

# Catenary Design Guide

Application Guide for Outdoor Pendant Luminaires





Laterna



Zume



Sequence

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# Examples

## Catenary Configurations

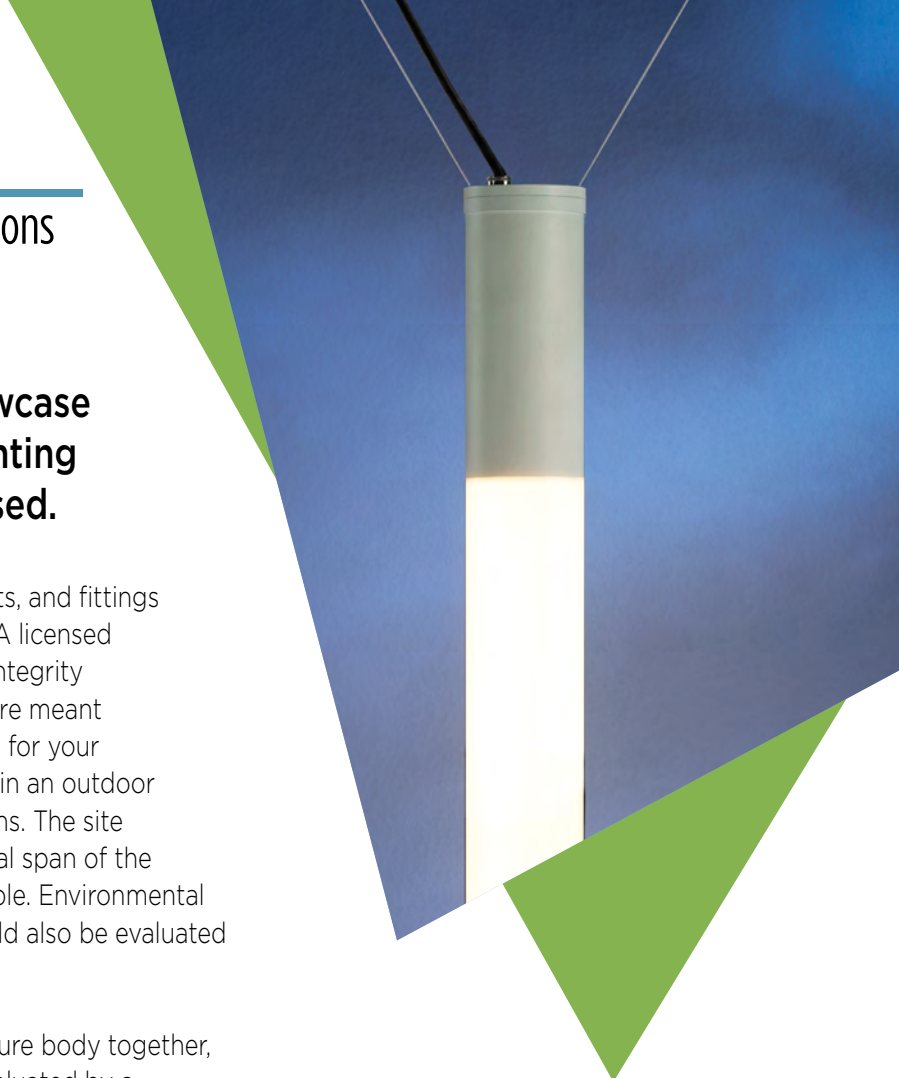
### Seven example installations that showcase the accessories provided by Visa Lighting and the different ways they can be used.

WARNING: Catenary cables, cable ends, structural masts, and fittings for attachment to the building are provided by others. A licensed structural engineer should be consulted to ensure the integrity of the specific application. The examples in this guide are meant to be inspirational and not to be used as a specification for your particular site of interest. Installation of these products in an outdoor environment requires the assessment of many conditions. The site structures, the desired aesthetic, applied load, horizontal span of the cable and sag specification will affect the tension in cable. Environmental conditions such as ice, wind and corrosion effects should also be evaluated for each installation.

When stainless steel cable connects more than one fixture body together, this is considered a catenary support and should be evaluated by a structural engineer.

See installation instructions for further details on what to provide the licensed structural engineer.

**All catenary product specifications require approval of submittal drawings by factory.**



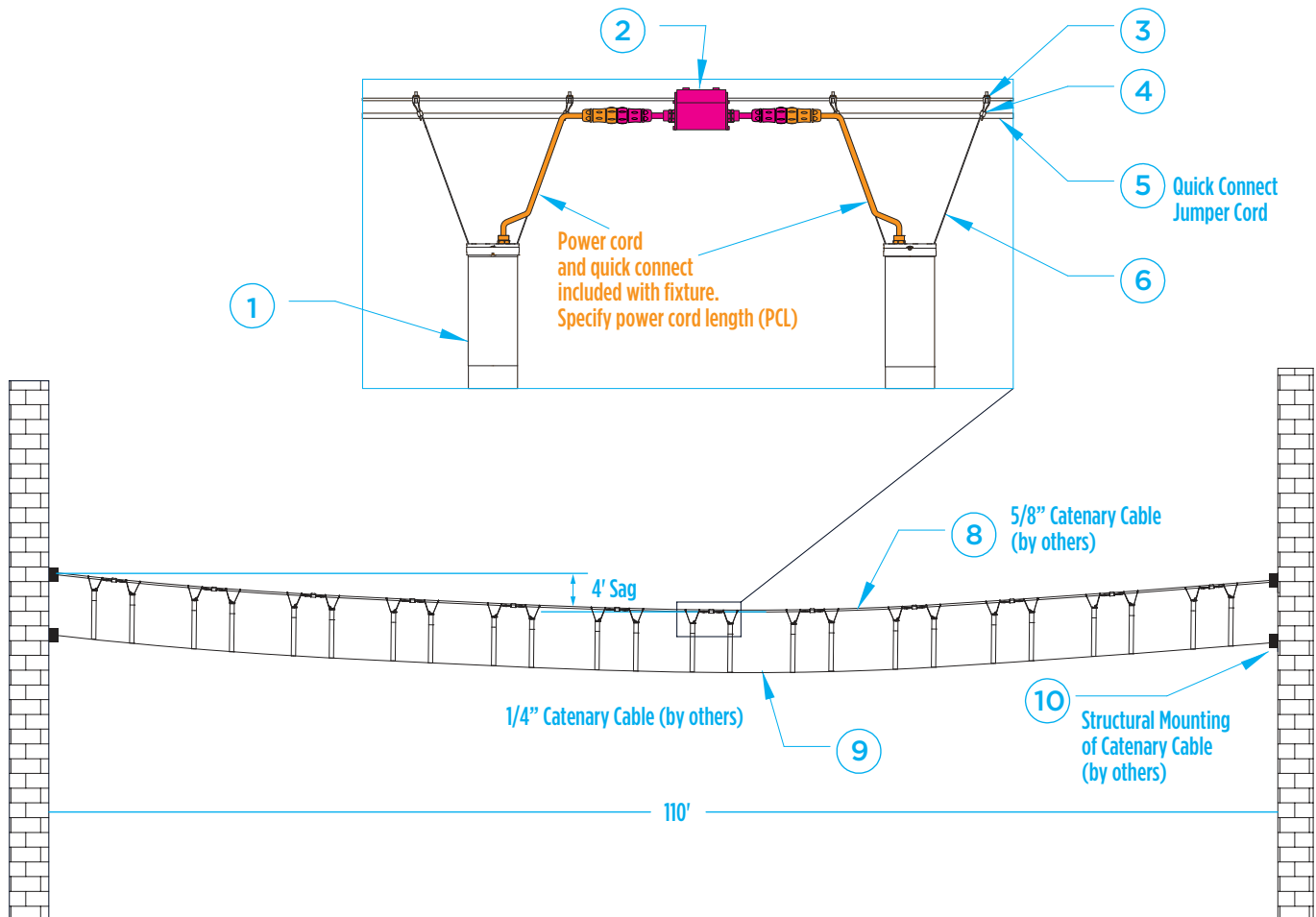
# Catenary Suspension

## 4" Sequence with Top & Bottom Catenary & 3-way Splitter Accessories

### Example 1

OP2234-L35K-H-MVOLT-TW9016-BTH+1QC-PCL (60) (QTY 24)

