araya®

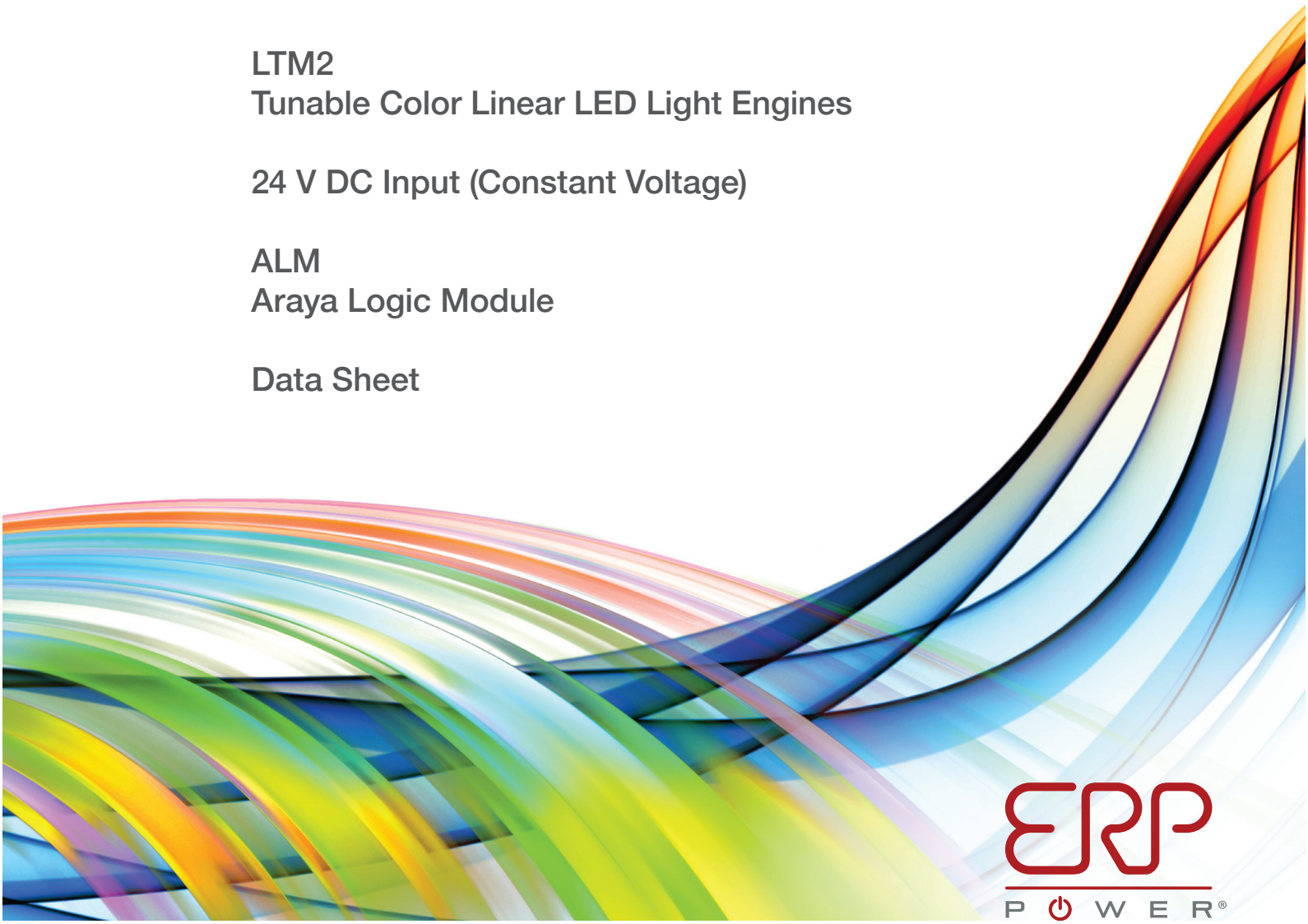
TUNABLE COLOR

LTM2
Tunable Color Linear LED Light Engines

24 V DC Input (Constant Voltage)

ALM
Araya Logic Module

Data Sheet



ERP POWER®

TABLE OF CONTENTS

1 Description and Part Numbers

2 Electrical and Control Specifications

3 Accessories

4 Color / Dimming Performance Data

5 Power Supply Requirements

6 LTM2 Mechanical Specifications

7 ALM2 Mechanical Specifications

8 Heat Sinking

9 Connector Cutouts / Hole Patterns

10 Reflector End Caps

11 Case Temperature Measurement Points

12 Identifying ALM / LTM2 “Matched Sets”

13 Ribbon Cable Assemblies

14 Power / Control Cable Assemblies

15 0–10 V Wiring Diagram

16 DMX512 Wiring Diagram

17 Typical LTM2 Configuration Examples

18 Pre-Installation Notes

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
—Reorient or relocate the receiving antenna.
—Increase the separation between the equipment and receiver. —Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

MODIFICATION: Any changes or modifications not expressly approved by the grantee of this device could void the user’s authority to operate the device.

ERP POWER®

ERP Power LLC • 2625 Townsgate Road, Ste 106 • Westlake Village, CA 91361 • 805.517.1300 • erp-power.com • SaveEnergy@erp-power.com

Araya and Warm/Dynamic Dimming are registered trademarks of ERP Power, LLC. © ERP Power, LLC. 2022

legrand®

c UL us
UL Recognized Component
Dry or Damp Locations Class 2 Input

FC

Pb lead-free RoHS 2002/95/EC

1 DESCRIPTION AND PART NUMBERS

LTM2

Araya Logic Module (ALM)

Description

Araya Logic Modules (ALM) connect to tunable color mid-power linear LED light engines (LTM2) that mix five colors of LEDs to deliver tunable and dimmable white light at 90+ CRI* with color consistency of < 2 step MacAdam ellipse (SDCM) across a tuning range of 1650–8000 K. Delivered light can be dimmed from 100–0.1%** at constant CCT. Gradients of saturated colors from 1–100% can be added to color points within the tuning range.

When the optional Warm/Dynamic Dimming*** profile is chosen—which can be set back to Color Tuning in the field if desired, but only if connected to DMX-RDM—the light dims from 3050 K at full intensity to 1800 K at 5% intensity, and then maintains 1800 K to 1%.

The ALM is connected to one LED light engine via low-cost ribbon cables, and features on-board driver electronics and the Araya control logic for precise control of LED light output while tuning and dimming. On-board closed loop thermal feedback compensates each color channel for thermally induced variations in light output due to dimming or changes in ambient temperatures. A patented in-line manufacturing process captures and stores the spectral characteristics of each LED on the light engine, rapidly generating a unique color model for each light engine.

The LED light engines are compatible with traditional 0–10 V wired controls, and feature on-board Bluetooth Low Energy (BLE) for commissioning. DMX512-A-RDM can be accessed via an optional control card that connects to an electrically isolated expansion port within the ALM. For simple deployment, scene set allows up to five scenes to be pre-programmed into the LED light engine during production and recalled at the venue using a 0–10 V recommended dimmer or via Bluetooth. Commissioning of the LED light engine and the re-programming of scenes is done via the wireless Araya Tunable Color 2.0 iOS app that connects to the embedded Bluetooth radio.

Key Features

- Tunable range: 1650–8000 K
- 90+ CRI*
- Dimmable from 100%–0.1%** at constant CCT
- Color gamut control: gradients of saturated colors from 1–100% can be added to color points
- Warm/Dynamic Dimming from 3050–1800 K***
- On board thermal feedback for color consistency of < 2 MacAdam ellipse
- In-line spectral capture and storage creates an unique color model for each Zhaga-compliant LED light engine, resulting in consistent CRI and CCT across all light engines
- Compatible with 0–10 V wired controls
- On-board Bluetooth Low Energy (BLE) for commissioning
- DMX512-A-RDM accessibility via an optional control card that connects to an electrically isolated compartment within the ALM
- DMX slots set by RDM or via wireless Araya Tunable Color 2.0 iOS app
- Scene set enables up to five scenes to be preprogrammed and recalled using a 0–10 V recommended dimmer or via Bluetooth
- On-board thermal turndown

Tunable Color 2.0 iOS App

Part Numbers (LTM2 Kits)[1]

Input Voltage (DC)	Nominal Wattage (±10%)	Typical Peak Lumens	Nominal Length	Connectors Location	Part Number
24 V	80 W	8000	88 inches (4 x 22 in.)	Bottom	80.001.097.03
	70 W	7000	77 inches (1 x 11 in. + 3 x 22 in.)	Bottom	80.001.096.03
	60 W	6000	66 inches (3 x 22 in.)	Bottom	80.001.095.03
	50 W	5000	55 inches (1 x 11 in. + 2 x 22 in.)	Bottom	80.001.094.03
	40 W	4000	44 inches (2 x 22 in.)	Bottom	80.001.093.03
	30 W	3000	33 inches (1 x 11 in. + 1 x 22 in.)	Bottom	80.001.092.03
	20 W	2000	22 inches (1 x 22 in.)	Bottom	80.001.091.03
	10 W	1000	11 inches (1 x 11 in.)	Bottom	80.001.090.03

*From 2200–6000 K, down to 5% dim level.

**100–0.1% dimming is available when connected to 0.1% dimming-capable digital controls. 100–1% dimming is available with analog 0–10 V control.

*** To have units shipped in Dynamic Dimming AKA "Warm Dim" mode of operation, add "-P02" suffix to the end of the part number. For example; order as: 'xx.xxx.xxx.xx-P02'.

1. Kits include linear light engine and ALM as a factory pre-matched set which MUST be kept that way during installation for proper operation and control and CANNOT be separated. The kits include the power cable, but do NOT include ribbon cables, control cables, or the control cards (see separate accessory ordering specifications).

Lumen and wattage range is within +/- 10% of the nominal value. Peak efficacy is not necessarily at typical peak lumens.

2 ELECTRICAL AND CONTROL SPECIFICATIONS

2.1 Electrical Specifications and Photometric Information

Nominal Current Input	**24 V:** 80 W = 3.3 A; 60 W = 2.5 A; 40 W = 1.7 A; 30 W = 1.3 A
Power Supply Classification	Class 2
Control Options*	0–10 V, DMX512-A-RDM***
CRI (Ra) Across Tuning Range	> 90**
Dimming	100% to 0.1%***
Nominal Color Consistency	< 2 MacAdam ellipse (±0.002 Duv from ANSI C78.377-2008 curve)*
Color Consistency Over Life	Calibration maintains original color points over life*
Lumen Maintenance	L70 (70% of initial lumens) at 50,000 hours

Araya Logic Module (ALM) power dissipation is up to 10% of total power dissipation. Therefore ALM must be provided with adequate heat sink capability when applicable.

* DMX512-A-RDM compatibility requires optional control card.

** From 2200–6000 K, down to 5% dim level.

***100–0.1% dimming is available when connected to 0.1% dimming-capable digital controls. 100–1% dimming is available with analog 0–10 V control.

**** Remote Device Management or RDM is a protocol enhancement to DMX512-A that allows bi-directional communication between a lighting or system controller and attached RDM compliant devices over a standard DMX line.

2.2 Control Specifications

CONTROL SYSTEM / PROTOCOL	CTM2 (TUNABLE WHITE & TUNABLE COLOR CONTROL)			
	1 DIMMING*	2 CCT	3 SAT	4 HUE
DMX512-A-RDM [1,2]	0.1%	1650–8000 K	Yes	Yes
0–10 V	~1% [3]	1650–8000 K	See Note [4]	See Note [4]

1. Requires control card connected to ALM.

2. Refer to the separate Araya DMX Lookup Tables for specific programming values and information.

3. 1–10 V signal dims light engine to approximately 1%. In-line power relay required to achieve 0% output.

4. Two 0–10 V lines can be used to control DIM and CCT independently, or program Scenes—in any combination of DIM, CCT, HUE and SAT—and recall them with five 0–10 V presets.

* 100–0.1% dimming is available when connected to 0.1% dimming-capable digital controls. 100–1% dimming is available with analog 0–10 V control.

2.3 DMX512-A-RDM Commissioning and Control Specifications

	RDM PERSONALITIES		DMX ADDRESS (FACTORY DEFAULT START ADDRESS = 1)							
	Suffix*	Description	1	2	3	4	5	6	7	8
8-BIT MODE	Default (None)	Color Tuning 4CH (HSI)	DIM 0–100%	CCT 1700–8000 K	SAT 0–100	HUE 0–60	—	—	—	—
16-BIT MODE	P02	Warm Dim "DDM"	DIM 0–100%	fdim	—	—	—	—	—	—

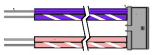
Download the separate Araya DMX512-A Lookup Tables on the ERP website, for specific programming values and information.

