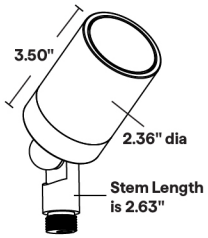
VOYA END MOUNT 2.5" COB STATIC WHITE

12VAC COB Flood/Accent LED





- Specification-grade, flood/accent lighting with best-in-class lumen output, color quality, dimming performance, and optical control
- Available in ultra-durable powder-coated 6061 aluminum, polished brass, or polished 316L stainless steel
- Flexible tree, surface, wall and ground mounting options support diverse installations
- High lumen output with peak color performance including CRI > 95 and R9 > 90.
- Field-adjustable output set on site via DIP switch
- Wet listed for exterior applications

1 PRODUCT	2 KNUCKLE	3 CRI	4 CCT	5 SNOOT	6 COB	7 BEAM ANGLE	8 MATERIAL	9 FINISH	10 WATTAGE	11 OUTPUT SETTING	12 WEEP HOLE	13 ACCESSORY 1	14 ACCESSORY 2	15 ACCESSORY 3
VOYA-EM-2.5-COB-12VAC-SW	ST													

Sample Part Number: **VOYA-EM-2.5-COB-12VAC-SW-ST-95-40-HR-COBSP-12-SS-P-09-N/A-N/A-LV-WW-N/A**

1 PRODUCT

VOYA-EM-2.5-COB-12VAC-SW	

2 KNUCKLE

ST	Standard

3 CRI

95	
90	

4 CCT

22	2200K
24	2400K
27	2700K
30	3000K
35	3500K
40	4000K

5 SNOOT

FL	Flush
HR	0.5" Regress
1R	1" Regress
30D	30 Degree
45D	45 Degree
60D	60 Degree
GZR	Grazer

6 COB

COBSP	Spot
COB	All Other
COB	All Other

7 BEAM ANGLE

12	12 Degree
16	16 Degree
23	23 Degree
37	37 Degree
51	51 Degree
GZR	Grazer

8 MATERIAL

A	6061 Aluminum Anodized and Powder Coated
B	Brass H59
SS	Stainless Steel 316L

9 FINISH

BG	Beige
BB	Black Bronze
BK	Black
BKT	Black Texture
BZ	Bronze
BZT	Bronze Texture
SL	Silver
WH	White
CU	Custom
P	Polished

Lead times differ. BZT parts are readily available. All other standard finishes are painted upon order. Custom finishes: consult factory

Brass and Stainless Steel have longer lead times: consult factory

10 WATTAGE

12	12.5 Watts
09	9.5 Watts
05	4.9 Watts

Refer to delivered lumen output on following pages

12W option includes on board dip switch for field adjustable output with 8 settings

Refer to delivered lumen output on following pages

11 OUTPUT SETTING

500MA	100% Output
375MA	75% Output
300MA	60% Output
250MA	50% Output
220MA	44% Output
190MA	38% Output
170MA	34% Output
150MA	30% Output
N/A	Not available for these wattages

Selection above is factory set. Current settings follow logarithmic reduction in output for linear perception, can be adjusted in the field

12 WEEP HOLE

WPH	Weep Hole
N/A	No Weep Hole

Not using a weep hole while aiming up will void warranty. FL and GZR snoots do not have weep holes. If FL or GZR is chosen, select N/A

13 ACCESSORY 1

SP	Spread Lens
LS	Linear Spread Lens
WW	Wall Wash Lens
LV	Honeycomb Louver
N/A	No Accessory

Retaining Ring included with each accessory. Accessories not compatible with GZR options.

14 ACCESSORY 2

SP	Spread Lens
LS	Linear Spread Lens
WW	Wall Wash Lens
LV	Honeycomb Louver
N/A	No Accessory

Retaining Ring included with each accessory. Accessories not compatible with GZR options.

15 ACCESSORY 3

SP	Spread Lens
LS	Linear Spread Lens
WW	Wall Wash Lens
LV	Honeycomb Louver
N/A	No Accessory

Retaining Ring included with each accessory. Accessories not compatible with GZR options.

5 year warranty | Warranty only valid with QTL power supplies | Field modifications void warranty | Data subject to change, all data has +/- 5% tolerance

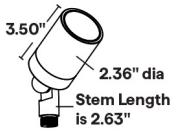
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Specification subject to change. Rev-11-02-26

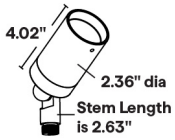
VOYA END MOUNT 2.5" COB STATIC WHITE

12VAC COB Flood/Accent LED

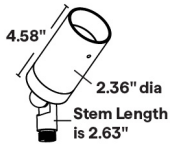
1 PRODUCT - DIMENSIONS



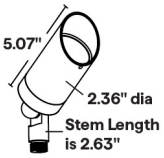
Flush Snoot (FL)



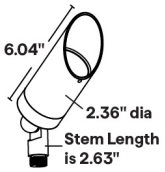
0.5" Regress Snoot (HR)



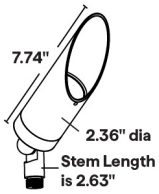
1" Regress Snoot (1R)



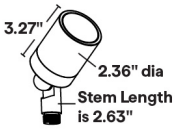
30 Degree Snoot (30D)



45 Degree Snoot (45D)



60 Degree Snoot (60D)



Grazer Snoot (GZR)
*Only to be used with GZR optics

6 DELIVERED LUMENS

Tested with VOYA-2.5-COB-12VAC-SW-ST-95-30-FL at 12W
Grazer COB and Beam Angle are tested with Grazer Snoot

COB - BEAM ANGLE	CCT	LUMENS	LM/W	PEAK INTENSITY (CD)	CRI Ra	CRI R9	TM30 Rf	TM30 Rg
COB - 16°	2997	795	64	6759	98	93	97	99
COB - 23°	3004	860	69	4655	98	93	97	99
COB - 37°	3011	845	68	2082	98	93	97	99
COB - 51°	3011	780	63	1070	98	93	97	99
COB - Grazer	3036	770	61	2804	98	93	97	99

CCT MULTIPLIERS	
2200K	0.81
2400K	0.88
2700K	0.92
3000K	1.00
3500K	1.04
4000K	1.08

WATTAGE MULTIPLIERS	
12W	1.00
9W	0.80
5W	0.38

Tested with VOYA-2.5-COB-12VAC-SW-ST-90-30-FL at 12W
Grazer COB and Beam Angle are tested with Grazer Snoot

COB - BEAM ANGLE	CCT	LUMENS	LM/W	PEAK INTENSITY (CD)	CRI Ra	CRI R9	TM30 Rf	TM30 Rg
COB - 16°	2980	874	69	7285	93	58	91	97
COB - 23°	2984	946	75	4972	93	58	91	97
COB - 37°	2995	937	74	2266	93	58	91	97
COB - 51°	2995	860	68	1162	93	58	91	97
COB - Grazer	3022	878	71	3107	93	58	91	97