| Item #                 | Quantity | Part Number    | Description  |
|------------------------|----------|----------------|--|
| <b>Fixture Option</b>  |          |                |  |
| 1                      | 24       | OP2234-BTH+1QC | Sequence 4" x 4' with Bottom Tether and 1 Quick Connect          |
| <b>Accessories</b>     |          |                |  |
| 2                      | 12       | AY-QC3S        | Quick Connect 3-way Splitter                                     |
| 3                      | 48       | AY-UB5/8       | 5/8" Stainless Steel U-bolt Clamp, see page 15                   |
| 4                      | 5        | AY-CS1/8       | 1/8" Stainless Steel Compression Sleeve (box of 10), see page 15 |
| 5                      | 12       | AY-QC7P6-10    | Quick Connect Jumper Cord (10ft length), see page 11             |
| 6                      | 2        | AY-CBL1/8-50   | 50' of 1/8" diameter Stainless Steel Cable, see page 15          |
| 7                      | 1        | AY-WT-100      | Power Cord Ties (package of 100) (not illustrated)               |
| <b>Parts by Others</b> |          |                |  |
| 8                      | 1        | By others      | 110' of 5/8" diameter Catenary Cable                             |
| 9                      | 1        | By others      | 110' of 1/4" diameter Catenary Cable                             |
| 10                     | 4        | By others      | Structural Mounting  |



# Catenary Suspension

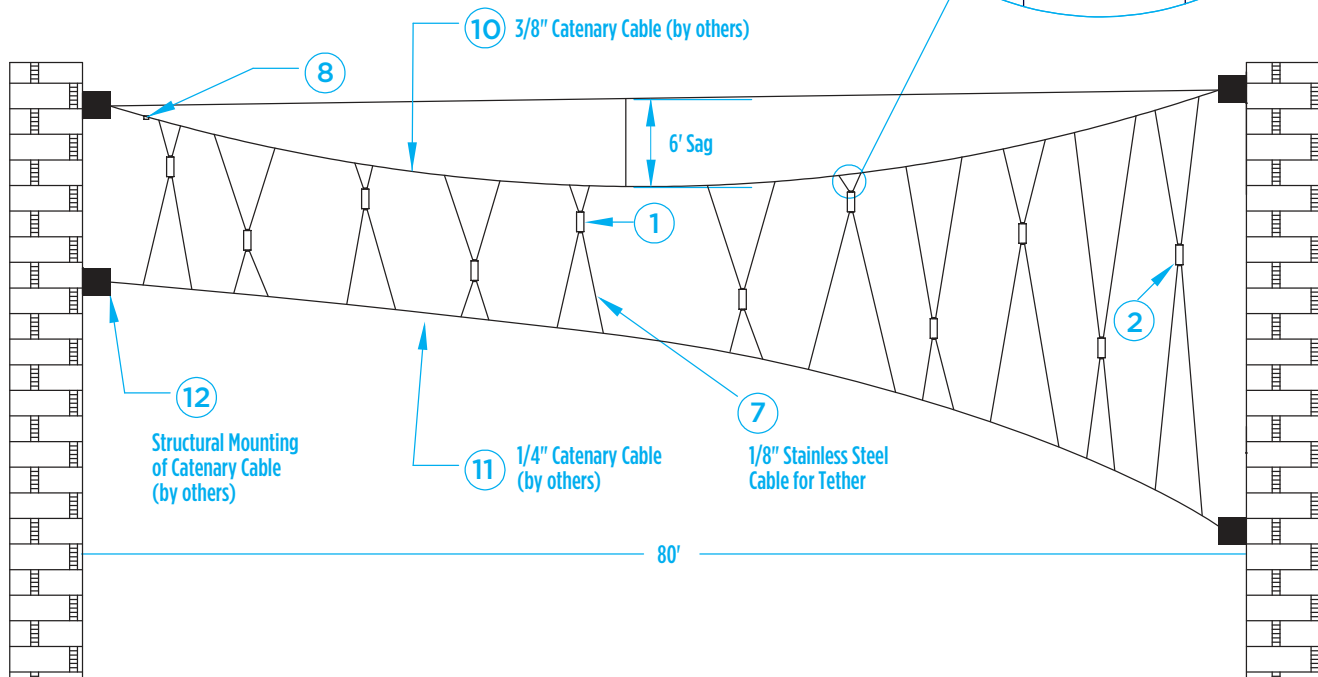
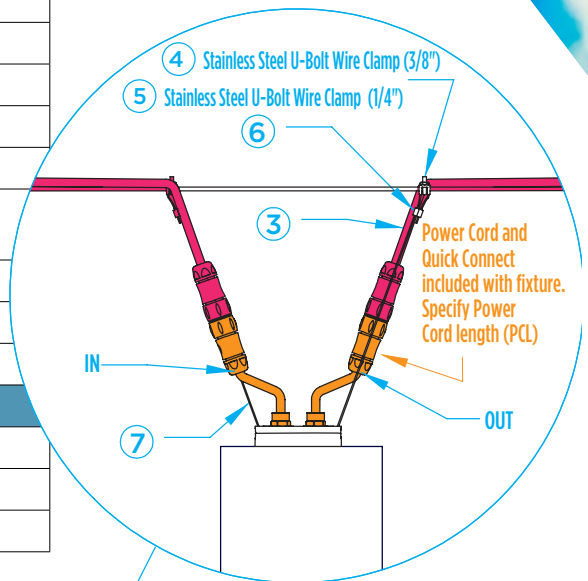
## 8" Sequence with Bottom Tether & Quick Connect Accessories

### Example 2

OP2262-RGB-MVOLT-TW9016-BTH+2QC-PCL (6) (QTY 10)