3 ACCESSORIES

3.1 Power Cable Assembly (Included)

Description	Part Number
2-wire Input Power Cable. 24” Length.	28.030.001.01

3.2 Control Cable Assembly (Ordered Separately)

Description	Part Number
4-Wire 0–10 V Control Cable Assembly. Nominal 24” Length. 	28.002.002.02

3.3 Control Cards (Ordered Separately)*

Description	Part Number
DMX512-A-RDM Control Card	80.003.002.01

*The control card is shipped pre-attached to the ALM, & cannot be shipped individually.
Control cards for different controls should NOT be interchanged in the field. This will void the ERP Power warranty.

3.4 End Caps (Ordered Separately)

Description	Part Number
Pair of Symmetric Endcaps with Diffusers, 24 mm Width.	45.001.021.01

3.5 Ribbon Cables (Ordered Separately)**

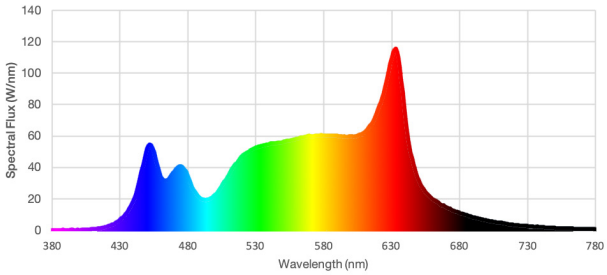
Description	Part Number
Flat ribbon cable; 16-pin Tyco connectors at each end. 8” Length. For connecting 1 ft. linear boards to each other.	28.031.001.04
Flat ribbon cable; 16-pin Tyco connectors at each end. 24” Length. For connecting ALM to one linear boards.	28.030.002.02
Flat ribbon cable; 16-pin Tyco connectors at 0”, 24” and 32”. 32” Length. For connecting ALM to two linear boards.	28.031.001.01
Flat ribbon cable; 16-pin Tyco connectors at -20”, -12”, 0”, and 24”. 44” Length. For connecting ALM to three linear boards.	28.031.001.02
Flat ribbon cable; 16-pin Tyco connectors at -34”, -26”, 0”, 26” and 34”. 68” Length. For connecting ALM to four linear boards.	28.031.001.03

**Please refer to the LTM2 Configuration Examples in Chapter 17 of this document.

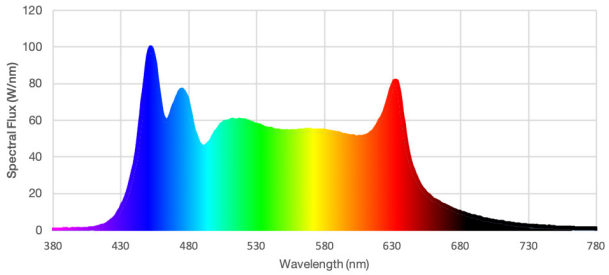
4 COLOR / DIMMING PERFORMANCE DATA

4.1 Typical Spectral Power Distribution (SPD) Curves

SPD at 3500 K

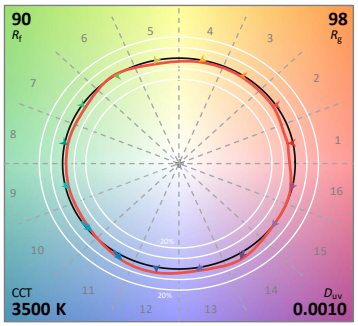


SPD at 5700 K



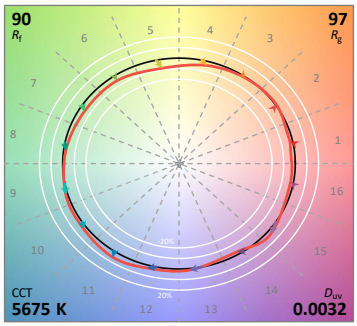
4.2 Typical TM-30 Data

3500 K



R_f = 90
R_g = 98
D_{uv} = 0.0010

5700 K

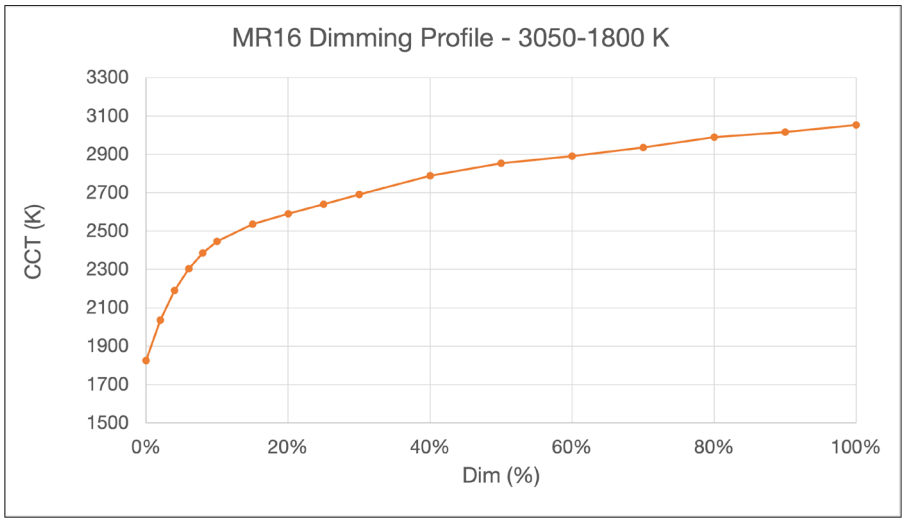


R_f = 90
R_g = 97
D_{uv} = 0.0032

4.3 Warm/Dynamic Dimming

Warm/Dynamic Dimming mimics the dynamic dimming characteristics of conventional MR16 halogen (3050–1800 K) lamps, wherein dimming the intensity of the lamp lowers its CCT.

When the optional Warm/Dynamic Dimming profile (DDM)** is chosen—which can be set back to Color Tuning (CTM) in the field if desired, but only if connected to DMX-RDM—the light dims from 3050 K at full intensity to 1800 K at 5% intensity, and then maintains 1800 K to 1%.



5 POWER SUPPLY REQUIREMENTS

Recommended Power Supplies (Constant Voltage)

Manufacturer	Part Number	Rated Power	Nominal Length (inches)							
			11” LTM2 (10 W)	22” LTM2 (20 W)	33” LTM2 (30 W)	44” LTM2 (40 W)	55” LTM2 (50 W)	66” LTM2 (60 W)	77” LTM2 (70 W)	88” LTM2 (80 W)
ERP	VLM40W-24	40 W	✓	✓	✓					
ERP	VLM60W-24	60 W	✓	✓	✓	✓	✓			
ERP	VLM100W-24	96 W	✓	✓	✓	✓	✓	✓	✓	✓

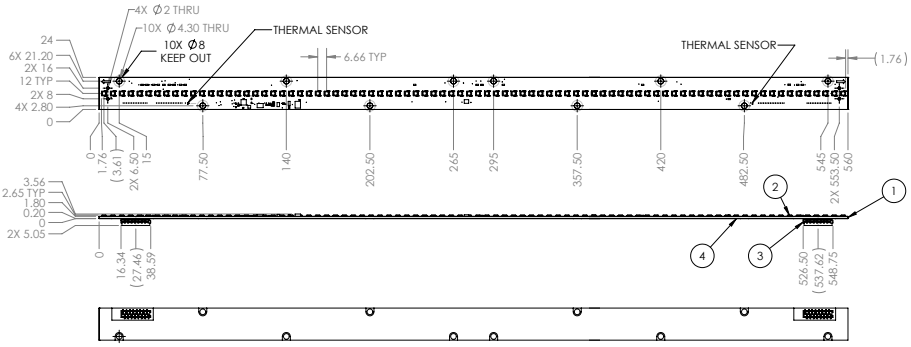
NOTES:

- Recommendations are subject to change. Consult your ERP representative for the most updated list.
- The Araya Logic Module (ALM) has on-board drive electronics, including dimming. **DO NOT** use a dimming driver.
- Using a constant current power supply will damage the light engine, and will void the ERP warranty.
- Using a triac or dimming driver will damage the light engine, and will void the ERP warranty.
- The power supply MUST be evaluated with the light engine(s) that it will be operated with.
- If unqualified power supplies are used in a fixture, it will void the ERP warranty.
- It is the responsibility of the fixture manufacturer to ensure that the power supply performance does not change over time. The ERP warranty is void if problems occur as a result of such changes.
- A power supply that is not part of the above list should be submitted for testing to ERP (during the design-in phase) to ensure compatibility.
- **DO NOT** hot plug the light fixtures.

6 LTM2 MECHANICAL SPECIFICATIONS

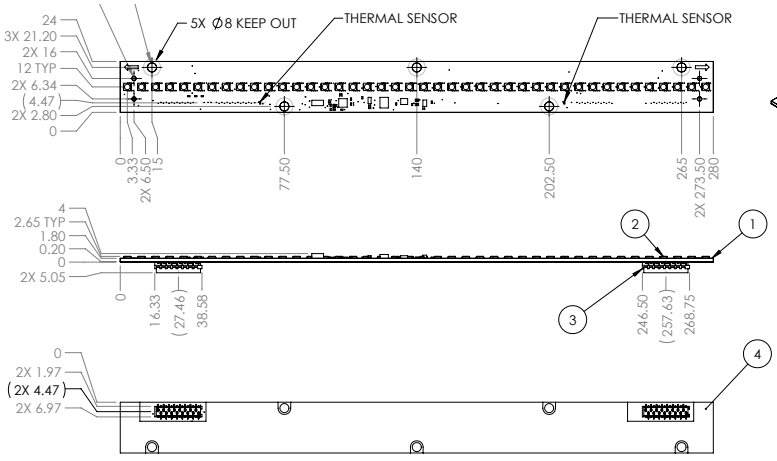
Light Engine Dimensions (W x L)	Nominal 88 inches Light Engine (4 x 22 in. boards)	W = 24 mm; L = 2240 mm
	Nominal 77 inches Light Engine (1 x 11 in. + 3 x 22 in. boards)	W = 24 mm; L = 1960 mm
	Nominal 66 inches Light Engine (3 x 22 in. boards)	W = 24 mm; L = 1680 mm
	Nominal 55 inches Light Engine (1 x 11 in. + 2 x 22 in. boards)	W = 24 mm; L = 1400 mm
	Nominal 44 inches Light Engine (2 x 22 in. boards)	W = 24 mm; L = 1120 mm
	Nominal 33 inches Light Engine (1 x 11 in. + 1 x 22 in. boards)	W = 24 mm; L = 840 mm
	Nominal 22 inches Light Engine (1 x 22 in. boards)	W = 24 mm; L = 560 mm
	Nominal 11 inches Light Engine (1 x 11 in. boards)	W = 24 mm; L = 280 mm

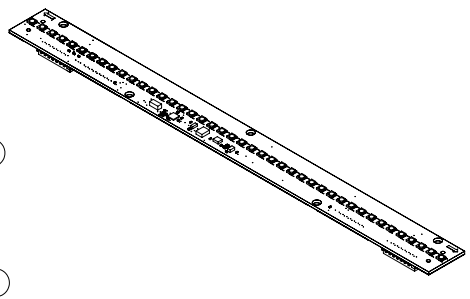
Standard linear light engines are made up of a combination of 11 in. and 22 in. boards as per above. Other requested board lengths may be available.



ITEM NO.	PART NUMBER	QTY.
1	22.700.022.01 1 PCBA 2 FOOT LUMENETIX	1
2	lumileds 3535L	84
3	462.038 16 PIN CONNECTOR 8-188275-6	2
4	67.700.002.02 B LTM2 INSULATOR PAD 2FT LX	1

22 inches Nominal Length





ITEM NO.	PART NUMBER	QTY.
1	22.700.025.01 1 MLTM PCB 1 FT LUMENETIX	1
2	lumileds 3535L	42
3	462.038 16 PIN CONNECTOR 8-188275-6	2
4	67.700.002.01 B LTM2 INSULATOR PAD 1FT LX	1

11 inches Nominal Length

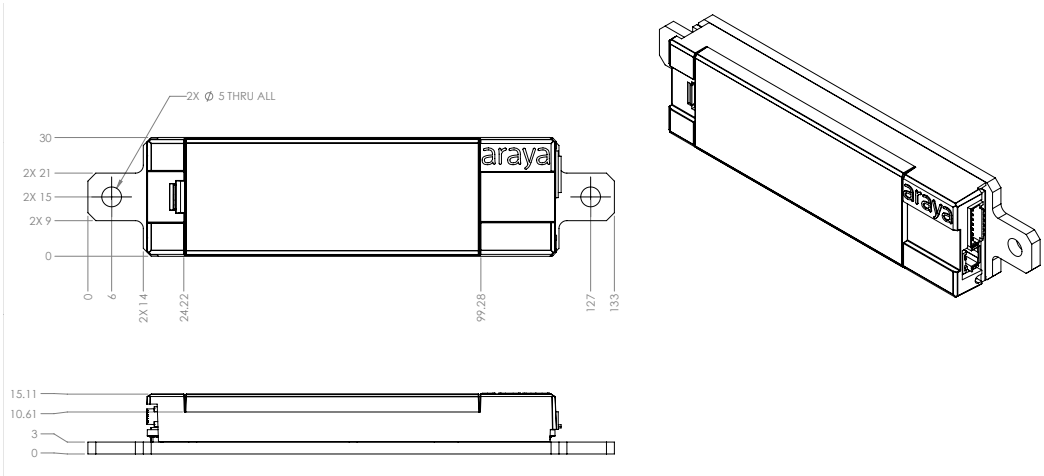
All dimensions are in millimeters. Linear board is shown with downward-facing connector on the bottom.

