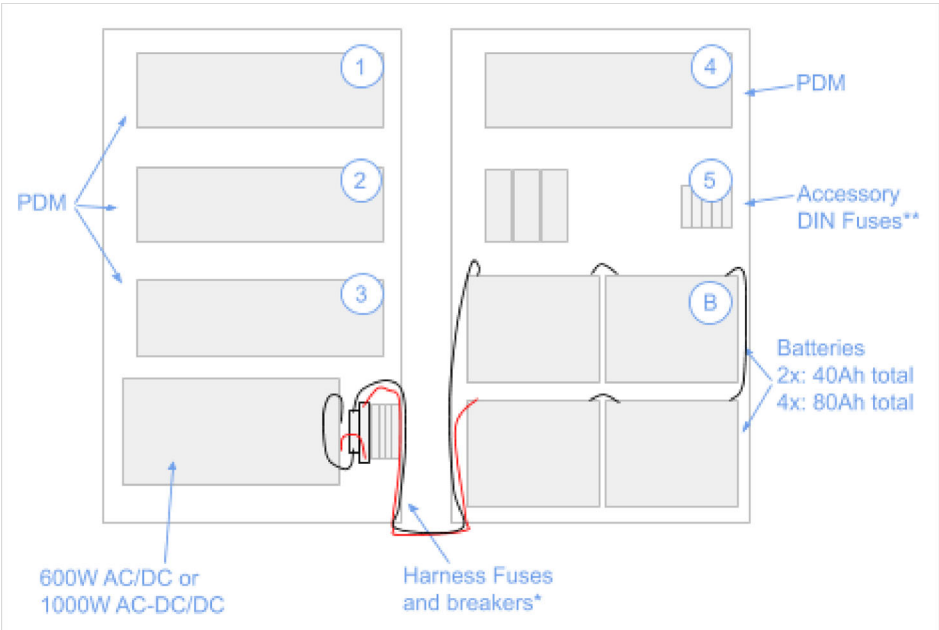
L2-ENC28-WH-B

Enclosure Wiring Harness for 1-4 Batteries

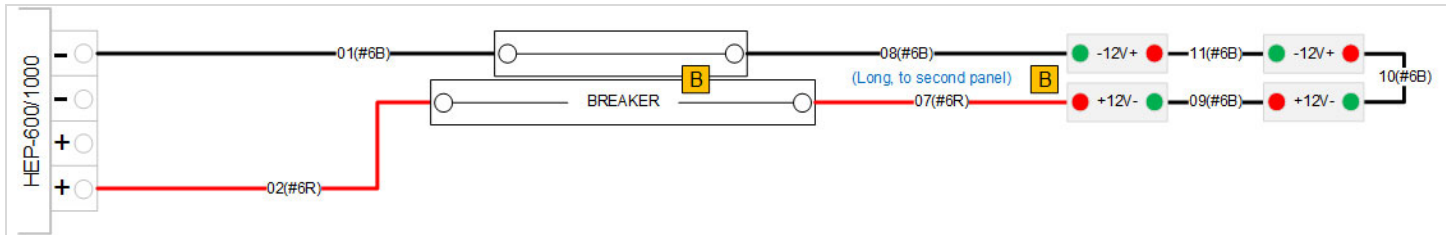
The battery wiring harness connects the AC/DC power supply to 2-4 batteries in the same or an adjacent enclosure.

- Connects these devices:**
- 1 600/1000W Power Supply
 - 2,4 12V Batteries in 2 configurations

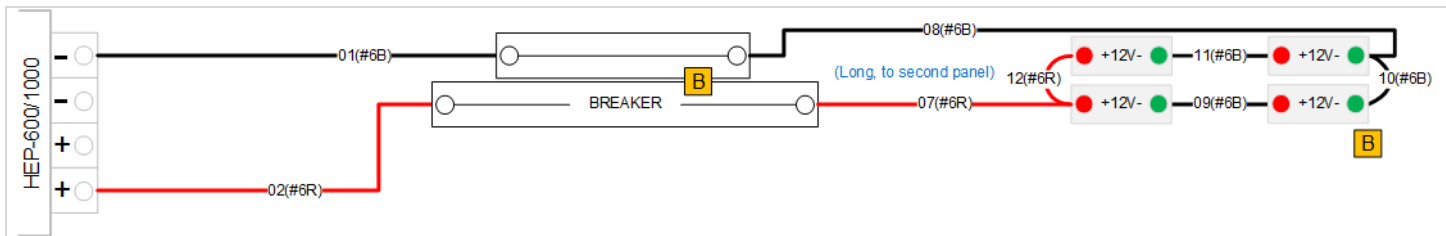
- Partially Assembled Kit Includes:**
- 1 6.5cm DIN
 - 1 60A DC Battery Breaker
 - 1 Battery Negative PassThru
 - 2 #6 AWG wires from Power Supply
 - 2 #6 AWG wires to Battery
 - 4 #6 AWG Battery to Battery wires