OP2262-RGB-MVOLT-TW9016-BTH+1QC-PCL (6) (QTY 1)

| Item #                 | Quantity | Part Number    | Description  |
|------------------------|----------|----------------|--|
| <b>Fixture Option</b>  |          |                |  |
| 1                      | 10       | OP2262-BTH+2QC | Sequence 8" x 2' with Bottom Tether and 2 Quick Connects         |
| 2                      | 1        | OP2262-BTH+1QC | Sequence 8" x 2' with Bottom Tether and 1 Quick Connect          |
| <b>Accessories</b>     |          |                |  |
| 3                      | 10       | AY-QC7P6-1     | 1' Quick Connect Jumper Cord, see page 11                        |
| 3                      | 10       | AY-QC7P6-5     | 5' Quick Connect Jumper Cord, see page 11                        |
| 3                      | 10       | AY-QC7P6-10    | 10' Quick Connect Jumper Cord, see page 11                       |
| 3                      | 5        | AY-QC7P6-25    | 25' Quick Connect Jumper Cord, see page 11                       |
| 4                      | 2        | AY-UB3/8       | 3/8" Stainless Steel U-Bolt Wire Clamp, see page 15              |
| 5                      | 2        | AY-UB1/4       | 1/4" Stainless Steel U-Bolt Wire Clamp, see page 15              |
| 6                      | 5        | AY-CS1/8       | 1/8" Stainless Steel Compression Sleeve (box of 10), see page 15 |
| 7                      | 4        | AY-CBL1/8-50   | 50' of 1/8" diameter Stainless Steel Cable, see page 15          |
| 8                      | 1        | AY-QCVSB       | Quick Connect Voltage Separation Box, see page 12                |
| 9                      | 1        | AY-WT-100      | Power Cord Ties (package of 100) (not illustrated)               |
| <b>Parts by Others</b> |          |                |  |
| 10                     | 1        | By others      | 100' of 3/8" diameter Catenary Cable                             |
| 11                     | 1        | By others      | 100' of 1/4" diameter Catenary Cable                             |
| 12                     | 4        | By others      | Structural mounting  |



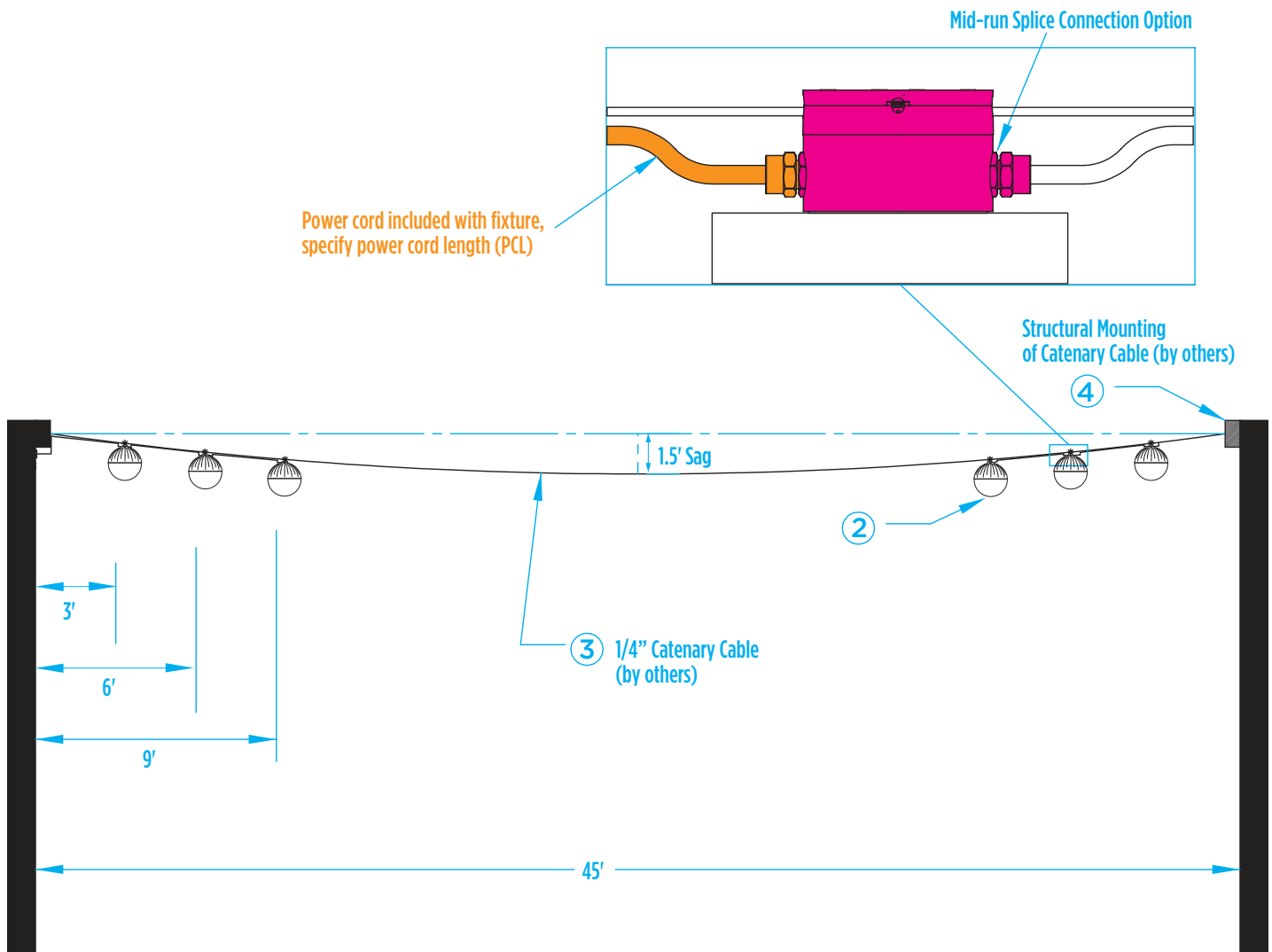
# Direct to Catenary

## Zume with Mid-run Splice Connection

### Example 3

OP2132-L35K-L-MVOLT-BRNZ-MS-C-PCL (40) (QTY 2)

| Item #                 | Quantity | Part Number | Description  |
|------------------------|----------|-------------|--|
| <b>Fixture Option</b>  |          |             |  |
| 1                      | 6        | OP2132+MSC  | Zume with Mid-run Splice Connection Option         |
| <b>Accessories</b>     |          |             |  |
| 2                      | 1        | AY-WT-100   | Power Cord Ties (package of 100) (not illustrated) |
| <b>Parts by Others</b> |          |             |  |
| 3                      | 1        | By others   | 50' of 1/4" diameter Catenary Cable                |
| 4                      | 2        | By others   | Structural mounting                                |