7 ALM2 MECHANICAL SPECIFICATIONS

7.1 Araya Logic Module (ALM2)

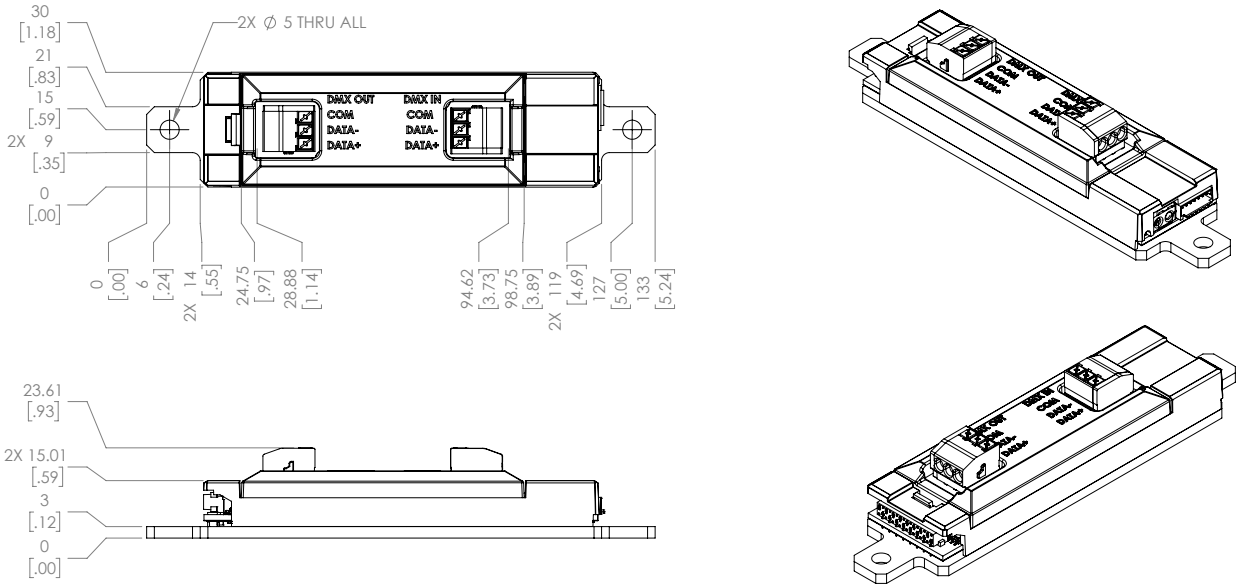
Dimensions (H x W x L)	H = 15.11 mm (0.60 in.); W = 30 mm (1.18 in.); L = 133 mm (5.24 in)

Dimensions provided are for the ALM2 without optional control cards.



7.2 ALM2 with DMX512-A-RDM Control Card (WAGO CONNECTORS)

Dimensions (H x W x L)	H = 23.61 mm (0.93 in.); W = 30 mm (1.18 in.); L = 133 mm (5.24 in.)



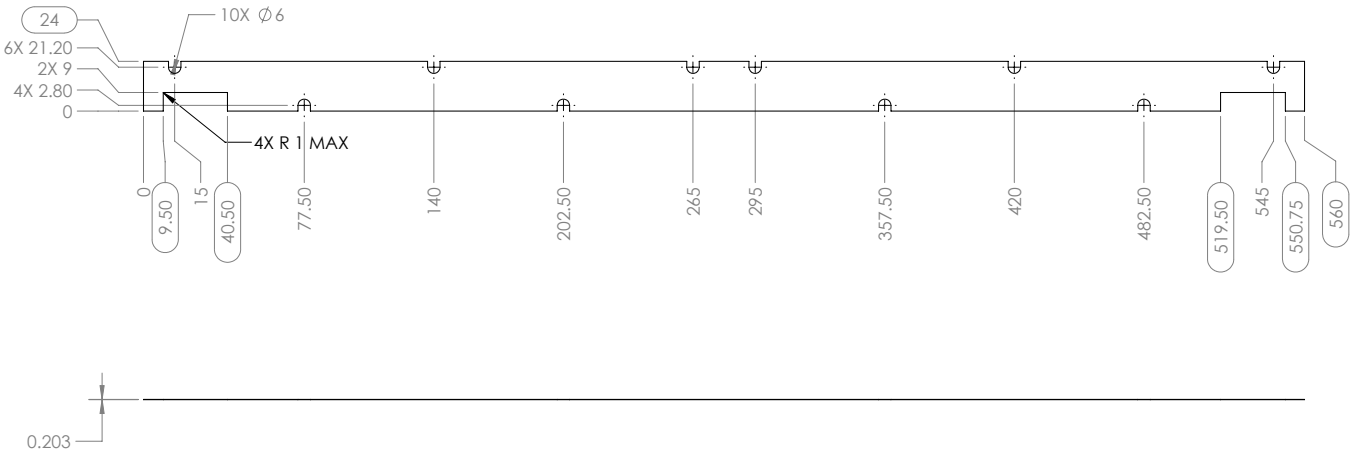
Dimensions outside parentheses are in millimeters. Dimensions within parentheses are in inches.
The mounting holes are 5 mm in diameter.

8 HEAT SINKING

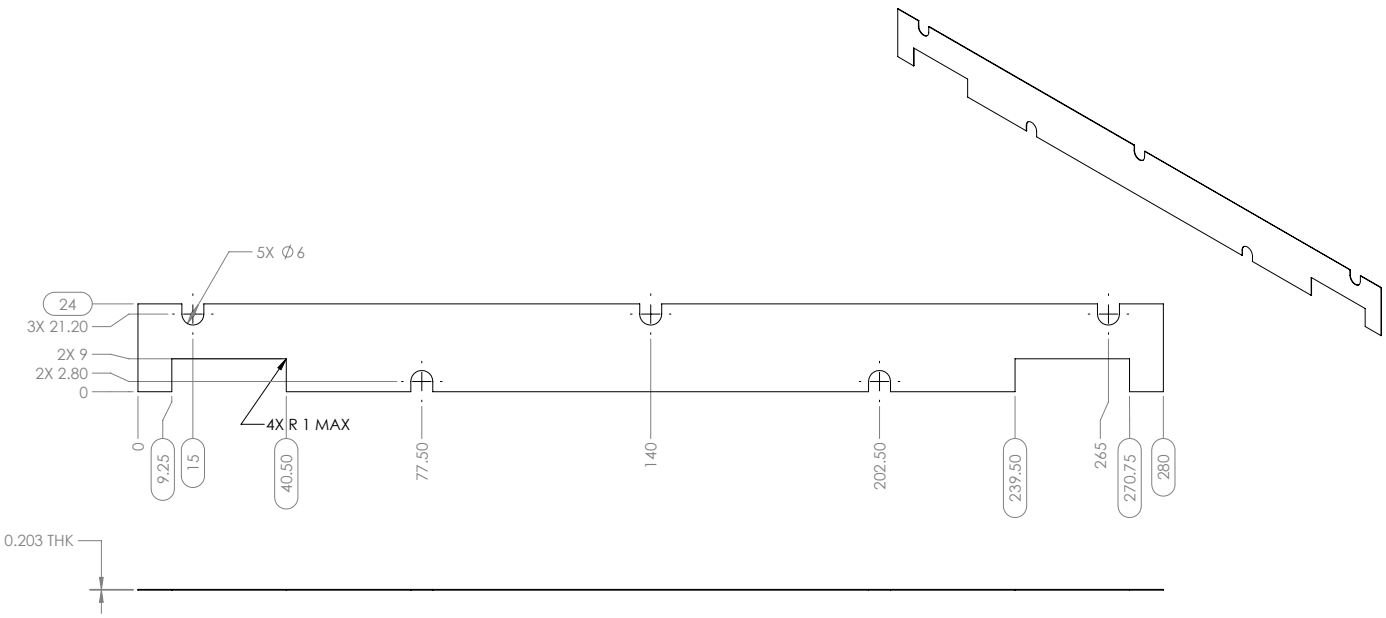
Heat Sinking of LTM2 Boards

To ensure proper electrical insulation between the linear light engines and heat sink, the light engines are provided with a pre-applied double sided adhesive insulating tape. This thermal pad insulates electrically while also allowing the heat to flow from the LED board to the luminaire's heat sink.

Be sure to remove the plastic liner before attaching the linear light engine to the heat sink.



Thermal Pad for Linear LED Board (2 ft. Nominal Length)

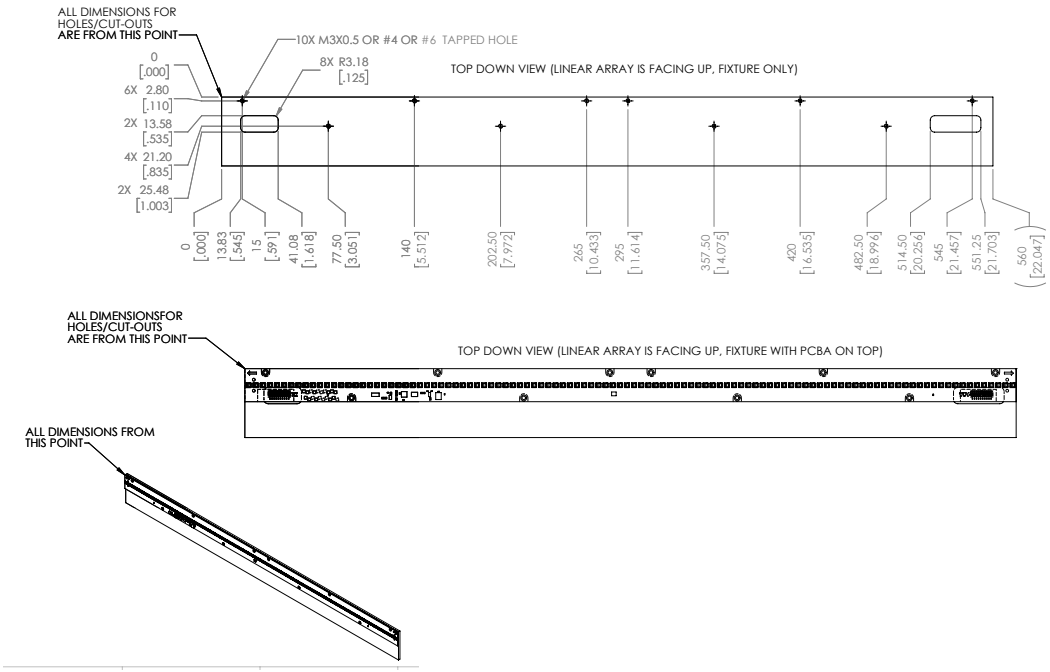


Thermal Pad for Linear LED Board (1 ft. Nominal Length)

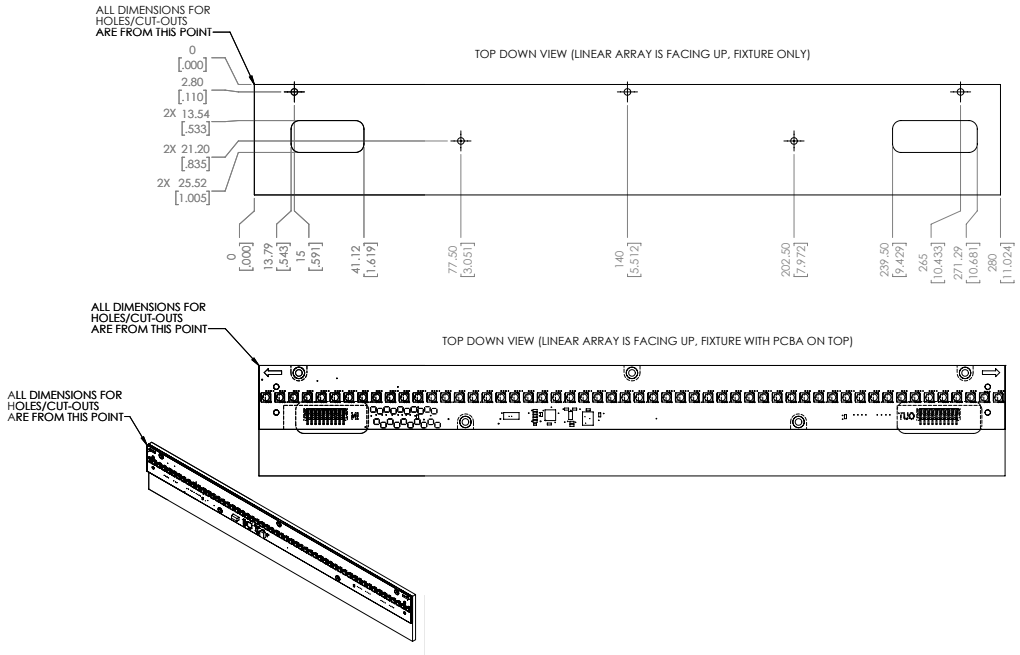
All dimensions are in millimeters.