CCT MULTIPLIERS	
2200K	0.80
2400K	0.90
2700K	0.95
3000K	1.00
3500K	1.05
4000K	1.04

WATTAGE MULTIPLIERS	
12W	1.00
9W	0.80
5W	0.40

Tested with VOYA-2.5-COBSP-12VAC-SW-ST-95-30-FL at 12W

COBSP - BEAM ANGLE	CCT	LUMENS	LM/W	PEAK INTENSITY (CD)	CRI Ra	CRI R9	TM30 Rf	TM30 Rg
COBSP - 12°	2988	733	62	10502	99	88	98	99

CCT MULTIPLIERS	
2200K	0.84
2400K	0.89
2700K	0.93
3000K	1.00
3500K	1.06
4000K	1.10

WATTAGE MULTIPLIERS	
12W	1.00
9W	0.81
5W	0.39

Tested with VOYA-2.5-COBSP-12VAC-SW-ST-90-30-FL at 12W

COBSP - BEAM ANGLE	CCT	LUMENS	LM/W	PEAK INTENSITY (CD)	CRI Ra	CRI R9	TM30 Rf	TM30 Rg
COBSP - 12°	2996	849	68	11413	93	57	91	97

CCT MULTIPLIERS	
2200K	0.77
2400K	0.88
2700K	0.95
3000K	1.00
3500K	1.02
4000K	1.06

WATTAGE MULTIPLIERS	
12W	1.00
9W	0.80
5W	0.40

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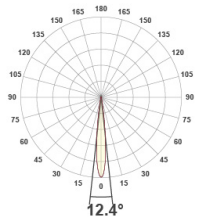
VOYA END MOUNT 2.5" COB STATIC WHITE

12VAC COB Flood/Accent LED

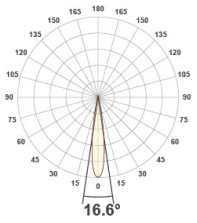
PHOTOMETRIC PERFORMANCE

Nominal beam spread shown, beam spread varies based on light engine. For more detailed information, see photometric data.

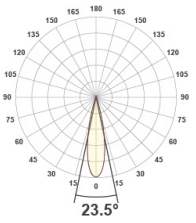
12°



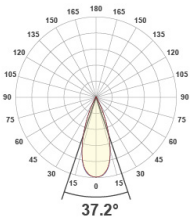
16°



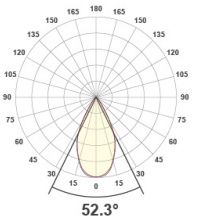
23°



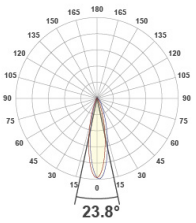
37°



51°



GZR



9 FINISH

ALUMINUM POWDER COAT FINISHES

Lead times differ. BZT parts are readily available. All other standard finishes are painted upon order.
Custom finishes: consult factory



Beige

Black

Black Texture

Bronze



Bronze Texture

Black Bronze

Silver

White

BRASS AND STAINLESS STEEL POLISHED FINISHES

Brass and Stainless Steel have longer lead times: consult factory



Polished Brass

Polished Stainless Steel

11 DIP SWITCH SETTINGS

VOYA-2.5-12VAC-COB-SW

Output								
Rated Current(A)	150	170	190	220	250	300	375	500
DIP Code	TTT	TT⊥	T⊥T	T⊥⊥	⊥TT	⊥T⊥	⊥⊥T	⊥⊥⊥
Rated Power(W)	4.6	4.9	5.3	5.9	6.6	7.9	9.5	12.5

T On ⊥ Off.

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VOYA END MOUNT 2.5" COB STATIC WHITE

12VAC COB Flood/Accent LED

13/14/15 ACCESSORIES

Holds up to three accessories. Retaining Ring included with each accessory. Accessories not compatible GZR option.

SP



Spread Lens

To order separately use ACC-2.5-SP

LS



Linear Spread Lens

To order separately use ACC-2.5-LS

WW



Wall Wash Lens

To order separately use ACC-2.5-WW

LV



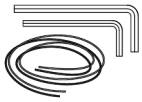
Honeycomb Louver

To order separately use ACC-2.5-LV



Retaining Ring

To order separately use ACC-2.5-RR



SNOOT INSTALL KIT

To order separately use VOYA-SNOOT-INSTALL-KIT

COMPATIBLE GLARE CONTROL ACCESSORIES

VOYA-2.5-45D-GLARE-SHIELD-YY-XX



Adjustable 45° Glare Shield. See Spec Sheet for material (YY) and finish (XX) options

COMPATIBLE POWER SUPPLIES

See power supplies cut sheets for more information. Data subject to change, all data has +/- 5% tolerance.

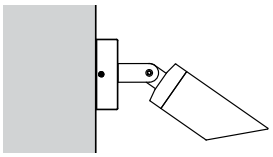
DIMMING PROTOCOL	OUTDOOR
	LANDSCAPE LIGHTING
Phase	Q-HEX Q-SET-1 Q-SET-2 Q-SET-3 QOMD QOMS

VOYA EM/SM 2.5" MOUNT COMPATIBILITY

Landscape Lighting

SURFACE/WALL

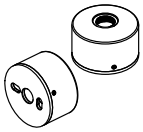
See Surface/Wall installation for dimensions and included hardware. Refer to the mount cut sheets for complete order codes regarding mount's options.





Q-WB

Wood Beam Mount



Q-MT-11*

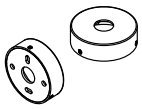
With Water Protection



Q-MT-17*



Q-MT-18

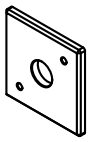


Q-MT-19

With Water Protection



Q-MT-21



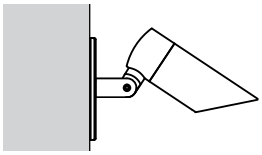
Q-MT-22

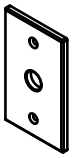


Q-MT-37*

SURFACE/WALL J-BOX PLATES

See Surface/Wall J-Box Plate installation for dimensions and included hardware. Refer to the mount cut sheets for complete order codes regarding mount's options.



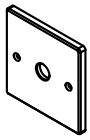


Q-MT-24

Compatible with 1 GANG RECTANGLE WEATHER PROOF J-BOX or 4/0 WEATHER PROOF J-BOX by others



Q-MT-25



Q-MT-26

Compatible with 1 GANG RECESS J-BOX or 4/0 RECESSED J-BOX by others



Q-MT-27

Compatible with 3/0 RECESSED J-BOX by others

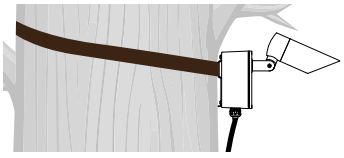


Q-MT-42*

Compatible with 1 GANG RECTANGLE WEATHER PROOF J-BOX or 4/0 WEATHER PROOF J-BOX by others

TREE MOUNT

See Tree Mount installation for dimensions and included hardware. Refer to the mount cut sheets for complete order codes regarding mount's options.