# Direct to Catenary

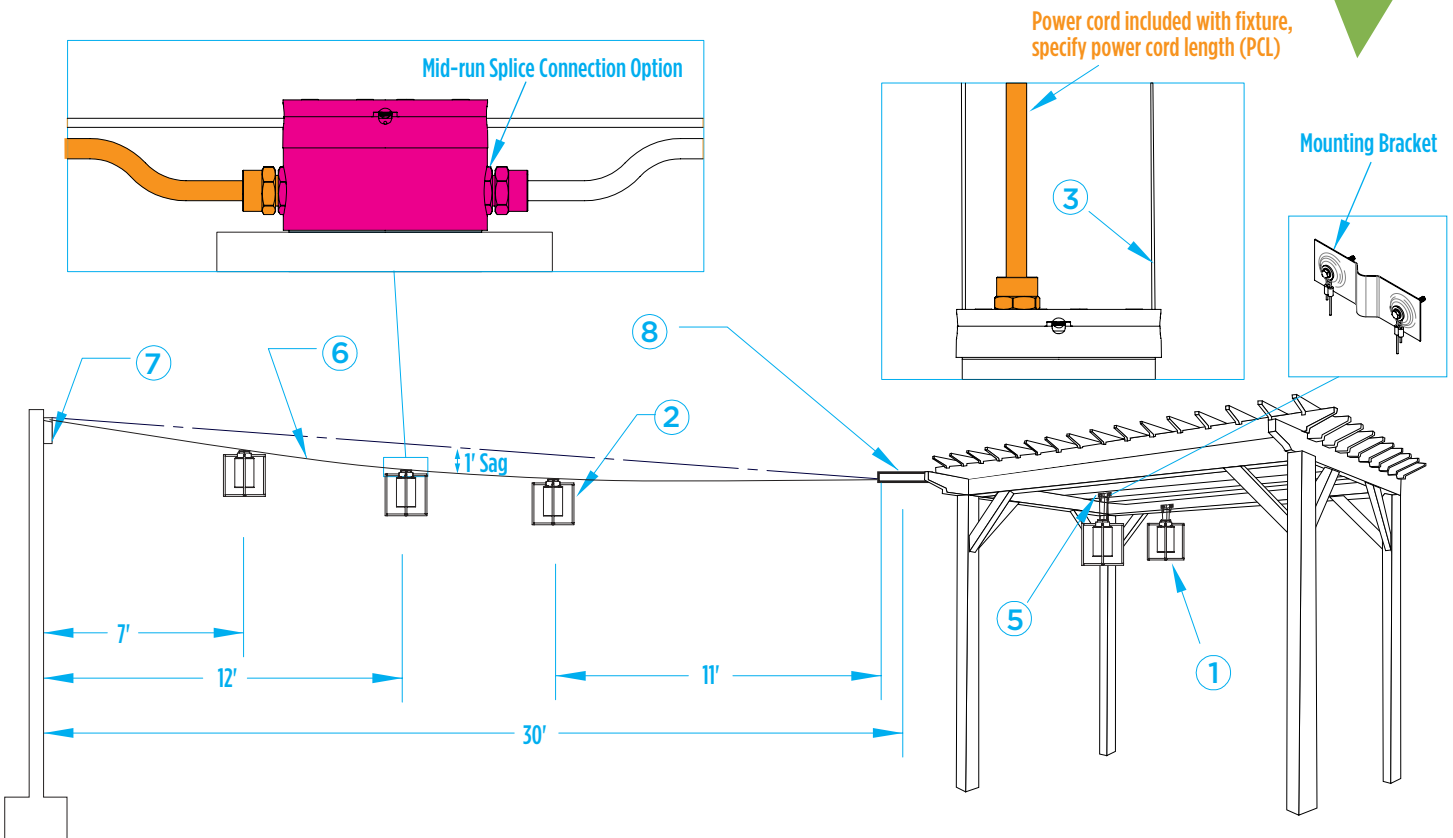
## Laterna with Mid-run Splice Connection & Bracket

### Example 4

OP3632-L35K-L-MVOLT-BRNZ-SPC-PCL (240) (QTY 4)

OP3632-L35K-L-MVOLT-BRNZ-MSC-PCL (120) (QTY 3)

| Item #                 | Quantity | Part Number  | Description   |
|------------------------|----------|--------------|---|
| <b>Fixture Option</b>  |          |              |   |
| 1                      | 4        | OP3632-SPC   | Laterna with Single Power Cord option                   |
| 2                      | 3        | OP3632-MSC   | Laterna with Mid-run Splice Connection option           |
| <b>Accessories</b>     |          |              |   |
| 3                      | 1        | AY-CBL1/8-50 | 50' of 1/8" diameter Stainless Steel Cable, see page 15 |
| 4                      | 1        | AY-WT-100    | Power Cord Ties (package of 100) (not illustrated)      |
| 5                      | 2        | AY-BRKT      | Mounting Bracket, see page 14                           |
| <b>Parts by Others</b> |          |              |   |
| 6                      | 1        | By others    | 30' of 1/4" diameter Catenary Cable                     |
| 7                      | 2        | By others    | Structural mounting for 1/4" Catenary Cable             |
| 8                      | 8        | By others    | Structural mounting to pergola                          |



Power cord included with fixture, specify power cord length (PCL)

Mounting Bracket

# Direct to Catenary (Grid Layout)

8" Sequence with Quick Connects

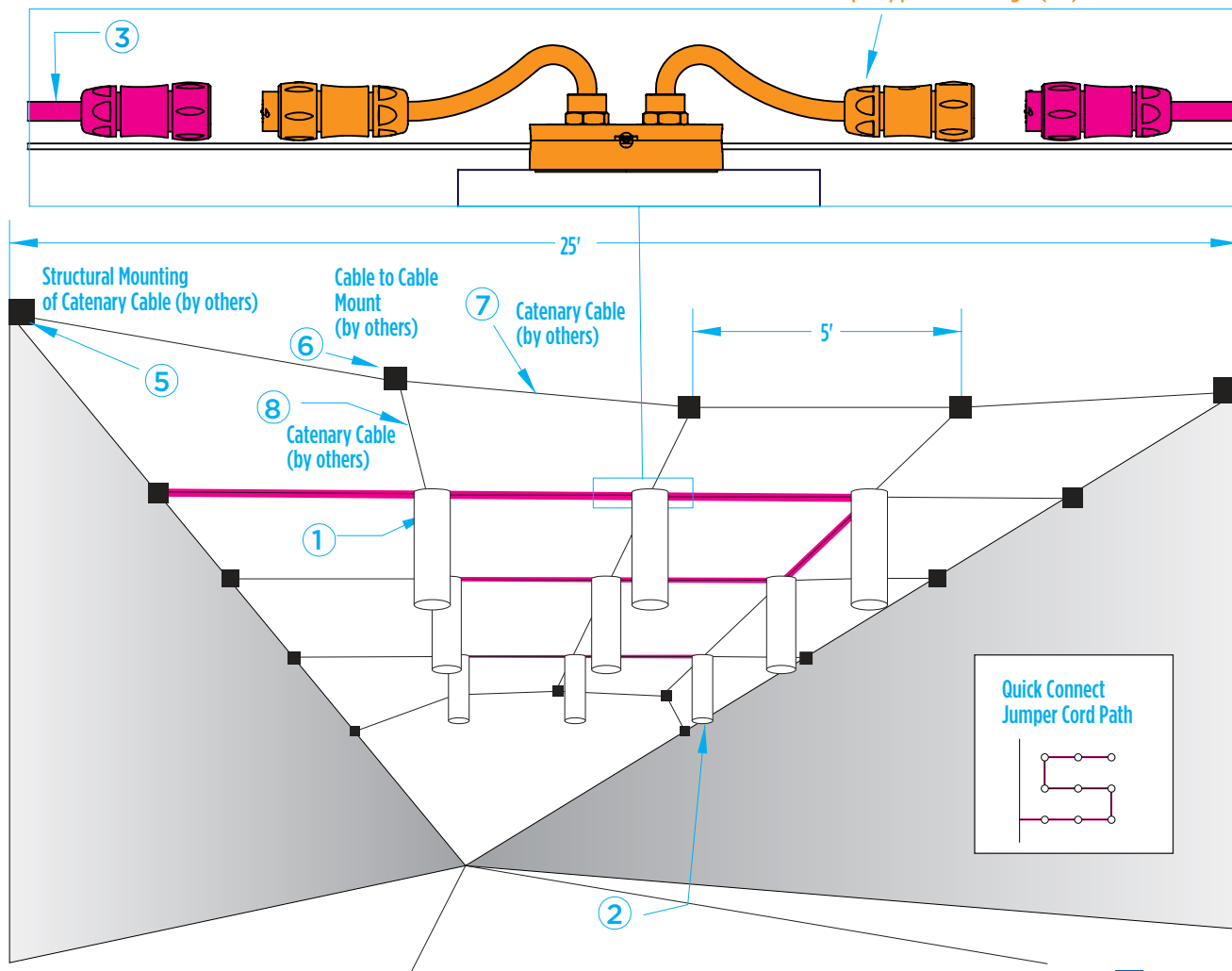
## Example 5

OP2262-L35K-L-MVOLT-TW9016-2QC-PCL (6) (QTY 8)