9 CONNECTOR CUTOUTS / HOLE PATTERNS

Leave adequate clearance around the ribbon cable connector so that it does not come in contact with the fixture's metal edge.



Connector Cutouts / Hole Patterns for Linear LED Board (2 ft. Nominal Length)



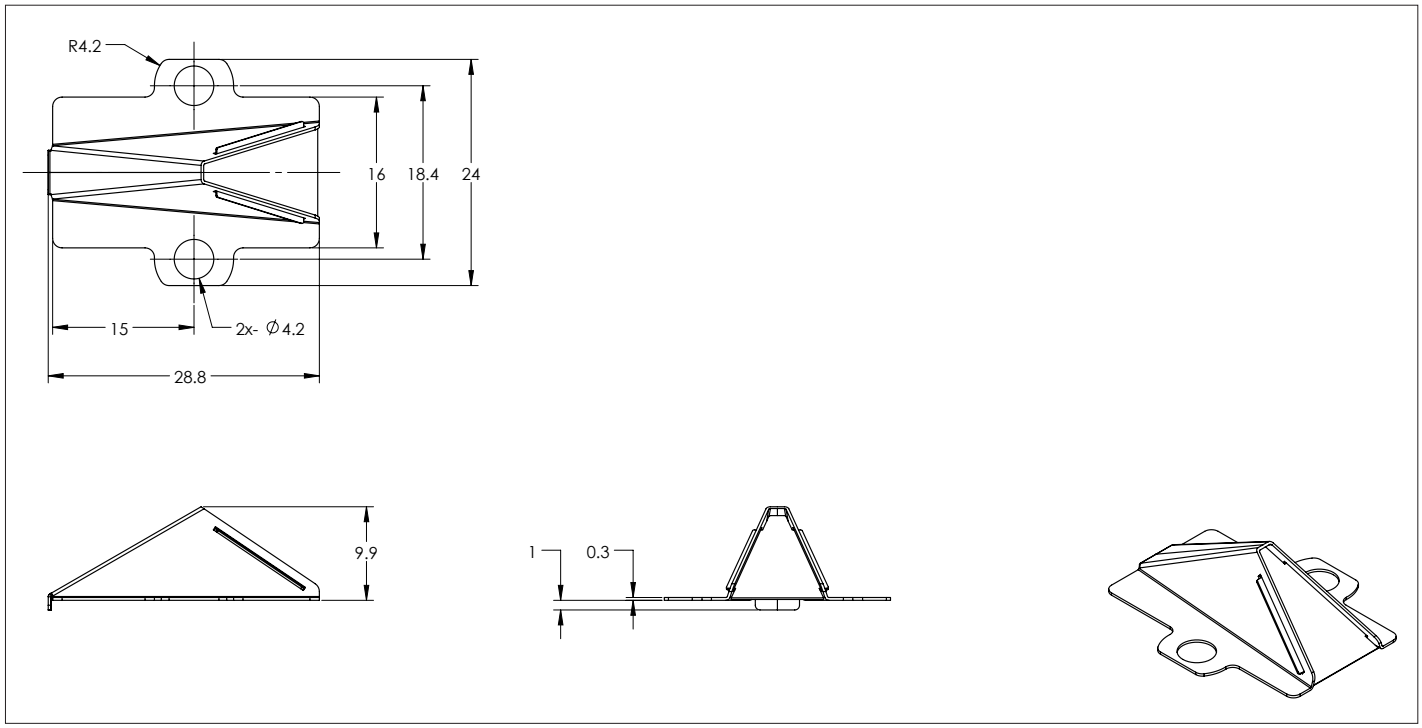
Connector Cutouts / Hole Patterns for Linear LED Board (1 ft. Nominal Length)

All dimensions outside parentheses are in millimeters. All dimensions within parentheses are in inches.

10 REFLECTOR END CAPS

Ordering Description	Detailed Description	Part Number
ENDCAP DIFFUSER, 24 MM SYMMETRIC PAIR	Pair of Symmetric Endcaps with Diffusers. 24 mm Width.	45.001.021.01

NOTE: The reflector end caps are fastened to the fixture using 6 mm - 8 mm (M2.5 – M4) screws, which are inserted through the end caps and the hole in the LED PCB. The opposite side—where it is not fastened—must be used with double-sided tape.

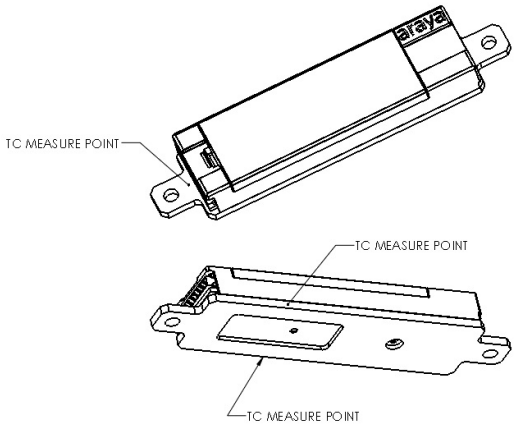


End Cap with Diffuser - Symmetric Pair (24 mm Width)
Part #: 45.001.021.01

All dimensions are in millimeters.

11 CASE TEMPERATURE MEASUREMENT POINTS

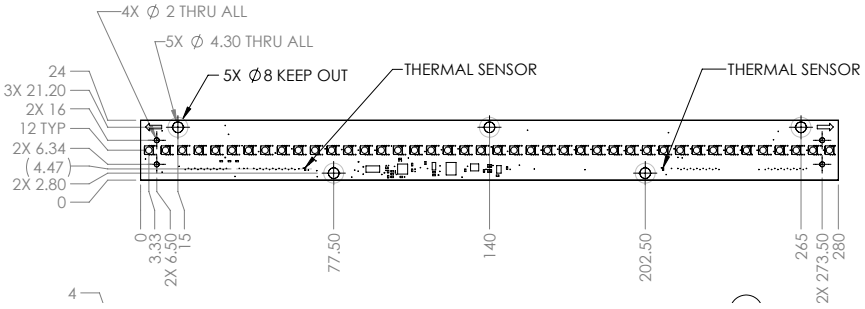
11.1 Araya Logic Module (ALM) Case Temperature (T_c) Measurement Points



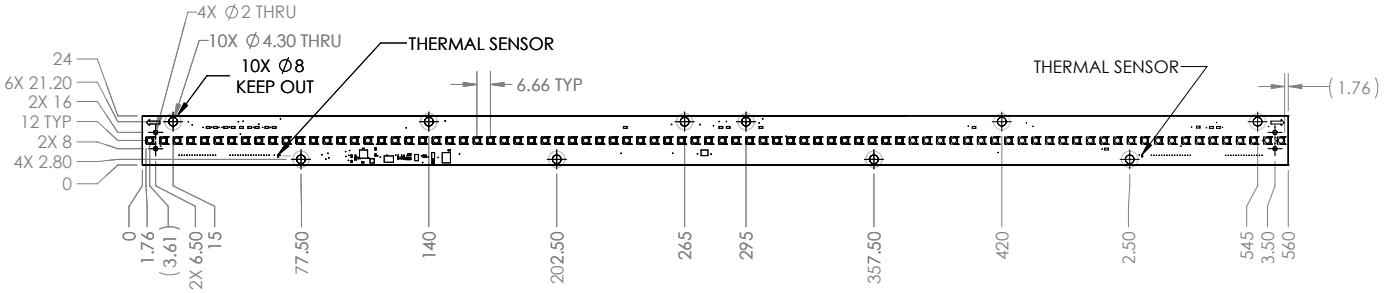
MAXIMUM CASE TEMPERATURE (T_c) FOR ALM: 70 °C

11.2 Linear LED Light Engine Case Temperature (T_c) Measurement Point

1' Linear Light Engine



2' Linear Light Engine

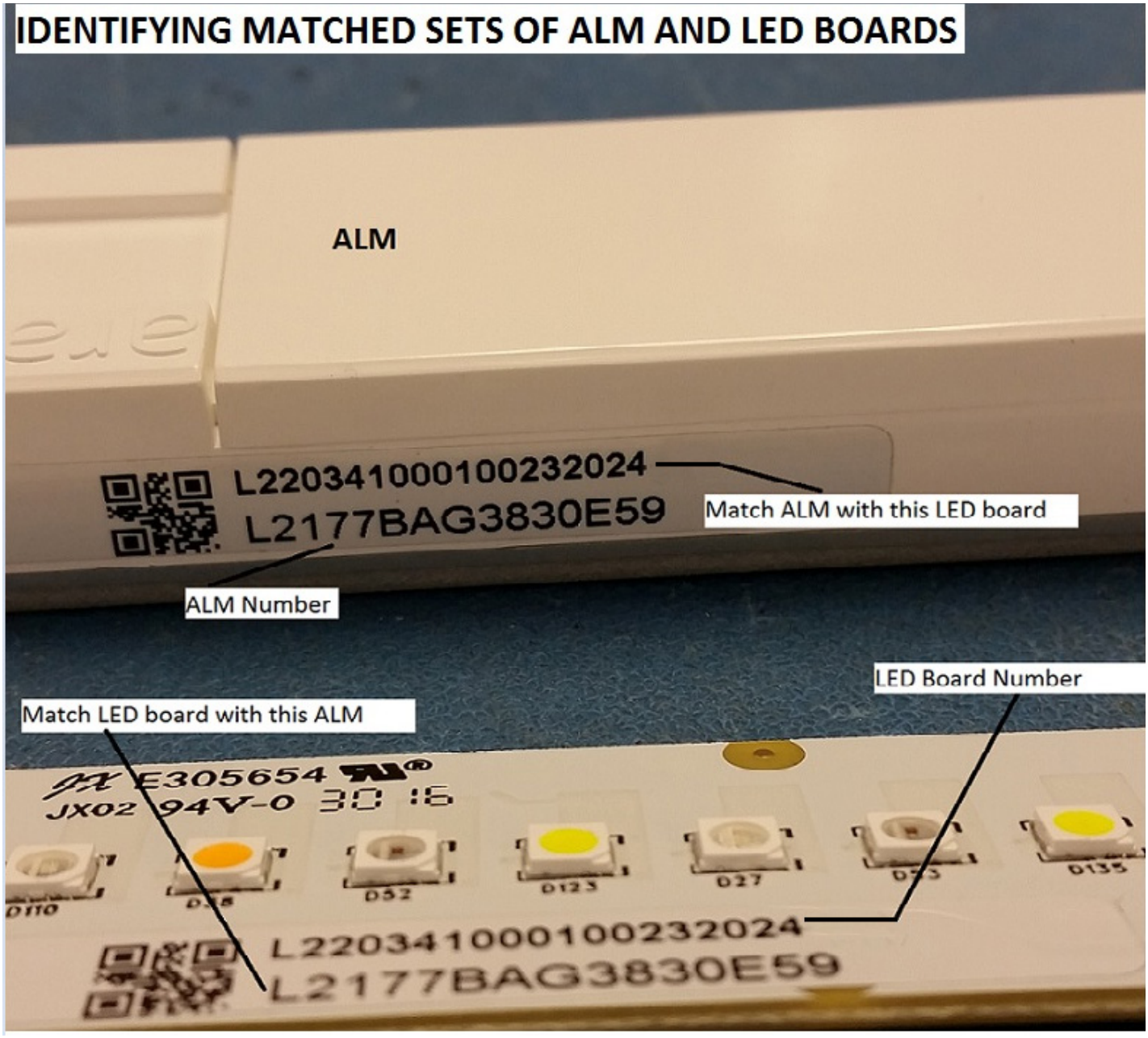


T_c Measurement Point is adjacent to Thermal Sensor.

c UL us
UL Recognized Component
Dry or Damp Locations Class 2 Input

MAXIMUM T_c FOR LINEAR LED LIGHT ENGINE: 60 °C

12 IDENTIFYING “MATCHED SETS”

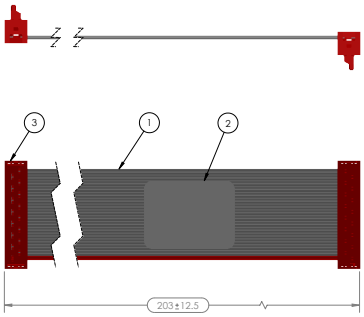


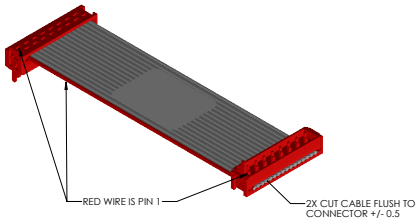
13 RIBBON CABLE ASSEMBLIES

13.1 Flat 16-Pin Ribbon Cable (Nominal 8” Length)

Part Number:
28.031.001.04

16-pin Tyco connectors at each end; for connecting 1 ft. linear boards to each other.