Q-MT-10



Q-MT-12*

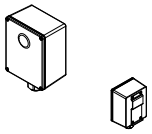


Q-MT-14*

With Tree Strap

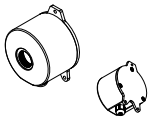


Q-MT-39*



Q-MT-50 (No Driver)

With Water Protection and Tree Strap

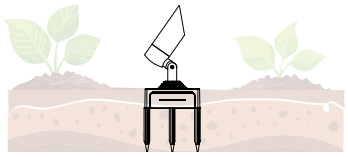


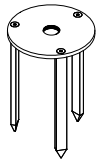
Q-MT-51*

With Water Protection

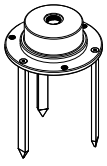
DIRECT BURIAL

See Direct Burial installation for dimensions and included hardware. Refer to the mount cut sheets for complete order codes regarding mount's options.





Q-MT-6*

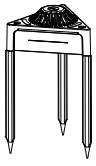


Q-MT-7*

With Water Protection

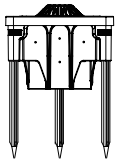


Q-MT-45*



Q-TRIX-R20* (No Driver)

With Water Protection

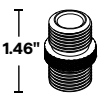


Q-TRIX-R50* (With Driver)

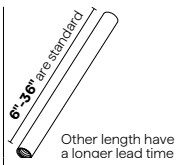
With Water Protection

MOUNT ACCESSORIES

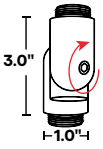
See Accessories installation for dimensions and included hardware.



NPS ADAPTER

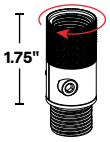


AY-3 Riser Pole



AY-7

No Water Protection



(RA) ROTATIONAL ADAPTER

With Water Protection

***Compatible with AY-3 Riser Pole**

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Specification subject to change. Rev-11-02-26

VOYA EM/SM 2.5" 12VAC COB STATIC WHITE

Power Supply Sizing & Wiring

SIZING RULES

Every VOYA Circuit should be sized to two limitations:
Power Supply - total connected VOYA load must not exceed 70% of supply's rated wattage
Output Breaker - connected load on each breaker must not exceed 70% of the that breaker's rated capacity (breaker amps x 12V)

The supply's 70% limit caps the total load on the transformer; each breaker's 70% limit caps the load on its own circuit. The lower of the two, controls the number of fixtures

- The 70% factor reflects the VOYA 2.5 integrated driver's power factor (~0.7) at 12VAC input. Higher secondary taps (13V / 14V / 15V) are provided to recover voltage drop on longer runs - they do not increase the load a power supply or breaker can carry, so size all capacity at the 12V tap.
- This VOYA specific 70% guideline supersedes the generic "50% derating for LED retrofit loads" note shown on the QTL's power-supply cut sheets. VOYA 2.5 COB fixtures include an integrated driver (hence not a retrofit LED fixture).

POWER SUPPLIES LOADING EXAMPLE

Max VOYA fixtures per sample power supply ratings (70% rated wattage)

Power Supply Rating	Useable Load (70%)	12.5W	9.5W	4.9W
60W	42W	3	4	8
100W	70W	5	7	14
150W	105W	8	11	21
300W	210W	16	22	42

OUTPUT BREAKER LOADING EXAMPLE

Max VOYA fixtures per sample breaker ratings (70% breaker capacity)

Breaker	Rated @ 12V	Useable Load (70%)	12.5 W	9.5 W	4.9 W
5 A	60W	42W	3	4	8
10 A	120W	70W	6	8	17
12.5 A	150W	105W	8	11	21
25 A	300W	210W	16	22	42

DISTRUBUTED & BRANCH CIRCUITS

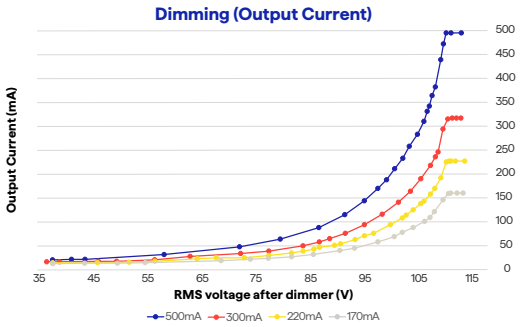
VOYA 2.5 COB can be wired as either a distributed load - multiple fixtures tapped along a run, in branches, or in loop/ring circuits - or as a single load at the end of a run. When wiring as a distributed load, refer to the VOYA 2.5 12VAC wiring guide to size wires within recommended voltage-drop limits. When wiring as a single load at the end of a run, refer to the QTL voltage drop calculator.

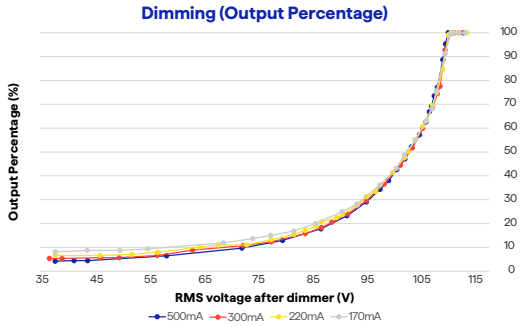
Input voltage at the fixture should be 11.4V–15V AC without dimming. The voltage at the fixture should be 12V–15V AC with dimming. Therefore, taps higher than 12V are recommended when dimming is used.

- Keep every branch and run within both 70% limits and the 12–15V AC fixture voltage window.
- Use the multi-tap secondary (12V / 13V / 14V / 15V) to recover voltage drop on longer runs - tap up to compensate.

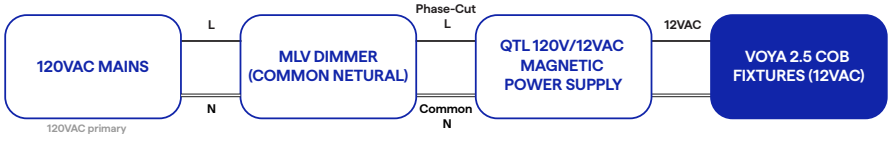
DIMMING

VOYA 2.5 COB Static White dims by phase control on the 120VAC primary of the magnetic power supply. The curves below show measured output as a common-neutral MLV dimmer reduces the RMS voltage to the supply, at four factory drive-current settings. VOYA 2.5 12VAC COB dims as low as 4% of full output.





Recommended dimmer: Use a magnetic low-voltage (MLV) dimmer with a common (shared) neutral, installed on the line side - upstream of the magnetic power supply. The dimmer phase-cuts the 120VAC primary; the 12VAC secondary is never dimmed directly



MLV Dimmer on the line side - upstream of power supply. 12VAC secondary is never dimmed

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Specification subject to change. Rev-08-18-26

VOYA EM/SM 2.5" 12VAC COB

Low Voltage Wiring Guide

Applies to all VOYA EM/SM 2.5" 12VAC COB fixtures. This guide is a companion to the VOYA 2.5" datasheets which cover supply and breaker capacity. This document covers the wiring between the low voltage 12VAC power supply and the fixtures: selecting wire gauge and secondary tap so every fixture receives the correct voltage.