OP2262-L35K-L-MVOLT-TW9016-1QC-PCL (6) (QTY 1)

| Item #                 | Quantity | Part Number | Description  |
|------------------------|----------|-------------|--|
| <b>Fixture Option</b>  |          |             |  |
| 1                      | 8        | OP2262-2QC  | Sequence 8" x 2' with 2 Quick Connects             |
| 2                      | 1        | OP2262-1QC  | Sequence 8" x 2' with 1 Quick Connect              |
| <b>Accessories</b>     |          |             |  |
| 3                      | 10       | AY_QC7P6-5  | 5' Quick Connect Jumper Cord, see page 11          |
| 4                      | 1        | AY-WT-100   | Power Cord Ties (package of 100) (not illustrated) |
| <b>Parts by Others</b> |          |             |  |
| 5                      | 10       | By others   | Structural mounting                                |
| 6                      | 6        | By others   | Cable to cable mount                               |
| 7                      | 5        | By others   | 25' 1/4" diameter Catenary Cable                   |
| 8                      | 3        | By others   | 20' 1/8" diameter Catenary Cable                   |

Power Cord and Quick Connect included with fixture, specify power cord length (PCL)





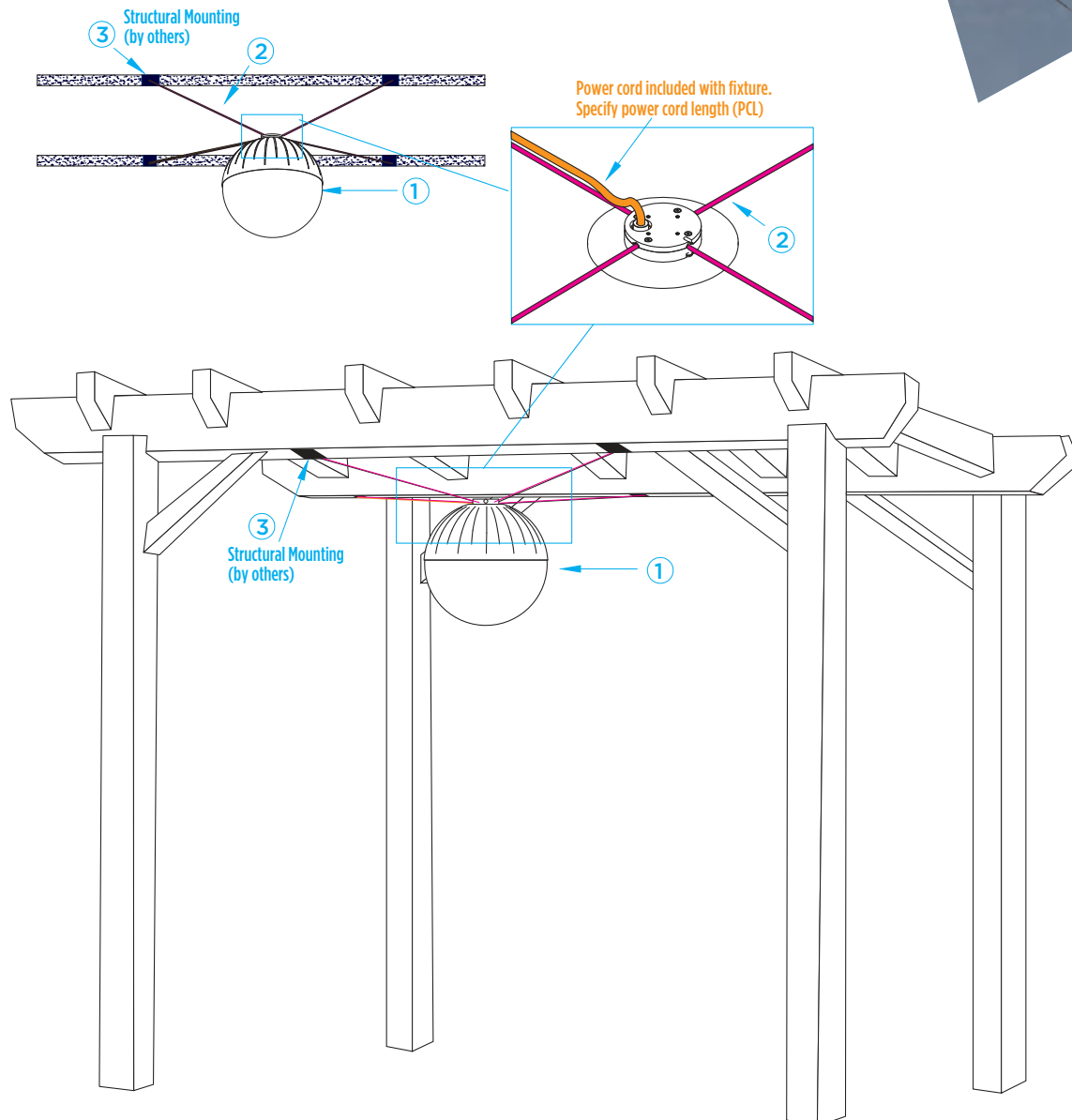
# 4-way Catenary Mount

## Zume with Single Power Cord & 4-Way Mount

### Example 6

OP2132-L35K-L-MVOLT-OBRZ-SPC-PCL (120) (QTY 1)

| Item #                 | Quantity | Part Number  | Description   |
|------------------------|----------|--------------|---|
| <b>Fixture Option</b>  |          |              |   |
| 1                      | 1        | OP2132-SPC   | Zume with Single Power Cord                             |
| <b>Accessories</b>     |          |              |   |
| 2                      | 1        | AY-CBL1/8-50 | 50' of 1/8" diameter Stainless Steel Cable, see page 15 |
| <b>Parts by Others</b> |          |              |   |
| 3                      | 4        | By others    | Structural mounting                                     |