Circuit Diagram Configuration "A": 48V Battery Array



Circuit Diagram Configuration "B": 24V Battery Array



ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
10010251.0	L2-ENC28-WH-B	Enclosure Wiring Harness for 1-4 Batteries



L2-ENC28-WH-B

WIRE MAP:

<u>WIRE</u>	<u>AWG</u>	<u>LENGTH</u>	<u>TERMINATIONS</u>	<u>CONNECTS</u>
01	#6 BLK	17cm	Strip-10mm, Ring#4-3M	PS- / PassThru
02	#6 RED	19cm	Strip-10mm, Ring#4-3M	PS+ / Breaker
07	#6 RED	261cm	Strip-10mm, Ring#4-3M	PS+ / Battery+
08	#6 BLK	244cm	Strip-10mm, Ring#4-3M	PS- / Battery-
09	#6 BLK	24cm	Ring#4-3M, Ring#4-3M	Battery+ / Battery-
10	#6 BLK	70cm	Ring#4-3M, Ring#4-3M	Battery+ / Battery-
11	#6 BLK	24cm	Ring#4-3M, Ring#4-3M	Battery+ / Battery-
12*	#6 RED	70cm	Ring#4-3M, Ring#4-3M	Battery+ / Battery-

* Use Wire 12 only when connecting 4 batteries in 24V array configuration "B"

DIN MODULES INCLUDED IN HARNESS:

<u>QTY</u>	<u>PART#</u>	<u>MODEL</u>	<u>DESCRIPTION</u>
1	3044197	UT 16 BK	Feed Thru (#4 wire capacity)
1	MNEPV60	MNEPV60	60A DC Breaker
1			DIN Rail, 35mm x 6.5cm