1. DESIGN RULES

- **Fixture voltage window:** Every non-dimmed fixture must receive 11.4–15.0 VAC. With dimming, every fixture must receive 12.0–15.0 VAC.
- **Wire sizing rule:** Size wire so the calculated voltage drop at the farthest fixture does not exceed 0.6 V (5% of 12 V). when using 12V output taps. If not, use higher voltage taps. Tables 1 and 2 are built on this rule.
- **Capacity rule:** Connected VOYA load must not exceed 70% of the power supply rating and 70% of each output breaker rating, always counted at the 12V tap (per the VOYA 2.5" 12VAC datasheets). Capacity limits and voltage drop limits are independent checks. A circuit must pass both.
- **Tap rule:** The 13 V / 14 V / 15 V taps recover voltage drop on long runs; they do not add capacity. Dimmed circuits must start at the 13 V tap, because the 12 V tap leaves no margin above the 12.0 V dimming floor.

VOYA 2.5" fixtures contain an integrated driver with a power factor of about 0.7 at 12 VAC. Line current is therefore watts ÷ (12 × 0.7) = watts ÷ 8.4, about 43% more current per watt than an incandescent or unity power factor load. Generic landscape tables computed at watts ÷ 12 overstate allowable VOYA run lengths by roughly 30%. The tables in this guide already include the power factor. Never apply a generic 12 V wire table to VOYA circuits.

2. SIZING PROCEDURE

Work through these six steps for each secondary circuit (each breaker output).

1. Plot the fixtures on the plan and mark each fixture wattage. Total the watts on the circuit and confirm both 70% capacity limits.
2. Identify the circuit layout: straight run, hub (home run), loop, or hub with branches. Locate the power supply to keep wire distances short.
3. Measure wire path distances on the plan (actual routed feet, not straight line distance). For each fixture, multiply watts × distance (watt-feet) and compute the center of load per Section 5.
4. In Table 1, find the load column equal to or greater than the circuit watts. Read down to the first gauge whose listed distance is equal to or greater than your center of load distance. That is the minimum wire gauge at the 12 V tap.
5. Select the tap from Table 2. For runs inside the Table 1 distances, use the 12 V tap (no dimming) or 13 V tap (dimming). For longer runs or smaller gauge wire, a higher tap extends the allowable distance by the Table 2 multiplier.
6. Commissioning and Verification: Energize the full circuit and measure voltage at the nearest and farthest fixtures. Confirm the fixture input lead wires get 11.4–15.0 V in non-dimmed applications, and 12.0–15.0 V in applications with dimming. Move the tap up or down as needed.

3. WIRE SELECTION TABLES

Distances below are the maximum center of load distance in feet (one way, along the wire path) for a 0.6 V drop, computed at VOYA current (watts ÷ 8.4). For loads between columns, use the next higher column. A dash means the load exceeds the ampacity of that gauge or the distance is impractical; use a larger conductor or a higher tap.

TABLE 1. COPPER WIRE (STRANDED), MAXIMUM COL DISTANCE IN FEET AT THE 12V TAP

	AWG	10W	20W	30W	40W	50W	60W	70W	85W	105W	140W	210W
	VOYA AMPS	1.2	2.4	3.6	4.8	6.0	7.1	8.3	10.1	12.5	16.7	25.0
12V	16	58	29	19	14	11	9	8	-	-	-	-
	14	93	46	31	23	18	15	13	10	8	-	-
	12	147	73	49	36	29	24	21	17	14	10	-
	10	235	117	78	58	47	39	33	27	22	16	11
	8	376	188	125	94	75	62	53	44	35	26	17
	6	595	297	198	148	119	99	85	70	56	42	28

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4. TAP SELECTION

After sizing wire, choose the secondary tap so the farthest fixture lands inside the voltage window. If the circuit fits the Table 1 distance, the 12 V tap works without dimming. Higher taps recover larger calculated drops or extend distances.

TABLE 2. TAP VERSUS CALCULATED VOLTAGE DROP AT THE FARTHEST FIXTURE

TAP	MAX DROP, NO DIMMING (FLOOR 11.4V)	MAX DROP, DIMMING (FLOOR 12.0V)	DISTANCE MULTIPLIERS VS TABLES 1-2, NO DIMMING	MULTIPLIER DIMMING
12V	0.6V	DO NOT USE	1×	-
13V	1.6V	1.0V	2.5×	1.5×
14V	2.6V	2.0V	4×	3×
15V	3.6V	3.0V	5.5×	4.5×

- Never exceed 15.0 V at the nearest fixture. On lightly loaded circuits a magnetic supply can run above nominal tap voltage, and high utility line voltage raises the secondary proportionally. When using the 14 V or 15 V tap, measure at the nearest fixture at commissioning.
- Taps compensate voltage drop only. Capacity is always counted at the 12 V tap, and the ampacity dashes in Tables 1 still apply.

5. CIRCUIT LAYOUTS AND CENTER OF LOAD

All layouts use the same wire tables. What changes is the distance to look up - the center of load (COL), calculated based on different wiring configurations.

Center of Load (COL), general rule: For each fixture on the run, multiply its watts by its wire distance from the supply. Add these watt-feet, then divide by the total watts:

$$COL = \frac{\Sigma\ (\text{Power of Fixtures (Watts)} \times \text{distance (feet)})}{\text{Total power of fixtures in the circuit (Watts)}}$$

Shortcut: Only when fixtures are equal wattage and evenly spaced:
COL = distance to the first fixture + half of the distance from first to last fixture

5.1 STRAIGHT RUN (DAISY CHAIN)

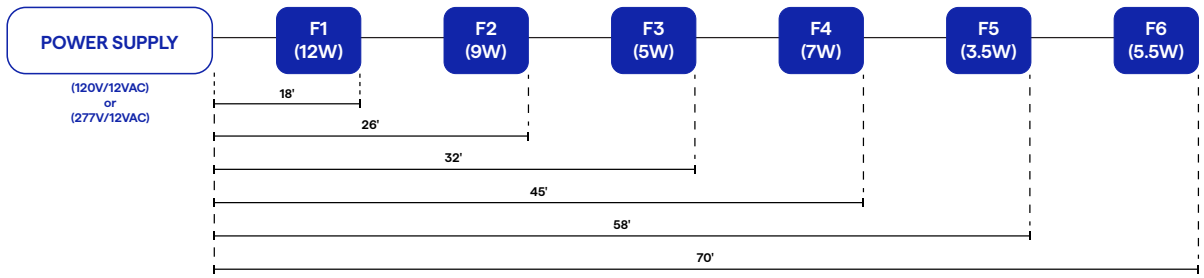
List each fixture with its watts and distance, total the watt-feet column, divide by total watts. Look up the total watts of the run at the COL distance.