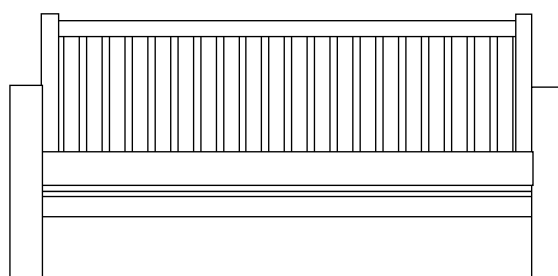
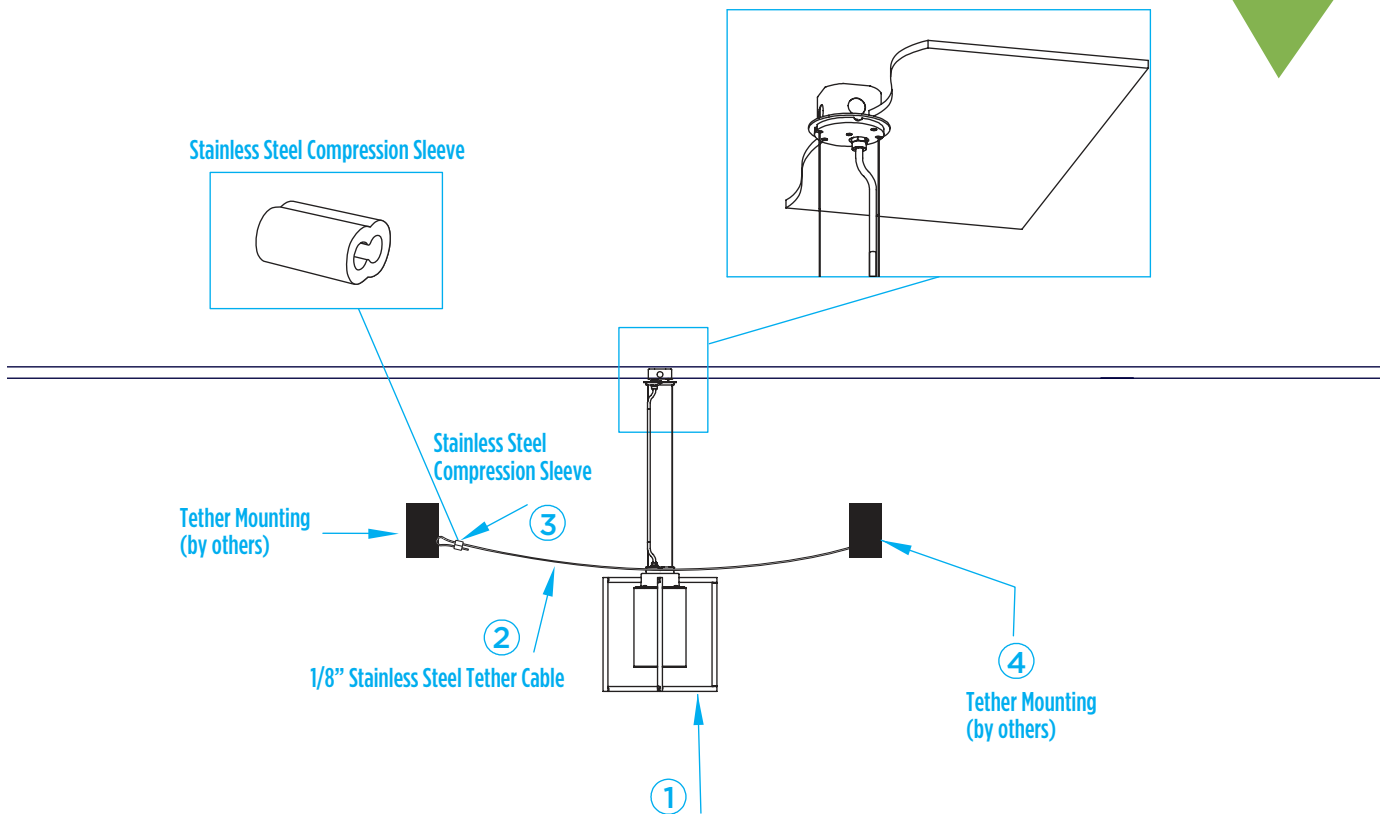


# Canopy Mount

## Laterna with Tether

### Example 7

| OP3630-L35K-L-MVOLT-GLIM-OAH (48) (QTY 3) |          |              |  |
|---|----------|--------------|--|
| Item #                                    | Quantity | Part Number  | Description  |
| <b>Fixture Option</b>                     |          |              |  |
| 1   | 3        | OP3630       | Laterna  |
| <b>Accessories</b>                        |          |              |  |
| 2   | 1        | AY-CBL1/8-50 | 50' of 1/8" diameter Stainless Steel Cable, see page 15          |
| 3   | 2        | AY-CS1/8     | 1/8" Stainless Steel Compression Sleeve (box of 10), see page 15 |
| <b>Parts by Others</b>                    |          |              |  |
| 4   | 2        | By others    | Structural mounting  |



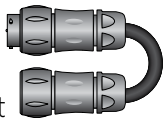
# Accessories

## Power Management

### Quick Connect Jumper Cord

#### AY-QC7P6-X

Four standard lengths available.  
Specify "X" as 1, 5, 10, or 25, lengths in feet  
(custom lengths available upon request)



#### Features

- IP68/69 rated
- 10 Amps
- UV resistant per ISO 4892
- 500V per UL1977 type 2

### Quick Connectors

#### AY-QC7SET

One plug and one socket included  
Small flat tip screwdriver is needed  
to fit the wires to the contacts



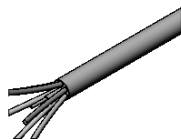
#### Features

- IP68/69 rated
- 10 Amps
- UV resistant per ISO4892
- 500V per UL1977 type 2

### Power Cord

#### AY-P6-50

50 feet of power cord, 0.42" diameter  
(custom lengths available upon request)



#### Features

- UL listed SJTOOW per UL standard 62 for flexible cords and cables
- UL approved for sunlight, oil, and water submersed applications
- Weight: 110lbs/mft

### Power Cord Ties

#### AY-WT-100

(Qty 100)



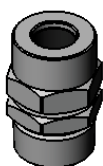
#### Features

- Black nylon
- UV resistant
- Stainless steel locking
- 7-5/16" long

### Liquid Tight Cord Grip

#### AY-CG

(Qty 1)