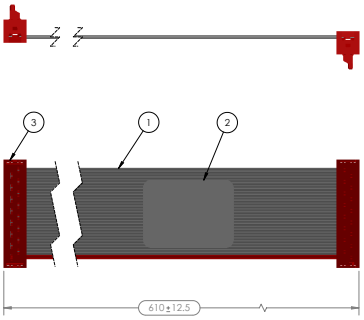


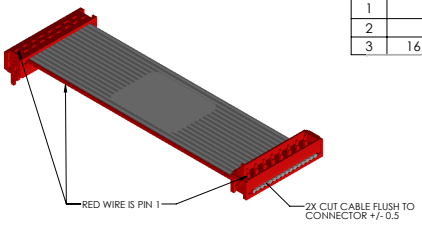
ITEM NO.	PART NUMBER	QTY.
1	16 PIN RIBBON CABLE 3M 3365-16	1
2	LABEL, LUMENETIX, PART#, DESCRIPTION, REVISION	1
3	16 PIN CONNECTOR 1-215083-6	2

13.2 Flat 16-Pin Ribbon Cable (Nominal 24” Length)

Part Number:
28.030.002.02

16-pin Tyco connectors at each end; for connecting ALM to one (1) linear board.



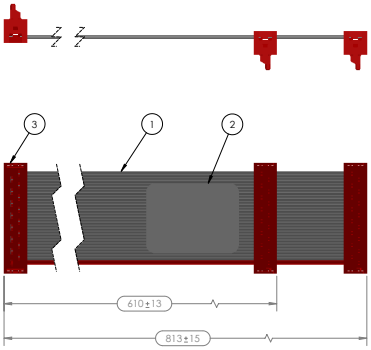


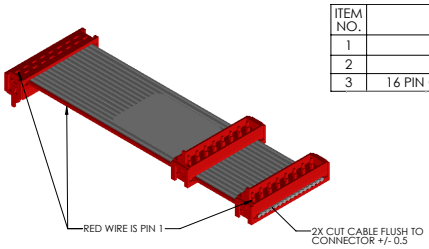
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	16 PIN RIBBON CABLE	3M 3365/16 PIN PVC RIBBON CABLE	1
2	LABEL	LUMENETIX, P/N, DESCRIPTION, REVISION	1
3	16 PIN CONNECTOR c-1-215083-6-t-3d	CONNECTOR 16 PIN 1-215083-6	2

13.3 Flat 16-Pin Ribbon Cable (Nominal 32” Length)

Part Number:
28.031.001.01

16-pin Tyco connectors at at 0”, 24” and 32”; for connecting ALM to two (2) linear boards.





ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	16 PIN RIBBON CABLE	3M 3365/16 PIN PVC RIBBON CABLE	1
2	LABEL	LUMENETIX, P/N, DESCRIPTION, REVISION	1
3	16 PIN CONNECTOR c-1-215083-6-t-3d	CONNECTOR 16 PIN 1-215083-6	3

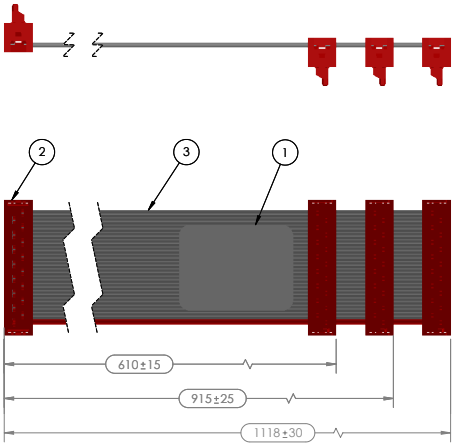
Note: All dimensions are in millimeters.

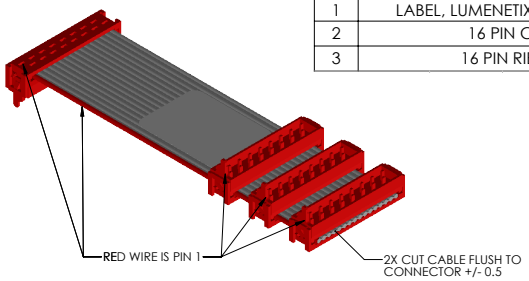
13 RIBBON CABLE ASSEMBLIES

13.4 Flat 16-Pin Ribbon Cable (Nominal 44” Length)

Part Number:
28.031.001.02

16-pin Tyco connectors at -20”, -12”, 0”, and 24”; for connecting ALM to three (3) linear boards.





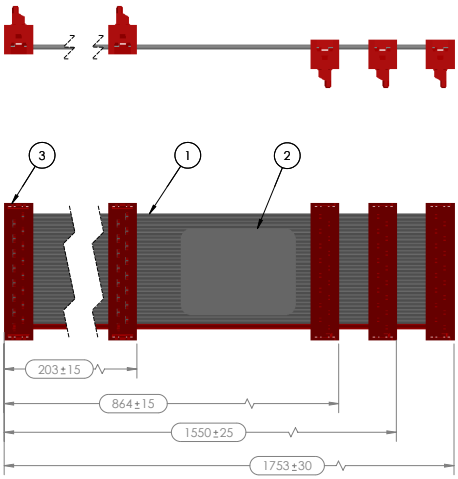
ITEM NO.	PART NUMBER	QTY.
1	LABEL, LUMENETIX, PART#, DESCRIPTION, REVISION	1
2	16 PIN CONNECTOR 1-215083-6	4
3	16 PIN RIBBON CABLE 3M 3365-16	1

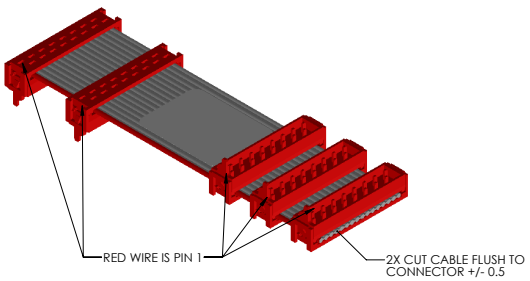
13.5 Flat 16-Pin Ribbon Cable (Nominal 68” Length)

Part Number:
28.031.001.03

16-pin Tyco connectors at -34”, -26”, 0”, 26” and 34”; for connecting ALM to four (4) linear boards.

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	16 PIN RIBBON CABLE	3M 3365/16 PIN PVC RIBBON CABLE	1
2	LABEL	LUMENETIX, P/N, DESCRIPTION, REVISION	1
3	16 PIN CONNECTOR c-1-215083-6-t-3d	CONNECTOR 16 PIN 1-215083-6	5





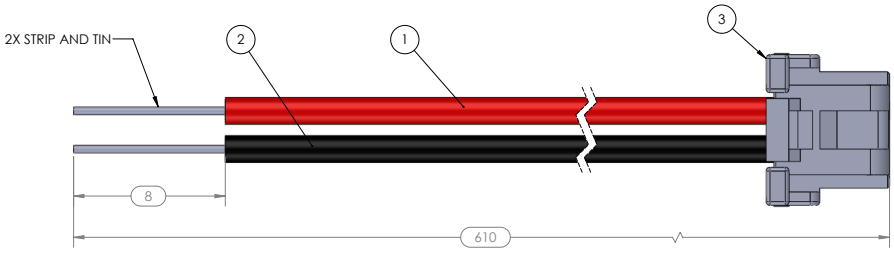
Note: All dimensions are in millimeters.

14 POWER / CONTROL CABLE ASSEMBLIES

14.1 Power Cable Assembly (Nominal 24” Length)

Required for connecting each light engine to DC power. Included with all versions of ALM2.

Part Number:
28.030.001.01

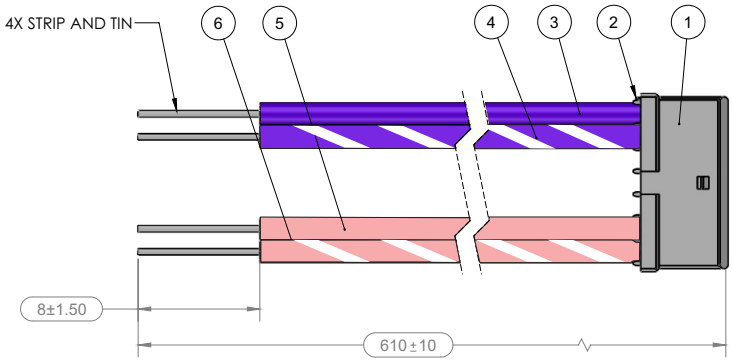


Item Number	Part Number	Description	Input	Quantity
1	Red Wire 24 AWG	Hook-up Wire Stranded 7/32 24 AWG Red	Power DC (+)	1
2	Black Wire 24 AWG	Hook-up Wire Stranded 7/32 24 AWG Black	Power Common (-)	1
3	Connector Molex 5023510200		N/A	1
4	Crimp Molex 0503728000		N/A	2

14.2 Control Cable Assembly (Nominal 24” Length)

Required for connecting each light engine to 0–10 V control.

Part Number:
28.002.002.02



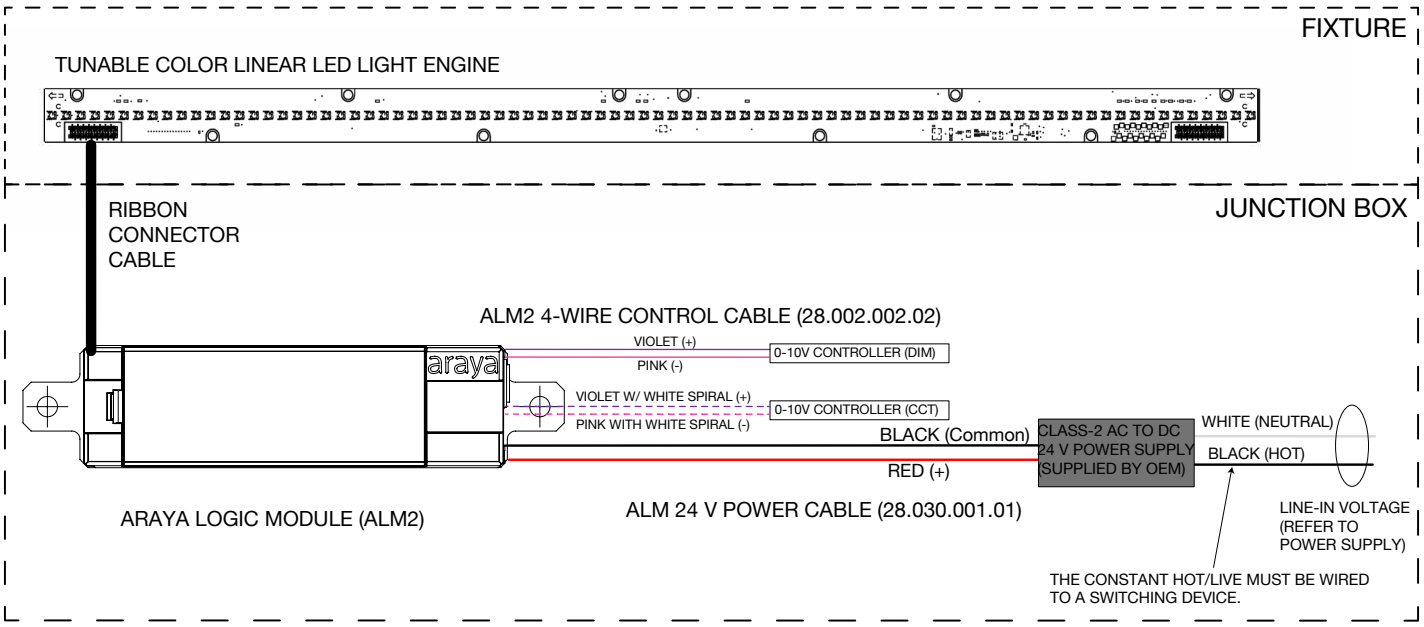
Item Number	Part Number	Manufacturer	Description	Input	Quantity
1	874390700	Molex	Connector 7-Pin	N/A	1
2	874210000	Molex	Connector Crimp	N/A	4
3	UL 1061	Any	Wire Stranded Tinned 24 AWG 7-32 Violet	0–10 V Dimming (+)	1
4	UL 1061	Any	Wire Stranded Tinned 24 AWG 7-32 Violet with White Spiral*	0–10 V Color (+)	1
5	UL 1061	Any	Wire Stranded Tinned 24 AWG 7-32 Pink*	0–10 V Dimming (-)	1
6	UL 1061	Any	Wire Stranded Tinned 24 AWG 7-32 Pink with White Spiral*	0–10 V Color (-)	1

* Some previous versions of this cable assembly may be shipped with differently colored leads.