SIX FIXTURES OF MIXED WATTAGES WORKSHEET:

FIXTURE	WATTS	DISTANCE FROM POWER SUPPLY (FT)	WATT-FEET
F1	12	18	216
F2	9	26	234
F3	5	32	160
F4	7	45	315
F5	3.5	58	203
F6	5.5	70	385
Total	42		1513
		COL = 1513/42 = 36ft	

Without dimming: in Table 1, 50 W column: 12 AWG allows 29 ft (fail since < 36ft); 10 AWG allows 47 ft (pass since > 36ft). Use 10 AWG copper, 12 V tap or a higher tap.

With dimming: 12V tap is not recommended. Table 1, 50 W column, and Table 3, select 13V multiplier for dimming (1.5). 12 AWG allows 29 ft x 1.5 multiplier = 43.5 ft (pass); Use 12 AWG copper, 13 V tap or a higher tap.



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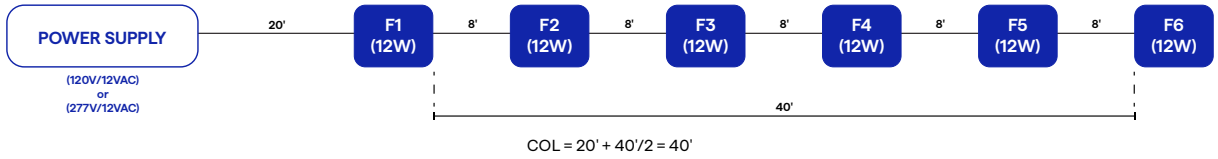
SIX 12W FIXTURES, EVENLY SPACED 8' APART, WITH THE FIRST FIXTURE 20' FROM THE SUPPLY WORKSHEET:

FIXTURE	WATTS	DISTANCE FROM POWER SUPPLY (FT)	WATT-FEET
F1	12	20	240
F2	12	28	336
F3	12	36	432
F4	12	44	528
F5	12	52	624
F6	12	60	720
Total	72		2880
		COL = 2880/72 = 40ft	

Shortcut check: because the fixtures are equal wattage and evenly spaced, the shortcut from Section 5 applies: COL = distance to the first fixture + half of the distance from first to last fixture = 20 + (60 – 20) ÷ 2 = 20 + 20 = 40 ft. Identical to the watt-feet result, as expected. The shortcut may be used only in this equal-and-evenly-spaced case; for mixed wattages or irregular spacing (Example 1), use the watt-feet worksheet.

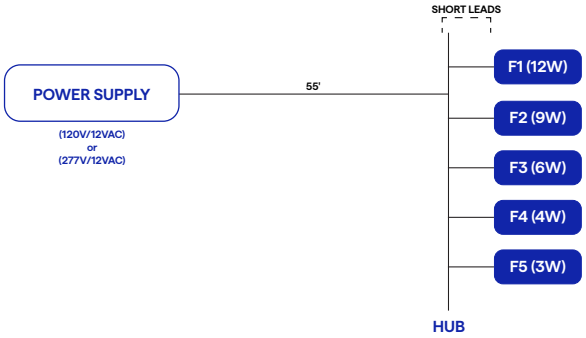
Without dimming: Table 1, 85 W column: 10 AWG allows 27 ft (fail since < 40 ft); 8 AWG allows 44 ft (pass since > 40 ft). Use 8 AWG copper, 12 V tap or a higher tap.

With dimming: 12 V tap is not recommended. Table 1, 85 W column, and Table 3, select 13 V multiplier for dimming (1.5). 8 AWG allows 44 ft × 1.5 multiplier = 66 ft (pass). Use 8 AWG copper, 13 V tap or a higher tap.



5.2 HUB (STAR) HOME RUNS

Every fixture sits at the same distance, so the watt-feet rule collapses to COL = D, the wire distance to the hub, for any wattage mix.



Five fixtures (12 + 9 + 6 + 4 + 3 = 34 W) on short leads at a hub 55 ft from the supply. Every fixture is at 55 ft, so COL = 55 ft regardless of the mix.

Without dimming: Table 1, 40 W column: 10 AWG allows 58ft. Use 10 AWG copper, 12 V tap or higher.

With dimming: 12V tap is not recommended. Table 1, 40 W column, and Table 3, select 13V multiplier for dimming (1.5). 12 AWG allows 36 ft x 1.5 multiplier = 54ft (fail). 10 AWG allows 58 ft x 1.5 multiplier = 87ft (pass). Use 10 AWG copper, 13 V tap or a higher tap.

Note: If there are other home runs from the same supply, they are checked separately. Look up the total watts at the hub. Where several home runs leave the same supply, check each one separately using only its own load. The 70% breaker limit applies to the sum of all runs on that breaker.

5.3 LOOP (RING) CIRCUITS

Both ends of the cable return to the same secondary tap, so current reaches every fixture from two directions. The lowest voltage occurs at the split point, the fixture where the two feeds meet.

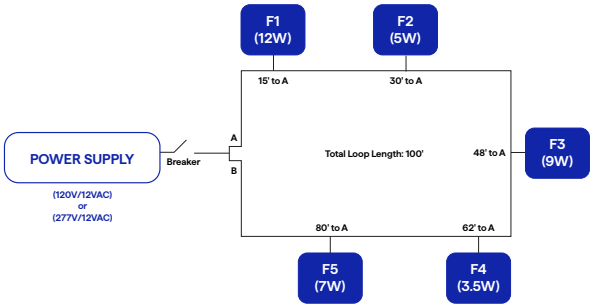
Balanced loop: (roughly even loads and spacing): cut the loop at the fixture farthest along the cable and check each half as a straight run (Section 5.1) carrying its own fixtures; a fixture at the cut counts half in each half.

Any loop, general method: pick one terminal as A and measure each fixture distance d along the cable from A (loop cable length L).

1. watts arriving from the far terminal $W_B = \Sigma (\text{watts} \times d) \div L$, and $W_A = \text{total} - W_B$.
2. walk from A subtracting each fixture wattage from W_A; the fixture where the running value crosses zero is the split fixture.
3. treat the A side as a straight run ending at the split fixture, carrying the fixtures before it plus the leftover watts at the split; compute its watt-feet COL and check it with the tables. Both sides give the same drop at the split, so checking one side is enough.

A balanced loop allows roughly 4 times the distance of the same run fed from one end, which typically means wire two-gauge sizes smaller (see below example).

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A 100 ft loop, fixtures measured from terminal A: 12 W at 15 ft, 5 W at 30 ft, 9 W at 48 ft, 3.5 W at 62 ft, 7 W at 80 ft. Total 36.5 W.

1. Loop watt-feet = 12×15 + 5×30 + 9×48 + 3.5×62 + 7×80 = 1,539.
   W_B = 1,539 ÷ 100 = 15.4 W
   W_A = 36.5 − 15.4 = 21.1 W.

2. Walk from A: 21.1 − 12 = 9.1; 9.1 − 5 = 4.1; 4.1 − 9 = −4.9. The sign flips at the 9 W fixture (48 ft): that is the split point. It takes 4.1 W from side A and 4.9 W from side B.