#### Features

- 1/2 NPT thread
- Heyco® M5014 cord grip
- UL listed, CSA certified
- IP67

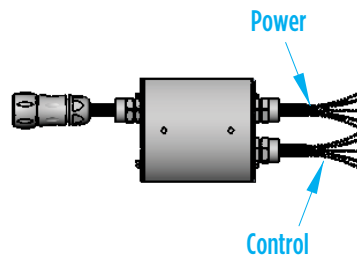
# Accessories

## Power Management (cont.)

### Quick Connect Voltage Separation Box

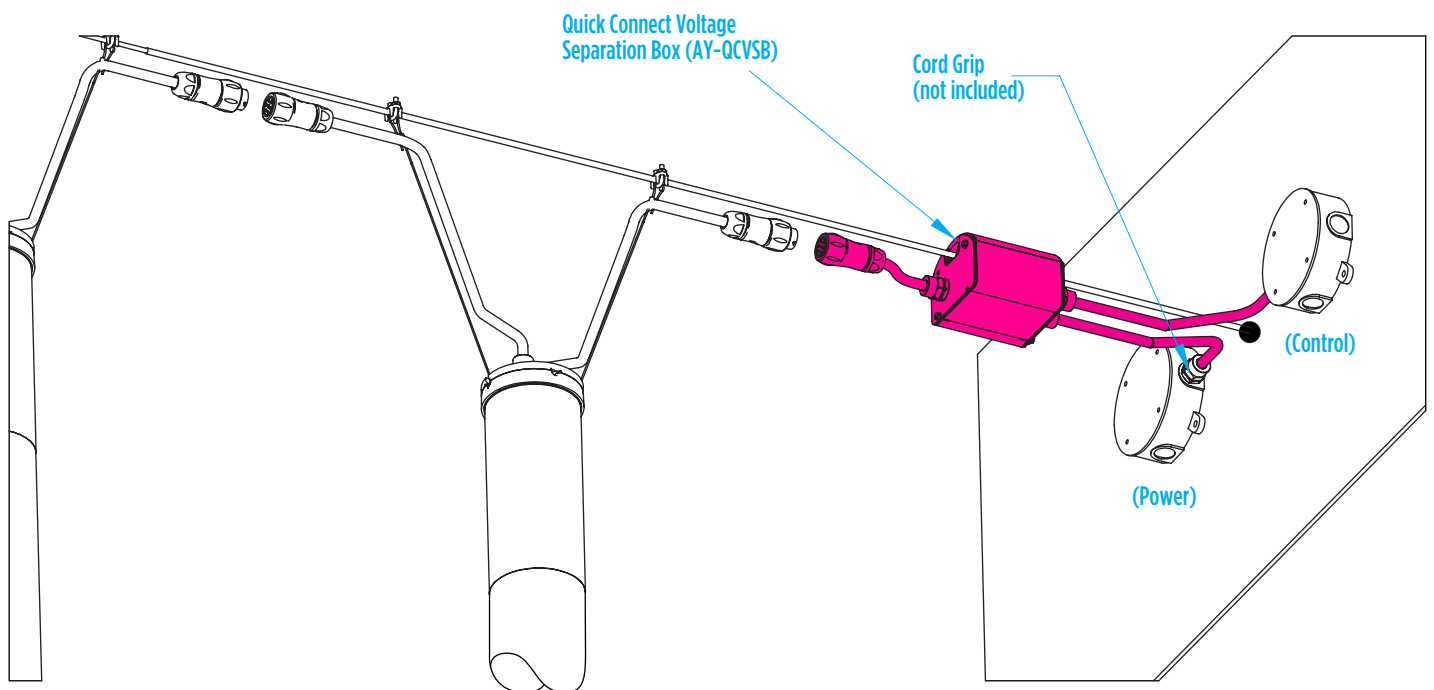
#### AY-QCVSB

- Only for RGB applications
- 15 feet of power cord pre-attached for the Power Input and the Control Input
- IP65 rated



#### NOTE:

The low voltage “Quick Connect Voltage Separation Box” accessory is designed for those installations where the DMX control signals are classified as Class 2 per NEC code. Proper installation of this accessory will assure separation by barrier means of Class 2 connections from branch power connections.



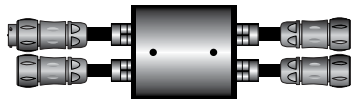
# Accessories

## Power Management (cont.)

### Quick Connect 3-way Splitter

#### AY-QC3S

- Supports 3 outlets for branching a single power cord in different directions and allows for easy maintenance without interrupting the rest of the run
- IP65 Rated
- Quick Connect fittings pre-installed
- Includes (1) removable socket plug

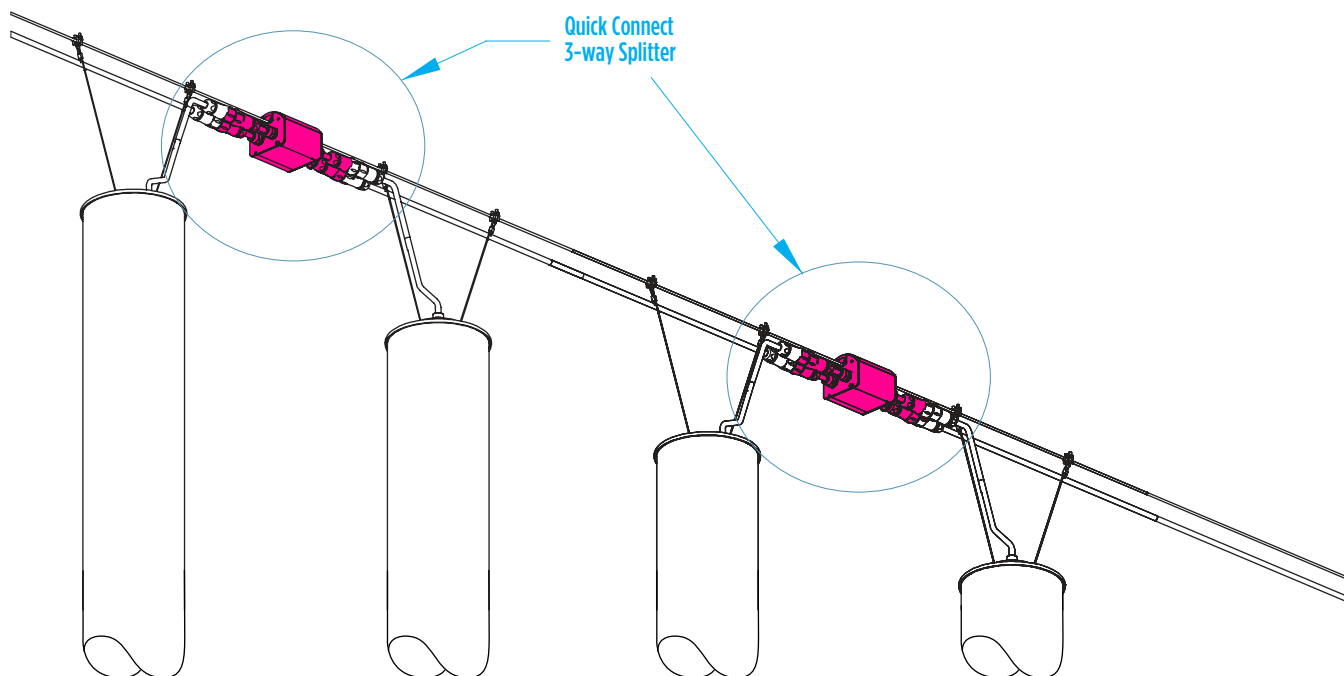


#### NOTE:

The “Quick Connect 3-way splitter” accessory is designed for those installations where one main cord is powering many fixtures or when the power is being split into different directions.

Not suitable for RGB applications due to signal reduction.

Custom variations of the box are available upon request, such as: 2-way splitter, different quick connect configurations, longer power cord, or removing the quick connect fittings.



# Accessories

## Suspension

### Mounting Bracket

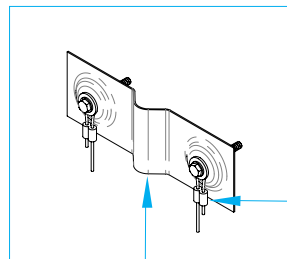
#### AY-BRKT

(Qty 1)



#### Features

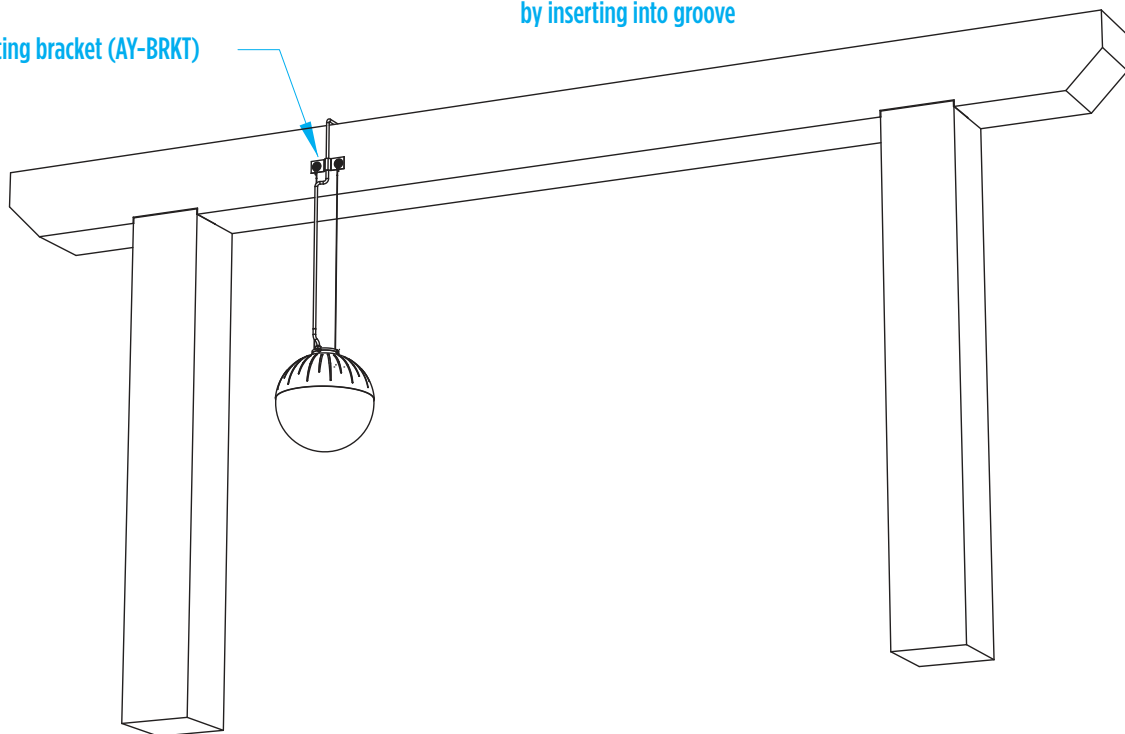
- Stainless Steel (SS) bracket
- Sand blasted finish
- Manage power cord by inserting into groove
- (2) #10, 1.5" screws included