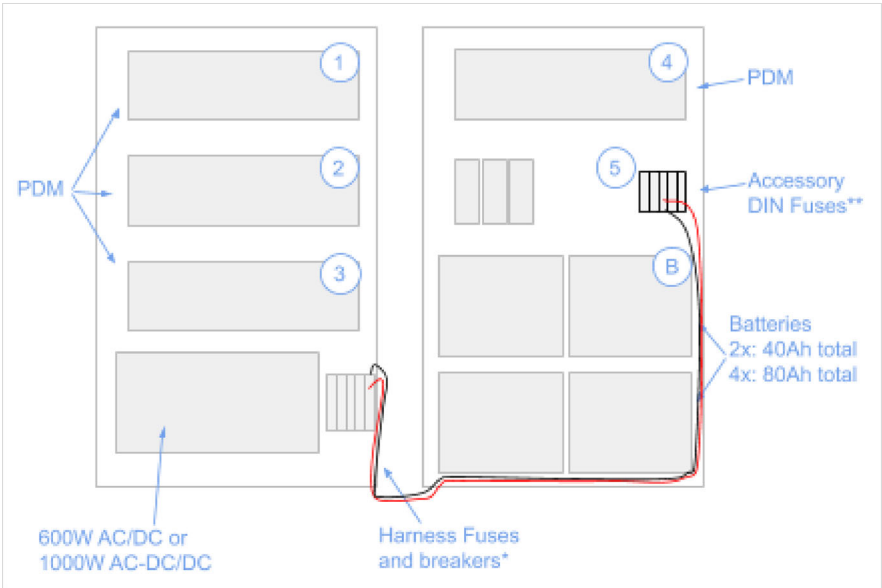
L2-ENC28-WH-C

Enclosure Wiring Harness for Expansion DIN Fuse Block

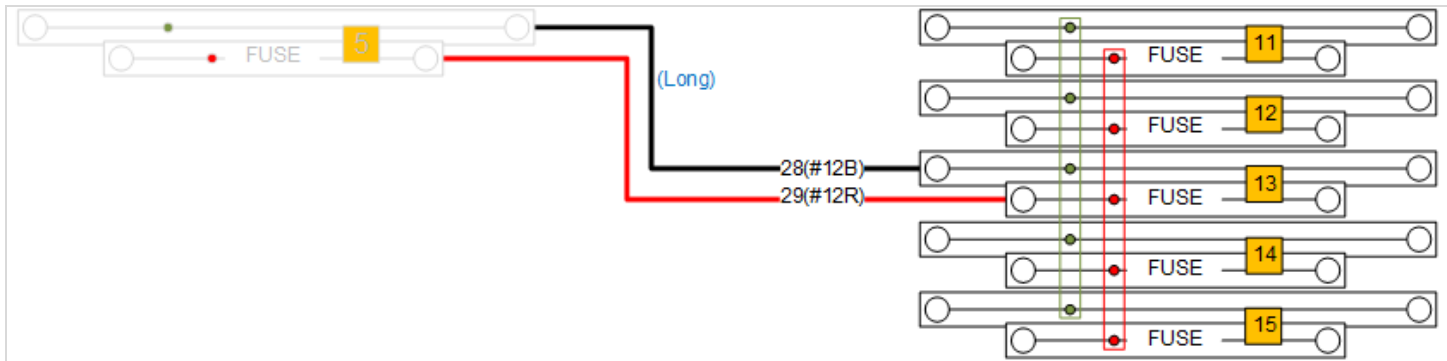
The wiring harness provides DC power and protection to accessory devices. The kit includes a wide DIN rail.

- Connects these devices:**
- Feed Fuse (included in L2-ENC28-WH-A)
 - 1-5 Accessory Fuse Blocks

- Partially Assembled Kit Includes:**
- 2 #12 AWG wires to Accessory Fuses
 - 5 Accessory Fuses w/ Negative PassThru
 - 5 Accessory Fuse Blocks
 - 2 5 position power bus bars
 - 1 35cm DIN



Circuit Diagram:



ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
10010252.0	L2-ENC28-WH-C	Enclosure Wiring Harness for Expansion DIN Fuse Block



L2-ENC28-WH-C

WIRE MAP:

<u>WIRE</u>	<u>AWG</u>	<u>LENGTH</u>	<u>TERMINATIONS</u>	<u>CONNECTS</u>
28	#12 BLK	265cm	Strip-10mm, Strip-6mm	Fuse-PassThru / Accessory Fuse-PassThru
29	#12 RED	257cm	Strip-10mm, Strip-6mm	Fuse+ / Accessory Fuse+

DIN MODULES INCLUDED IN HARNESS:

<u>QTY</u>	<u>PART#</u>	<u>MODEL</u>	<u>DESCRIPTION</u>
5	3214325	UT-4-L-HESI-5X20	2 Layer Fuse and PassThru
2	3030349	FBS-5-6	Bridge 5pos 6.3mm Red
2	0800886	E/NS 35 N	Locking End Cap
1			DIN Rail, 35mm x 35cm



L2-CBA

Comm Bus Adapter, Panel to Panel, 2x10pin to 2xRJ45

The PDM Bus can extend from one panel to another. It follows standard RS-485 topology rules. The L2-CBA Comm Bus Adapter allows the 10-pin Comm connector at the top and bottom of the PDM to be transformed into an RJ45 jack. The RJ45 connectors allow the bus to extend longer distances.

CONNECTORS

PDM Comm Bus connectors	(2) Female 10 pin
RJ-45 connectors	Female 8 pin

RS485 CONTROL BUS

Communication Speed	38,400 bps
Maximum total bus length	2000ft (610m)
Maximum devices per PDMbus	100 across entire bus

PHYSICAL/ENVIRONMENTAL

Dimensions	3.5 x 2.75 x 1in (89 x 69 x 25mm)
Operating Temperature	+32°F to +122°F (0°C to +50°C)
Operating Humidity	5% to 95% Non-condensing
Rating	Dry Rated
Environmental	RoHS
Safety Certifications	CE, FCC

WARRANTY

Duration	5 Years
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ORDERING INSTRUCTIONS:

PART ID	MODEL	DESCRIPTION
16020000.0	L2-CBA	Comm Bus Adapter, Panel to Panel, 2x10pin to 2xRJ45