Note: All dimensions are in millimeters.

15 0–10 V WIRING DIAGRAM

Refer to the separate Araya 0–10 V Specifications guide on the ERP website, for more detailed information.

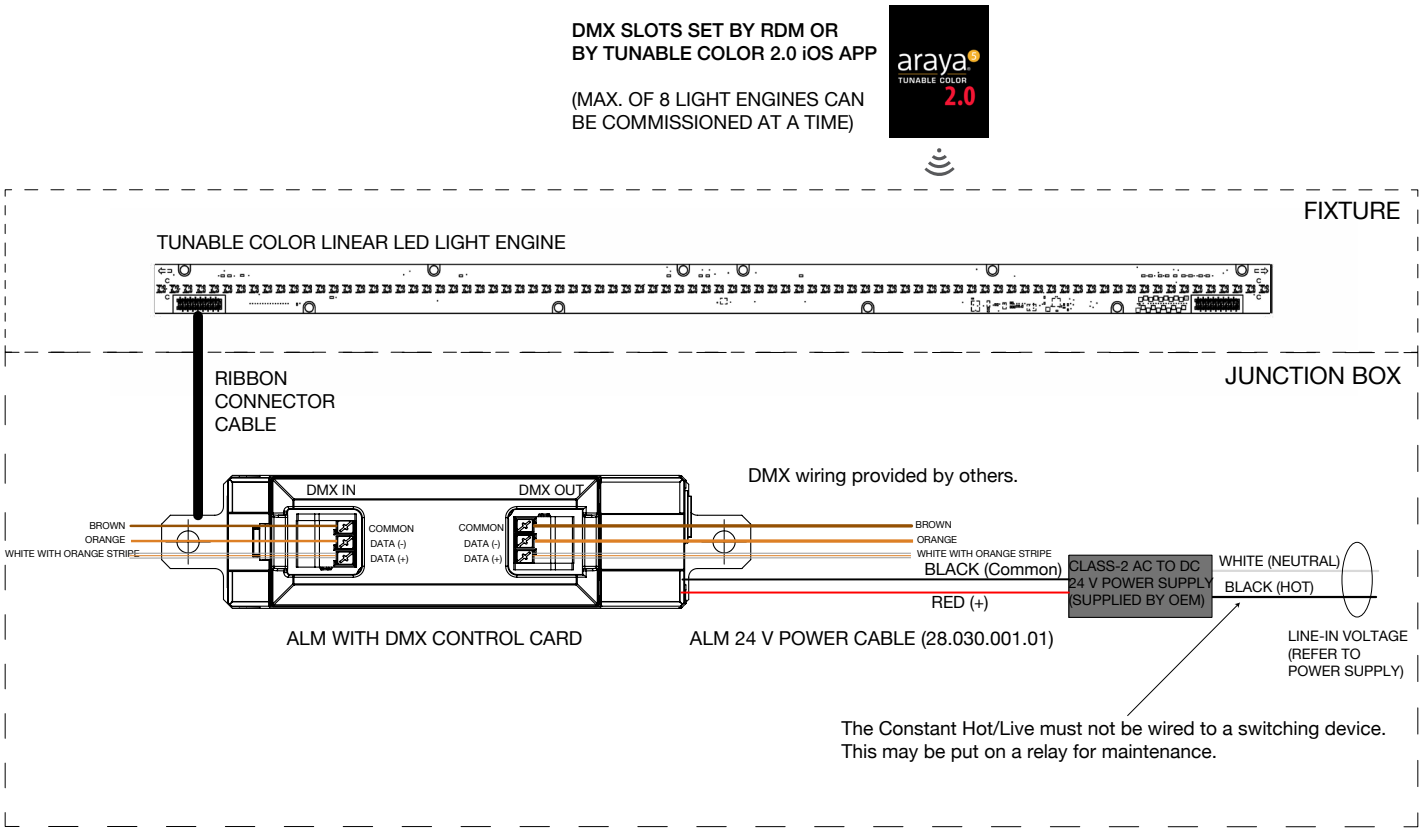


Notes:

1. Align the index tab on the ribbon cable with the index slot on the ALM header.
2. 24 V power (red/black) is Class-2 rated.

16 DMX512-A-RDM WIRING DIAGRAM

Please download the Araya DMX512-A Specifications guide on the ERP website, for more detailed information.

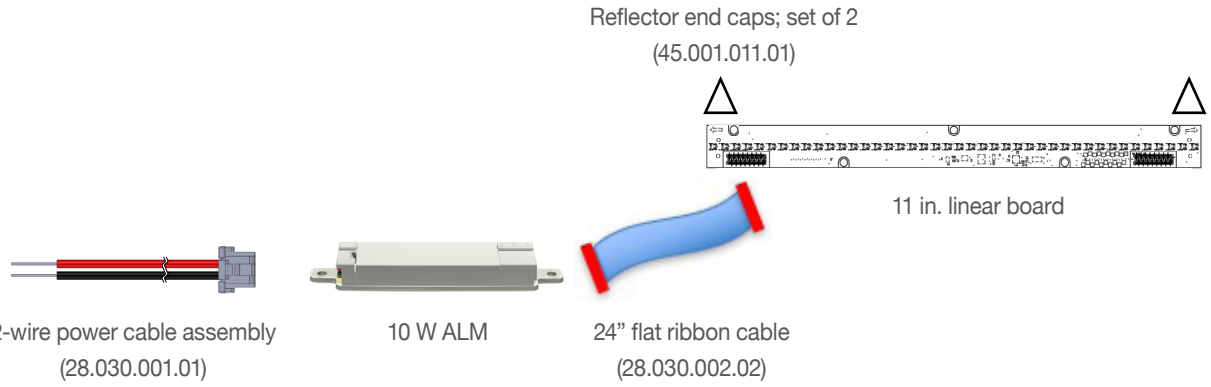


Notes:

1. 24 V power (red/black) is Class-2 rated.
2. Align the index tab on the ribbon cable with the index slot on the ALM header.
3. The DMX control system should first be powered OFF, and only light engines that are connected to the DMX system should be powered on.
4. If more than one line of DMX is needed, then a DMX Splitter must be used to create multiple independent branches of a DMX signal and/or to extend the usable distance of each branch. Each of the splitter's 4, 6, 8, or 16 output ports generates an independently protected DMX signal.
5. The serial numbers on the labels of both the ALM2 and the light engine(s) must match exactly.
6. Bluetooth operation is only for commissioning the light engines, NOT for controlling them.

17 LTM2 CONFIGURATION EXAMPLES

17.1 11 Inches LTM2 Kit Configuration Example



11 inches Linear LED Light Engine Kit: 80.001.090.03

Ordering code includes: One 11 in. linear LED board and 10 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

24” flat ribbon cable (16-pin Tyco connectors at each end): 28.030.002.02
Reflector end caps (set of 2): 45.001.021.01

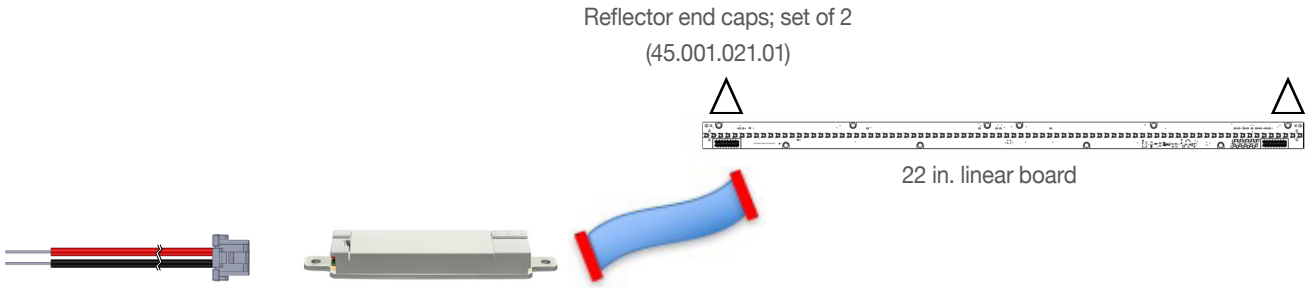
The following items must also be added to the order depending on the control strategy/protocol chosen:

To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

17 LTM2 CONFIGURATION EXAMPLES

17.2 22 Inches LTM2 Kit Configuration Example



22 inches Linear LED Light Engine Kit: 80.001.091.03

Ordering code includes: One 22 in. linear LED board and 20 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

24” flat ribbon cable (16-pin Tyco connectors at each end): 28.030.002.02
Reflector end caps (set of 2): 45.001.021.01

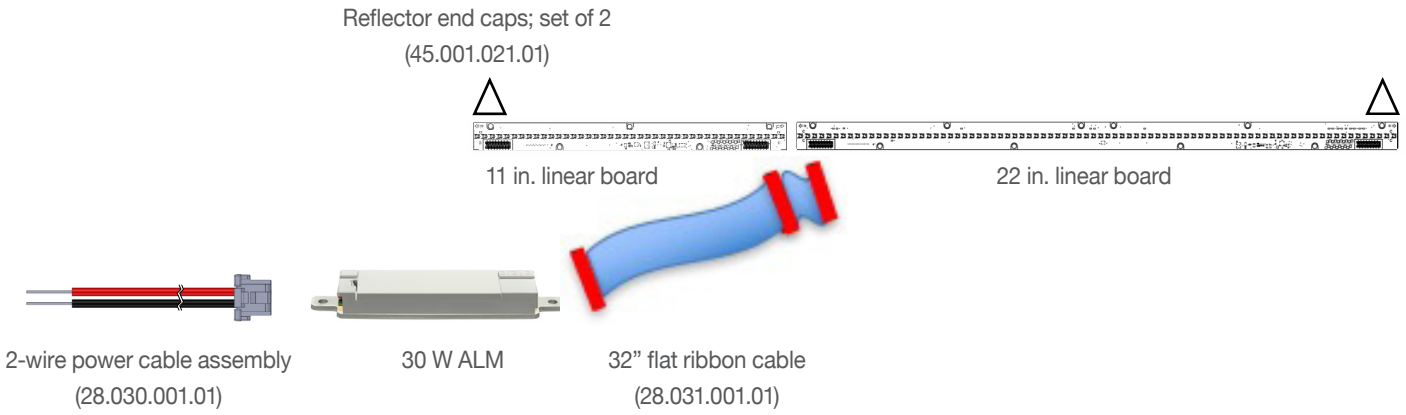
The following items must also be added to the order depending on the control strategy/protocol chosen:

To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

17 LTM2 CONFIGURATION EXAMPLES

17.3 33 Inches LTM2 Kit Configuration Example



33 inches Linear LED Light Engine Kit: 80.001.092.03

Ordering code includes: One 22 in. linear LED board, one 11 in. linear LED board and 30 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

32” flat ribbon cable (16-pin Tyco connectors at 0”, 24” and 32”): 28.031.001.01
Reflector end caps (set of 2): 45.001.021.01

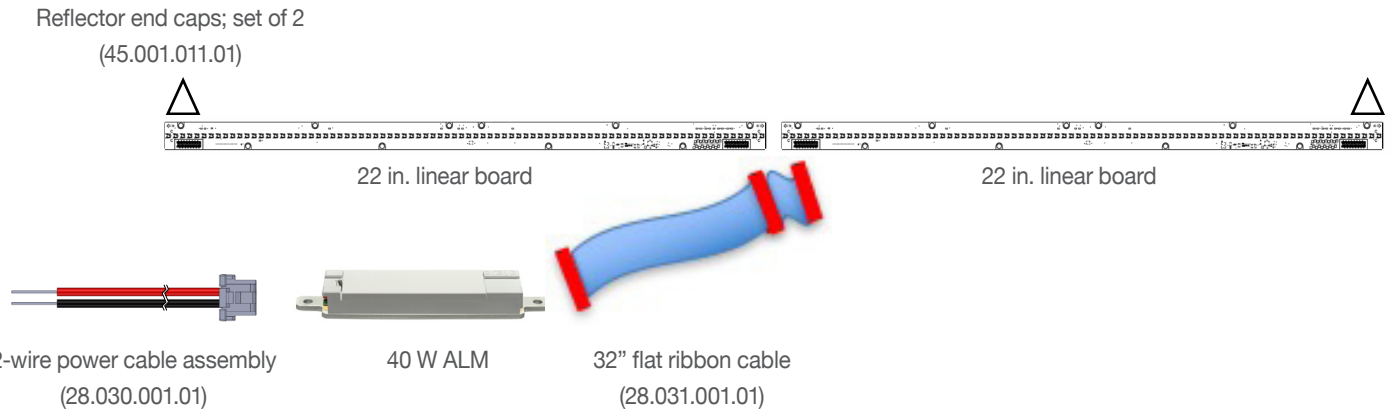
The following items must also be added to the order depending on the control strategy/protocol chosen:

To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

17 LTM2 CONFIGURATION EXAMPLES

17.4 44 Inches LTM2 Kit Configuration Example



44 inches Linear LED Light Engine Kit: 80.001.093.03

Ordering code includes: Two 22 in. linear LED boards and 40 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

32” flat ribbon cable (16-pin Tyco connectors at 0”, 24” and 32”): 28.031.001.01
Reflector end caps (set of 2): 45.001.021.01

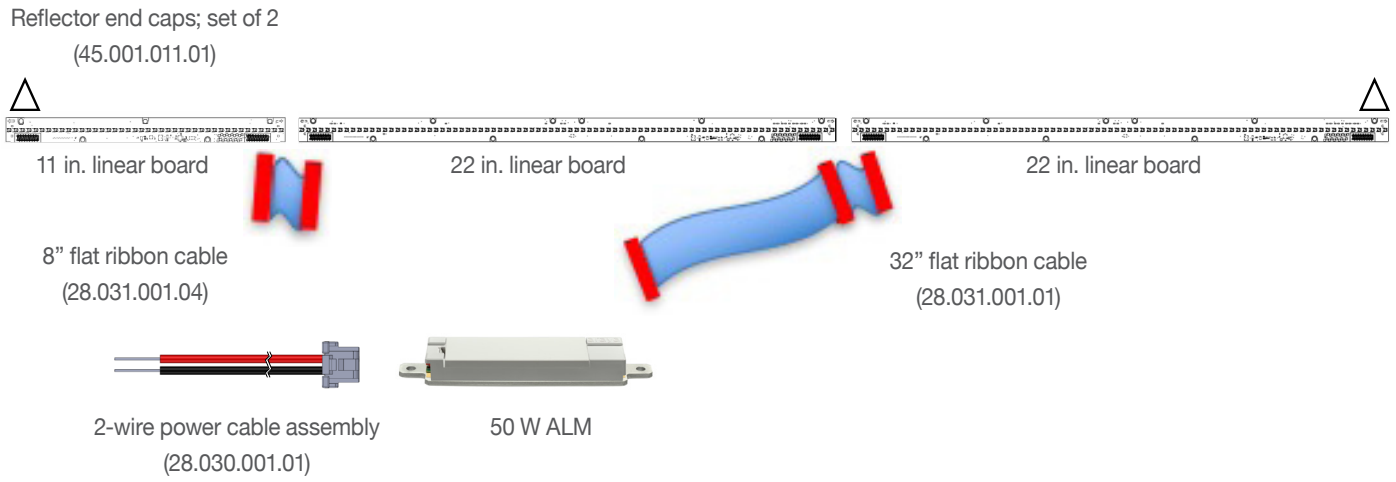
The following items must also be added to the order depending on the control strategy/protocol chosen:

To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

17 LTM2 CONFIGURATION EXAMPLES

17.5 55 Inches LTM2 Kit Configuration Example



55 inches Linear LED Light Engine Kit: 80.001.094.03

Ordering code includes: Two 22 in. linear LED boards, one 11 in. linear LED board and 50 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

32” flat ribbon cable (16-pin Tyco connectors at 0”, 24” and 32”): 28.031.001.01
8” flat ribbon cable (16-pin Tyco connectors at each end): 28.030.001.04
Reflector end caps (set of 2): 45.001.021.01

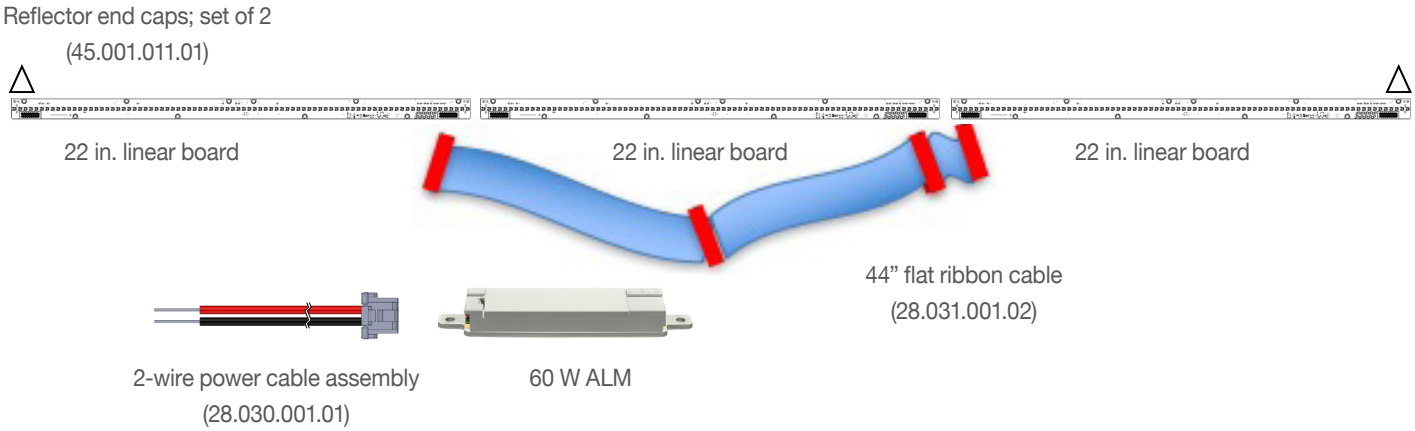
The following items must also be added to the order depending on the control strategy/protocol chosen:

To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

17 LTM2 CONFIGURATION EXAMPLES

17.6 66 Inches LTM2 Kit Configuration Example



66 inches Linear LED Light Engine Kit: 80.001.095.03

Ordering code includes: Three 22 in. linear LED boards and 60 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

44” flat ribbon cable (16-pin Tyco connectors at -20”, -12”, 0”, and 24”): 28.031.001.02
Reflector end caps (set of 2): 45.001.021.01

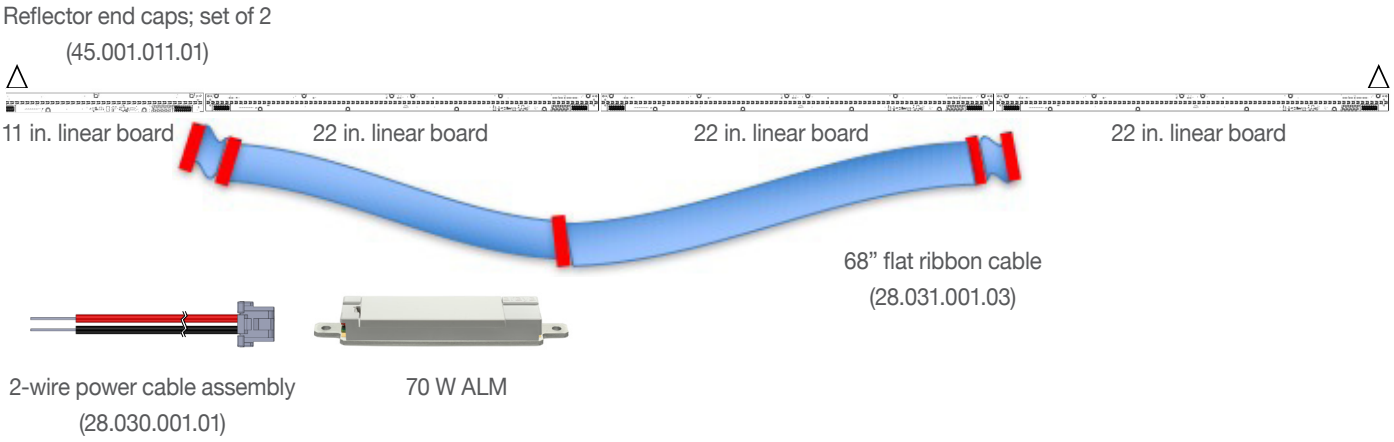
The following items must also be added to the order depending on the control strategy/protocol chosen:

To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

17 LTM2 CONFIGURATION EXAMPLES

17.7 77 Inches LTM2 Kit Configuration Example



77 inches Linear LED Light Engine Kit: 80.001.096.03

Ordering code includes: Three 22 in. linear LED boards, one 11 in. linear board and 70 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

68” flat ribbon cable (16-pin Tyco connectors at -34”, -26”, 0”, 26” and 34”): 28.031.001.03
Reflector end caps (set of 2): 45.001.021.01

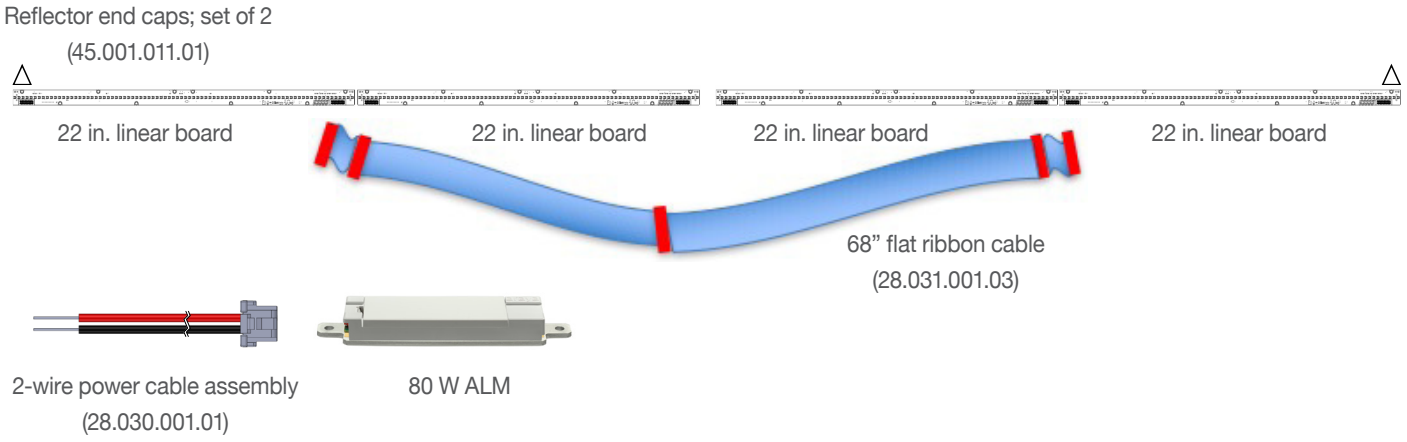
The following items must also be added to the order depending on the control strategy/protocol chosen:

To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

17 LTM2 CONFIGURATION EXAMPLES

17.8 88 Inches LTM2 Kit Configuration Example



88 inches Linear LED Light Engine Kit: 80.001.097.03

Ordering code includes: Four 22 in. linear LED boards and 80 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

68” flat ribbon cable (16-pin Tyco connectors at -34”, -26”, 0”, 26” and 34”): 28.031.001.03
Reflector end caps (set of 2): 45.001.021.01

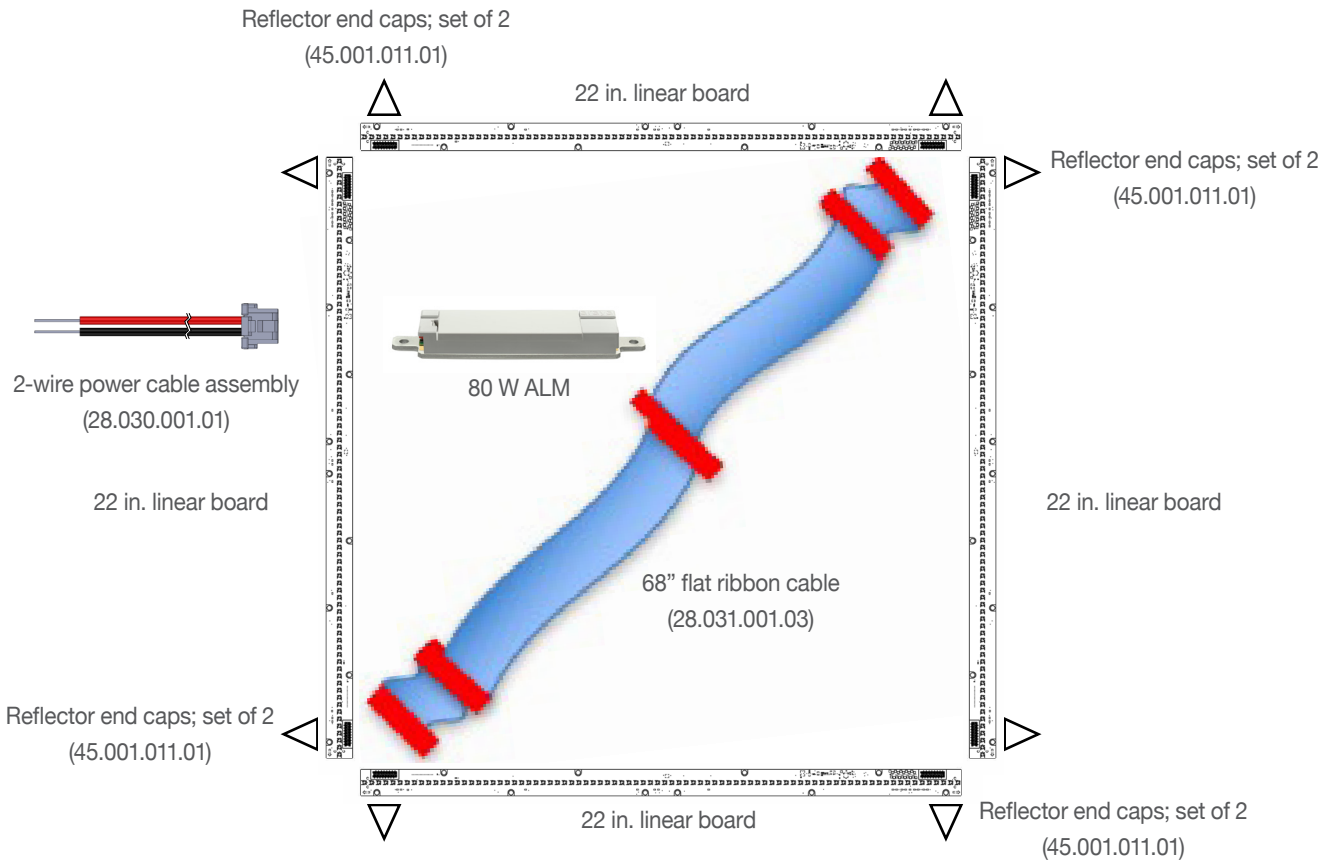
The following items must also be added to the order depending on the control strategy/protocol chosen:

To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

17 LTM2 CONFIGURATION EXAMPLES

17.9 88 Inches Square-Shaped LTM2 Kit Configuration Example



88 inches Linear LED Light Engine Kit: 80.001.097.03

Ordering code includes: Four 22 in. linear LED boards and 80 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

68” flat ribbon cable (16-pin Tyco connectors at -34”, -26”, 0”, 26” and 34”): 28.031.001.03
Reflector end caps (set of 2): 45.001.021.01 **(four orders)**

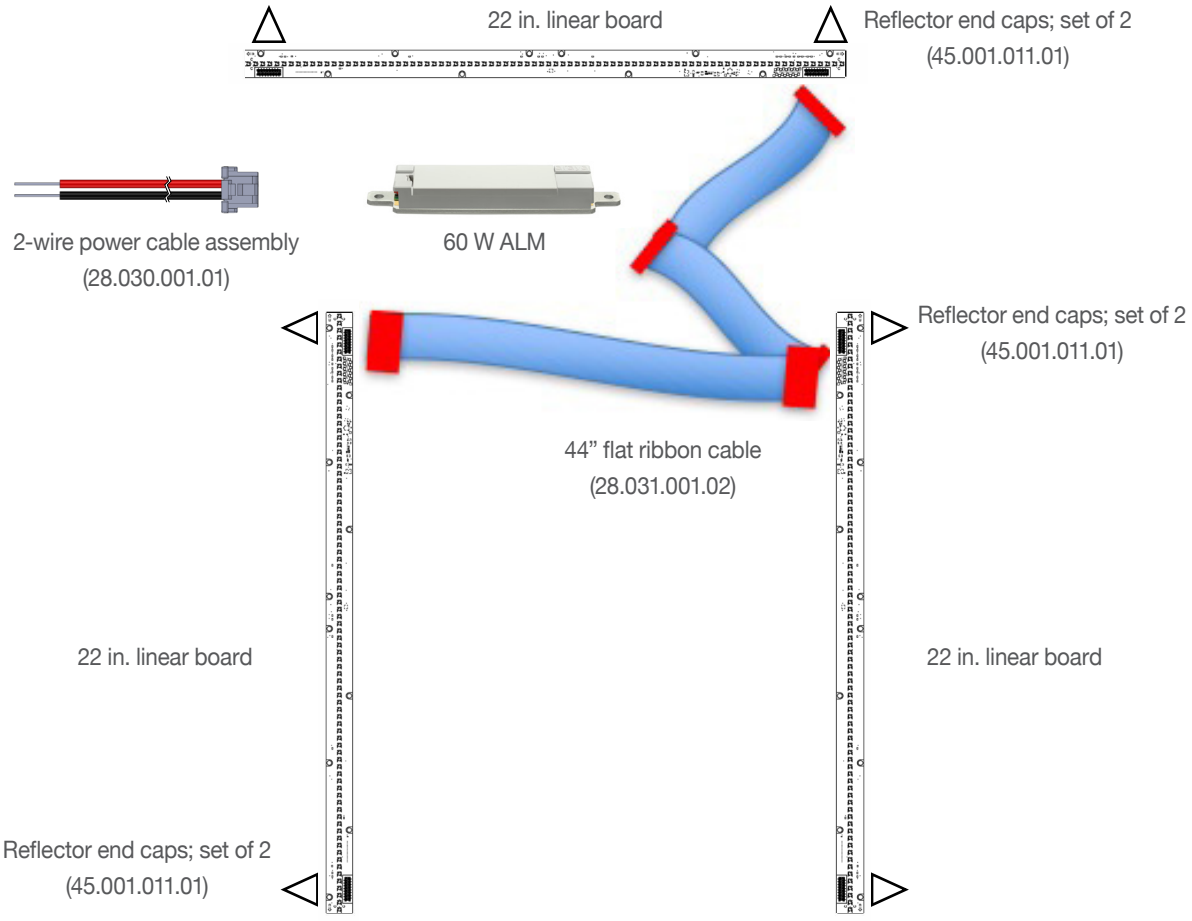
The following items must also be added to the order depending on the control strategy/protocol chosen:

To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

17 LTM2 CONFIGURATION EXAMPLES

17.10 66 Inches U-Shaped LTM2 Kit Configuration Example



66 inches Linear LED Light Engine Kit: 80.001.095.03

Ordering code includes: Three 22 in. linear LED boards and 60 W Araya Logic Module.
2-wire power cable assembly: 28.030.001.01

To implement the above configuration, the following items must be added to the order:

44” flat ribbon cable (16-pin Tyco connectors at -20”, -12”, 0”, and 24”): 28.031.001.02
Reflector end caps (set of 2): 45.001.021.01 **(three orders)**

The following items must also be added to the order depending on the control strategy/protocol chosen:

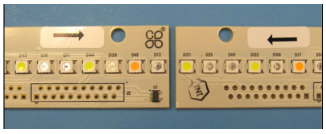
To implement 0–10 V Control of the above:
4-wire control cable assembly: 28.002.002.02

To implement DMX512-A control:
DMX512-A-RDM Control Card: 80.003.002.01

18 PRE-INSTALLATION NOTES

TUNABLE COLOR LINEAR LED LIGHT ENGINES (PRINTED CIRCUIT BOARDS)

- To ensure proper electrical insulation between the linear light engines and heat sink, the light engines (PCBS) are provided with a pre-applied double sided adhesive insulating tape. Be sure to remove the plastic liner before attaching the linear light engine to the heat sink.
- Ensure that the PCBs are properly aligned with reference arrows facing each other (see below). This is critical for proper mixing.



- **Exercise caution** when connecting the ribbon cables to the LED PCBs. Do not press the LEDs against a hard surface (like a table or workbench) as they can be damaged. Do not break off the indexing tabs.
- **IMPORTANT: Please allow a space of 2 mm – 5 mm between the LED PCBs. Do NOT butt the LED PCBs to each other. If a 2 mm – 5 mm spacing is not provided, the LED PCBs may bow. Gaps larger than 5 mm may not have proper color mixing.**
- Mount the LED PCB to the fixture using 6 mm – 8 mm (M2.5 – M4) screws. **PLEASE NOTE:** Use plastic washers to protect the PCB. Do NOT over-tighten the screws, since that can damage the LED PCB.
- PCBs need to be isothermal (intra-board and inter-board). ALMs can be mounted on a different thermal platform.

REFLECTOR END CAPS

- Test-fit the reflector end caps on the LED PDBs. Note that the opening (with diffuser) should face in the OPPOSITE direction of the alignment arrows. The mounting hole should match the hole on the reflector end caps.
- The reflector end caps are fastened to the fixture using 6 mm – 8 mm (M2.5 – M4) screws inserted through the end caps and the holes in the LED PCB. The opposite side where it is not fastened must be used with double-sided tape.

  NOTE: The end caps will cover the last few LEDs.

RIBBON CABLE CONNECTORS

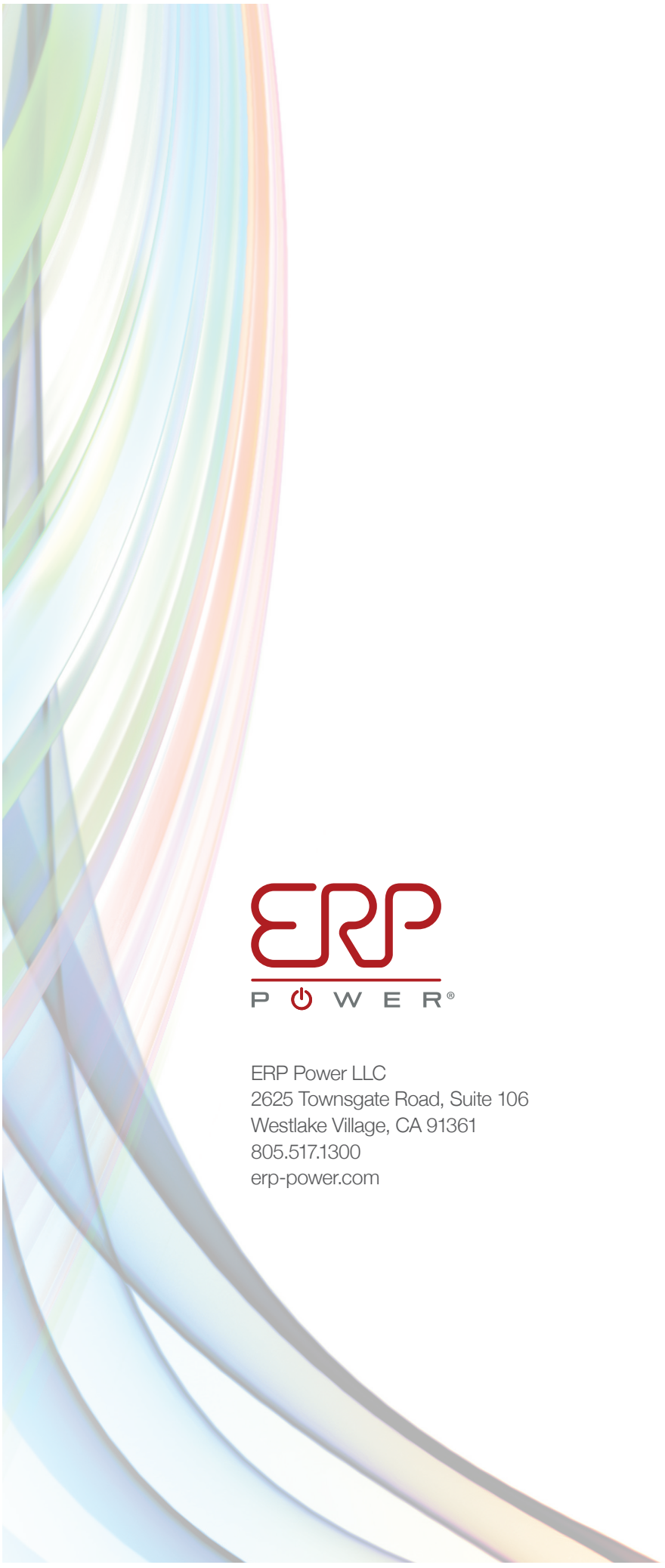
- The surface of the fixture to which the PCB is mounted must have relief areas for the connectors.
- Leave adequate clearance around the ribbon cable connector so that it does not come in contact with the fixture's metal edge.
- Cut-outs in the heat sink around the connectors should be made as large as possible to avoid potential shorting. Adding insulation around the cutout using polyimide tape is recommended.

ARAYA LOGIC MODULE

- Mount the ALM to the fixture with 6 mm – 8 mm (M2.5 – M4) screws in desired location.

Test-fit all components prior to installation. Mark edges for correct alignment.

ERP Power, LLC (ERP) reserves the right to make changes without further notice to any products herein. ERP makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does ERP assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation special, consequential or incidental damages. "Typical" parameters which may be provided in ERP data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. ERP does not convey any license under its patent rights nor the rights of others. ERP products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the ERP product could create a situation where personal injury or death may occur. Should Buyer purchase or use ERP products for any such unintended or unauthorized application, Buyer shall indemnify and hold ERP and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that ERP was negligent regarding the design or manufacture of the part. ERP is an Equal Opportunity/Affirmative Action Employer. This literature is subject to all applicable copyright laws and is not for resale in any manner.



ERP Power LLC
2625 Townsgate Road, Suite 106
Westlake Village, CA 91361
805.517.1300
erp-power.com