Compression sleeve (AY-CS1/8)

Manage power cord  
by inserting into groove

Mounting bracket (AY-BRKT)



# Accessories

## Suspension (cont.)

### Stainless Steel Cable(s)

316 Stainless Steel Wire Cable (50 feet)  
Not for Lifting

#### AY-CBL1/8-50

This 1/8" cable may be used to support a single fixture. Its use for connecting multiple fixtures together for your installation should be evaluated by a structural engineer.

#### AY-CBL3/32-50

This 3/32" cable may be used to support a single 4" diameter canopy model fixture. Its use for connecting multiple fixtures together for your installation should be evaluated by a structural engineer.



#### Features

- Flexible
- 1/8" Diameter
- Capacity 100 lbs

#### Features

- Flexible
- 3/32" Diameter
- Capacity 100 lbs

### Stainless Steel Compression Sleeve(s)

Stainless steel compression sleeve for lifting. For stainless steel and steel cable

#### AY-CS1/8

1/8" Stainless steel compression sleeve (Qty 10)

#### AY-CS3/32

3/32" Stainless steel compression sleeve (Qty 10)



#### Features

- 18-8 Stainless Steel
- Use with 1/8" rope diameter

#### Features

- 18-8 Stainless Steel
- Use with 3/32" rope diameter

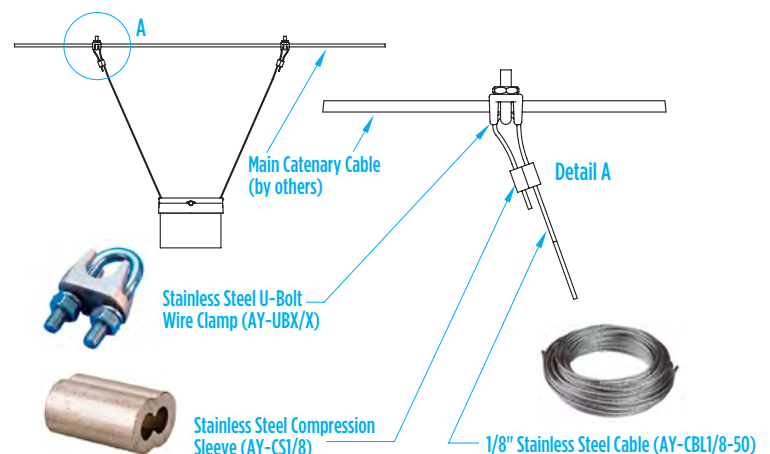
### Stainless Steel U-Bolt Wire Clamp

#### AY-UBX/X

Not for lifting  
Five standard sizes available  
Specify "X" per cable diameter in inches:  
"X/X" to be 3/16", 1/4", 3/8", 1/2", or 5/8"

#### Features

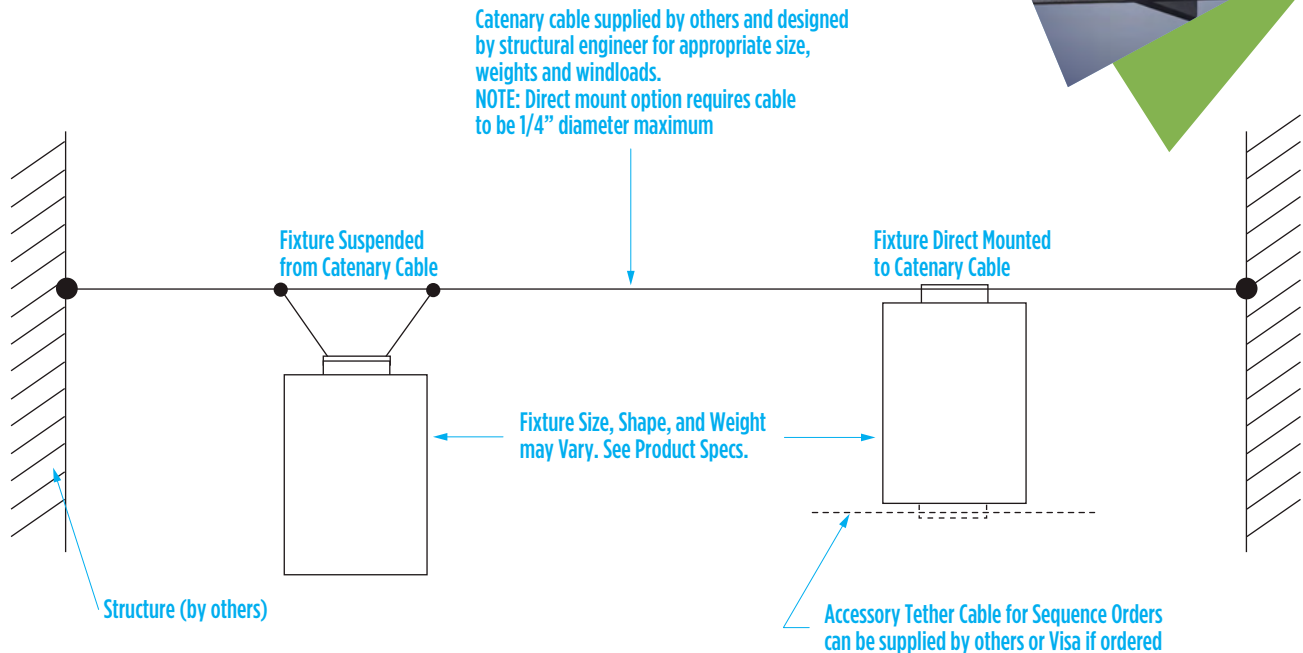
- 18-8 Stainless steel cast cable clamp



# Catenary

## Submittal

Job Name: \_\_\_\_\_



## Please Read the Following

A structural engineer is responsible for designing the catenary support system and for verifying structure is suitable for supporting the catenary system including the Visa catenary product. (Catenary support system consists of main catenary cable and mounting hardware at structure). The structural engineer has read and understands the catenary design guideline supplied by Visa Lighting (see web address below).

Structural Engineer/ProjectManager: (Printed) \_\_\_\_\_

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

[https://visalighting.com/sites/default/files/u84/Catenary%20Design%20Guide\\_10\\_06.pdf](https://visalighting.com/sites/default/files/u84/Catenary%20Design%20Guide_10_06.pdf)

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