3. side A as a straight run: 12 W at 15 ft, 5 W at 30 ft, 4.1 W at 48 ft = 527 watt-feet; COL = 527 ÷ 21.1 = 25 ft at 21.1 W.

Without dimming: Table 1, 30 W column (interpolating up from 21.1 W): 14 AWG allows 31 ft (pass). Side B gives the same drop by construction. Use 14 AWG copper, 12 V tap or higher tap.

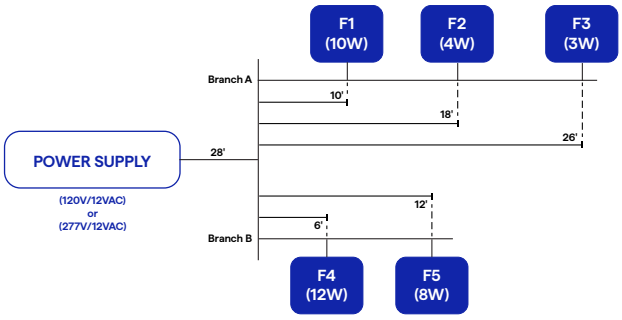
With dimming: 12V tap is not recommended. Table 1, 30 W column, and Table 3, select 13V multiplier for dimming (1.5). 14 AWG allows 31 ft x 1.5 multiplier = 46.5ft (pass). Use 14 AWG copper, 13 V tap or a higher tap.

Note: The same five fixtures fed from terminal A as a dead-end run would need 10 AWG (COL 42 ft at 36.5W. The loop saves two AWG sizes.

5.4 HUB WITH BRANCHES (TWO LEVEL CIRCUITS) PERCENT RULE

Voltage drops add along the path, so each level consumes part of the voltage drop budget. Check it with percentages of allowed distance:

- Home run: actual distance ÷ allowed Table 1 distance at the full connected load = X%.
- Each branch: branch watt-feet COL (measured from the hub) ÷ allowed Table 1 distance at that branch load = Y%.
- Requirement: X + Y ≤ 100% for every branch path. The same rule stacks for any number of levels in series. Branches may use different gauges; each is checked with its own load and COL.



A home run of 28 ft feeds a hub carrying two branches: branch A is 10 W at 10 ft, 4 W at 18 ft, 3 W at 26 ft from the hub (17 W, 250 watt-feet, COL 15 ft); branch B is 12 W at 6 ft, 8 W at 12 ft (20 W, 168 watt-feet, COL 8.4 ft). Total power 37 W.

- **Home run, 12AWG at 37W** (40 W column, 36 ft allowed): 28 ÷ 36 = 78%.
- **Branch A, 14 AWG at 17 W** (20 W column, 46 ft allowed): 15 ÷ 46 = 33%. Path total 111% (fail)
- **Branch B, 14 AWG at 20W** (20 W column, 46 ft allowed): 8.4 ÷ 46 = 18%. Path total 96% (pass)
  Upsize Home run to 10 AWG (58 ft allowed): 28 ÷ 58 = 48%;
  - Path total Branch A now 48% + 33% = 81% (pass).
  - Path total Branch B now 48% + 18% = 66% (pass).

Without dimming: 10 AWG home run, 14 AWG branch A, 14 AWG branch B, 12 V tap or higher.

Branches are sized individually. Only the shared home run carries the full 37 W.

6. CODE AND SAFETY NOTES

- **Minimum gauge by breaker, regardless of voltage drop (copper, 60 °C basis):** 5 A breaker: 16 AWG; 10 A: 14 AWG; 12.5 A: 12 AWG; 25 A: 10 AWG.
- Use direct burial rated low voltage landscape cable. Under NEC Table 300.5, landscape lighting circuits not exceeding 30 V may be buried at a minimum of 6 inches when using listed cable; local codes govern.
- VOYA 12VAC secondary circuits fall under NEC Article 411 (lighting systems 30 V or less, 25 A maximum per secondary circuit). Install per the NEC and applicable local codes.
- Make all splices with listed, waterproof low voltage connectors suitable for direct burial.

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VOYA 2.5" ADDITIONAL SNOOTS, OPTICS, LENS FILTERS, LAMPS, KITS, & FINISH KEY RINGS

Accessories

SNOOTS - NO WEEP HOLES

Flush



PART NUMBERS:

BEIGE	VOYA-2.5-FL-SNOOT-ASM-A-BG
BLACK BRONZE	VOYA-2.5-FL-SNOOT-ASM-A-BB
BLACK	VOYA-2.5-FL-SNOOT-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-FL-SNOOT-ASM-A-BKT
BRONZE	VOYA-2.5-FL-SNOOT-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-FL-SNOOT-ASM-A-BZT
SILVER	VOYA-2.5-FL-SNOOT-ASM-A-SL
WHITE	VOYA-2.5-FL-SNOOT-ASM-A-WH
BRASS	VOYA-2.5-FL-SNOOT-ASM-B-P
STAINLESS STEEL	VOYA-2.5-FL-SNOOT-ASM-SS-P

0.5" Regress



PART NUMBERS:

BEIGE	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-A-BG
BLACK BRONZE	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-A-BB
BLACK	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-A-BKT
BRONZE	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-A-BZT
SILVER	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-A-SL
WHITE	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-A-WH
BRASS	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-B-P
STAINLESS STEEL	VOYA-2.5-HR-SNOOT-NO-WEEP-ASM-SS-P

1" Regress



PART NUMBERS:

BEIGE	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-A-BG
BLACK BRONZE	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-A-BB
BLACK	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-A-BKT
BRONZE	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-A-BZT
SILVER	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-A-SL
WHITE	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-A-WH
BRASS	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-B-P
STAINLESS STEEL	VOYA-2.5-1R-SNOOT-NO-WEEP-ASM-SS-P

30 Degree



PART NUMBERS:

BEIGE	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-A-BG
BLACK BRONZE	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-A-BB
BLACK	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-A-BKT
BRONZE	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-A-BZT
SILVER	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-A-SL
WHITE	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-A-WH
BRASS	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-B-P
STAINLESS STEEL	VOYA-2.5-30D-SNOOT-NO-WEEP-ASM-SS-P

45 Degree



PART NUMBERS:

BEIGE	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-A-BG
BLACK BRONZE	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-A-BB
BLACK	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-A-BKT
BRONZE	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-A-BZT
SILVER	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-A-SL
WHITE	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-A-WH
BRASS	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-B-P
STAINLESS STEEL	VOYA-2.5-45D-SNOOT-NO-WEEP-ASM-SS-P

60 Degree



PART NUMBERS:

BEIGE	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-A-BG
BLACK BRONZE	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-A-BB
BLACK	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-A-BKT
BRONZE	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-A-BZT
SILVER	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-A-SL
WHITE	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-A-WH
BRASS	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-B-P
STAINLESS STEEL	VOYA-2.5-60D-SNOOT-NO-WEEP-ASM-SS-P

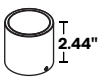
45° Glare Shield



PART NUMBERS:

BEIGE	VOYA-2.5-45D-GLARE-SHIELD-A-BG
BLACK BRONZE	VOYA-2.5-45D-GLARE-SHIELD-A-BB
BLACK	VOYA-2.5-45D-GLARE-SHIELD-A-BK
BLACK TEXTURE	VOYA-2.5-45D-GLARE-SHIELD-A-BKT
BRONZE	VOYA-2.5-45D-GLARE-SHIELD-A-BZ
BRONZE TEXTURE	VOYA-2.5-45D-GLARE-SHIELD-A-BZT
SILVER	VOYA-2.5-45D-GLARE-SHIELD-A-SL
WHITE	VOYA-2.5-45D-GLARE-SHIELD-A-WH
BRASS	VOYA-2.5-45D-GLARE-SHIELD-B-P
STAINLESS STEEL	VOYA-2.5-45D-GLARE-SHIELD-SS-P

Grazer



PART NUMBERS:

BEIGE	VOYA-2.5-GZR-SNOOT-ASM-A-BG
BLACK BRONZE	VOYA-2.5-GZR-SNOOT-ASM-A-BB
BLACK	VOYA-2.5-GZR-SNOOT-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-GZR-SNOOT-ASM-A-BKT
BRONZE	VOYA-2.5-GZR-SNOOT-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-GZR-SNOOT-ASM-A-BZT
SILVER	VOYA-2.5-GZR-SNOOT-ASM-A-SL
WHITE	VOYA-2.5-GZR-SNOOT-ASM-A-WH
BRASS	VOYA-2.5-GZR-SNOOT-ASM-B-P
STAINLESS STEEL	VOYA-2.5-GZR-SNOOT-ASM-SS-P

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VOYA 2.5" ADDITIONAL SNOOTS, OPTICS, LENS FILTERS, LAMPS, KITS, & FINISH KEY RINGS

Accessories

SNOOTS - WITH WEEP HOLES

0.5" Regress



PART NUMBERS:

BEIGE	VOYA-2.5-HR-SNOOT-ASM-A-BG
BLACK BRONZE	VOYA-2.5-HR-SNOOT-ASM-A-BB
BLACK	VOYA-2.5-HR-SNOOT-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-HR-SNOOT-ASM-A-BKT
BRONZE	VOYA-2.5-HR-SNOOT-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-HR-SNOOT-ASM-A-BZT
SILVER	VOYA-2.5-HR-SNOOT-ASM-A-SL
WHITE	VOYA-2.5-HR-SNOOT-ASM-A-WH
BRASS	VOYA-2.5-HR-SNOOT-ASM-B-P
STAINLESS STEEL	VOYA-2.5-HR-SNOOT-ASM-SS-P

1" Regress



PART NUMBERS:

BEIGE	VOYA-2.5-1R-SNOOT-ASM-A-BG
BLACK BRONZE	VOYA-2.5-1R-SNOOT-ASM-A-BB
BLACK	VOYA-2.5-1R-SNOOT-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-1R-SNOOT-ASM-A-BKT
BRONZE	VOYA-2.5-1R-SNOOT-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-1R-SNOOT-ASM-A-BZT
SILVER	VOYA-2.5-1R-SNOOT-ASM-A-SL
WHITE	VOYA-2.5-1R-SNOOT-ASM-A-WH
BRASS	VOYA-2.5-1R-SNOOT-ASM-B-P
STAINLESS STEEL	VOYA-2.5-1R-SNOOT-ASM-SS-P

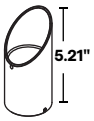
30 Degree



PART NUMBERS:

BEIGE	VOYA-2.5-30D-SNOOT-ASM-A-BG
BLACK BRONZE	VOYA-2.5-30D-SNOOT-ASM-A-BB
BLACK	VOYA-2.5-30D-SNOOT-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-30D-SNOOT-ASM-A-BKT
BRONZE	VOYA-2.5-30D-SNOOT-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-30D-SNOOT-ASM-A-BZT
SILVER	VOYA-2.5-30D-SNOOT-ASM-A-SL
WHITE	VOYA-2.5-30D-SNOOT-ASM-A-WH
BRASS	VOYA-2.5-30D-SNOOT-ASM-B-P
STAINLESS STEEL	VOYA-2.5-30D-SNOOT-ASM-SS-P

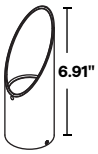
45 Degree



PART NUMBERS:

BEIGE	VOYA-2.5-45D-SNOOT-ASM-A-BG
BLACK BRONZE	VOYA-2.5-45D-SNOOT-ASM-A-BB
BLACK	VOYA-2.5-45D-SNOOT-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-45D-SNOOT-ASM-A-BKT
BRONZE	VOYA-2.5-45D-SNOOT-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-45D-SNOOT-ASM-A-BZT
SILVER	VOYA-2.5-45D-SNOOT-ASM-A-SL
WHITE	VOYA-2.5-45D-SNOOT-ASM-A-WH
BRASS	VOYA-2.5-45D-SNOOT-ASM-B-P
STAINLESS STEEL	VOYA-2.5-45D-SNOOT-ASM-SS-P

60 Degree



PART NUMBERS:

BEIGE	VOYA-2.5-60D-SNOOT-ASM-A-BG
BLACK BRONZE	VOYA-2.5-60D-SNOOT-ASM-A-BB
BLACK	VOYA-2.5-60D-SNOOT-ASM-A-BK
BLACK TEXTURE	VOYA-2.5-60D-SNOOT-ASM-A-BKT
BRONZE	VOYA-2.5-60D-SNOOT-ASM-A-BZ
BRONZE TEXTURE	VOYA-2.5-60D-SNOOT-ASM-A-BZT
SILVER	VOYA-2.5-60D-SNOOT-ASM-A-SL
WHITE	VOYA-2.5-60D-SNOOT-ASM-A-WH
BRASS	VOYA-2.5-60D-SNOOT-ASM-B-P
STAINLESS STEEL	VOYA-2.5-60D-SNOOT-ASM-SS-P

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VOYA 2.5" ADDITIONAL SNOOTS, OPTICS, LENS FILTERS, LAMPS, KITS, & FINISH KEY RINGS

Accessories

OPTICS - STATIC WHITE

12 Degree



PART NUMBERS:

STATIC WHITE	ACC-VOYA-2.5-OPTIC-SW-12

16 Degree



PART NUMBERS:

STATIC WHITE	ACC-VOYA-2.5-OPTIC-SW-16

23 Degree



PART NUMBERS:

STATIC WHITE	ACC-VOYA-2.5-OPTIC-SW-23

37 Degree



PART NUMBERS:

STATIC WHITE	ACC-VOYA-2.5-OPTIC-SW-37

51 Degree



PART NUMBERS:

STATIC WHITE	ACC-VOYA-2.5-OPTIC-SW-51

Grazer



PART NUMBERS:

STATIC WHITE	ACC-VOYA-2.5-OPTIC-SW-GZR

OPTICS - AMBER & WARM DIM

20 Degree



PART NUMBERS:

AMBER	ACC-VOYA-2.5-OPTIC-A-20
WARM DIM	ACC-VOYA-2.5-OPTIC-WD-20

26 Degree



PART NUMBERS:

AMBER	ACC-VOYA-2.5-OPTIC-A-26
WARM DIM	ACC-VOYA-2.5-OPTIC-WD-26

40 Degree



PART NUMBERS:

AMBER	ACC-VOYA-2.5-OPTIC-A-40
WARM DIM	ACC-VOYA-2.5-OPTIC-WD-40

55 Degree



PART NUMBERS:

AMBER	ACC-VOYA-2.5-OPTIC-A-55
WARM DIM	ACC-VOYA-2.5-OPTIC-WD-55

LENS FILTERS

SPREAD



PART NUMBERS:

ACC-2.5-SP

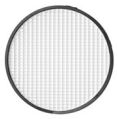
LINEAR SPREAD



PART NUMBERS:

ACC-2.5-LS

WALL WASH



PART NUMBERS:

ACC-2.5-WW

HONEYCOMB LOUVER



PART NUMBERS:

ACC-2.5-LV

RETAINING RING



PART NUMBERS:

ACC-2.5-RR

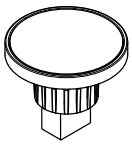
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VOYA 2.5" ADDITIONAL SNOOTS, OPTICS, LENS FILTERS, LAMPS, KITS, & FINISH KEY RINGS

Accessories

LAMPS

MR16

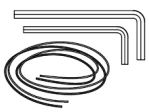


PART NUMBERS:

MR16 EMERY ALLEN 1.0W 24 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-1.0W-24D-2790-D
MR16 EMERY ALLEN 1.0W 24 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-1.0W-24D-3090-D
MR16 EMERY ALLEN 1.0W 36 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-1.0W-36D-2790-D
MR16 EMERY ALLEN 1.0W 36 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-1.0W-36D-3090-D
MR16 EMERY ALLEN 1.0W 60 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-1.0W-60D-2790-D
MR16 EMERY ALLEN 1.0W 60 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-1.0W-60D-3090-D
MR16 EMERY ALLEN 1.0W 120 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-1.0W-120D-2790-D
MR16 EMERY ALLEN 1.0W 120 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-1.0W-120D-3090-D
MR16 EMERY ALLEN 3.0W 15 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-3.0W-15D-2790-D
MR16 EMERY ALLEN 3.0W 15 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-3.0W-15D-3090-D
MR16 EMERY ALLEN 3.0W 24 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-3.0W-24D-2790-D
MR16 EMERY ALLEN 3.0W 24 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-3.0W-24D-3090-D
MR16 EMERY ALLEN 3.0W 36 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-3.0W-36D-2790-D
MR16 EMERY ALLEN 3.0W 36 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-3.0W-36D-3090-D
MR16 EMERY ALLEN 3.0W 60 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-3.0W-60D-2790-D
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MR16 EMERY ALLEN 5.0W 15 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-5.0W-15D-3090-D
MR16 EMERY ALLEN 5.0W 24 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-5.0W-24D-2790-D
MR16 EMERY ALLEN 5.0W 24 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-5.0W-24D-3090-D
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MR16 EMERY ALLEN 7.0W 15 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-7.0W-15D-3090-D
MR16 EMERY ALLEN 7.0W 24 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-7.0W-24D-2790-D
MR16 EMERY ALLEN 7.0W 24 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-7.0W-24D-3090-D
MR16 EMERY ALLEN 7.0W 36 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-7.0W-36D-2790-D
MR16 EMERY ALLEN 7.0W 36 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-7.0W-36D-3090-D
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MR16 EMERY ALLEN 8.0W 24 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-8.0W-24D-3090-D
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MR16 EMERY ALLEN 8.0W 36 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-8.0W-36D-3090-D
MR16 EMERY ALLEN 8.0W 60 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-8.0W-60D-2790-D
MR16 EMERY ALLEN 8.0W 60 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-8.0W-60D-3090-D
MR16 EMERY ALLEN 8.0W 120 DEGREE 2700K STATIC WHITE 90CRI DIMMABLE	EA-MR16-8.0W-120D-2790-D
MR16 EMERY ALLEN 8.0W 120 DEGREE 3000K STATIC WHITE 90CRI DIMMABLE	EA-MR16-8.0W-120D-3090-D
MR16 EMERY ALLEN 3.0W 60 DEGREE AMBER	EA-MR16-3.0W-60D-AMB

INSTALL KIT

Snoot Install Kit

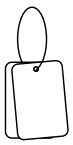


PART NUMBERS:

VOYA-SNOOT-INSTALL-KIT

FINISH KEY RING

Finish Key Ring



PART NUMBERS:

VOYA-FINISH-KEY-RING

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2.5" VOYA LUMINAIRE

Landscape Lighting Installation Instructions

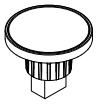
ATTENTION: Please read all instructions BEFORE installation

- Product to be installed by a licensed electrician - Field modifications void warranty
- Warranty only valid with QTL power supplies
- Diagrams for representation only and not to scale.
- For all up-lighting applications, snoots require the weep hole to be unobstructed — orient at lowest point of aim.
- PC lenses are not rated for use with halogen lamps. Do not use PC lenses in combination with halogen lamp sources.
- Requires remote LV transformer — not included.
- Verify input voltage matches transformer (12VAC vs 24VDC)
- Set DIP switch for desired output level.

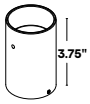
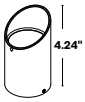
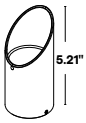
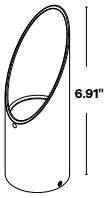
SPECIFICATIONS

- INPUT VOLTAGE: 12VAC OR 24VDC (SEE MODEL)
- DIP SWITCH: 8-POSITION FIELD-ADJUSTABLE OUTPUT
- LEAD WIRE: 36" OF 18GA. WIRE LEADS
- NPS THREAD: 1/2-14 NPS
- LAMP: MR16
- SNOOT SCREW: M5X5mm
- KNUCKLE SCREW: M8X22.5mm

- WIRING DIAGRAM (PAGE 2)
- KNUCKLE INSTALLATION (PAGE 3)
- OPTICS INSTALLATION (PAGE 3)
- DIP SWITCH INSTALLATION (PAGE 4)
- LAMP INSTALLATION (PAGE 5)
- SNOOTS INSTALLATION (PAGE 6)

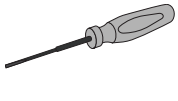
OPTICS	LAMP
	
12°, 16°, 23°, 37°, 51°, COB Spot for GZR OPTICS	MR16

SNOOTS

GZR	FL	HR	1R	30D	45D	60D	GLARE SHIELD
							
GRAZER	FLUSH	0.5" RECESSED	1" RECESSED	30 DEGREE	45 DEGREE	60 DEGREE	45 DEGREE ADAPTER

COMPONENTS & HARDWARE

PROVIDED HARDWARE

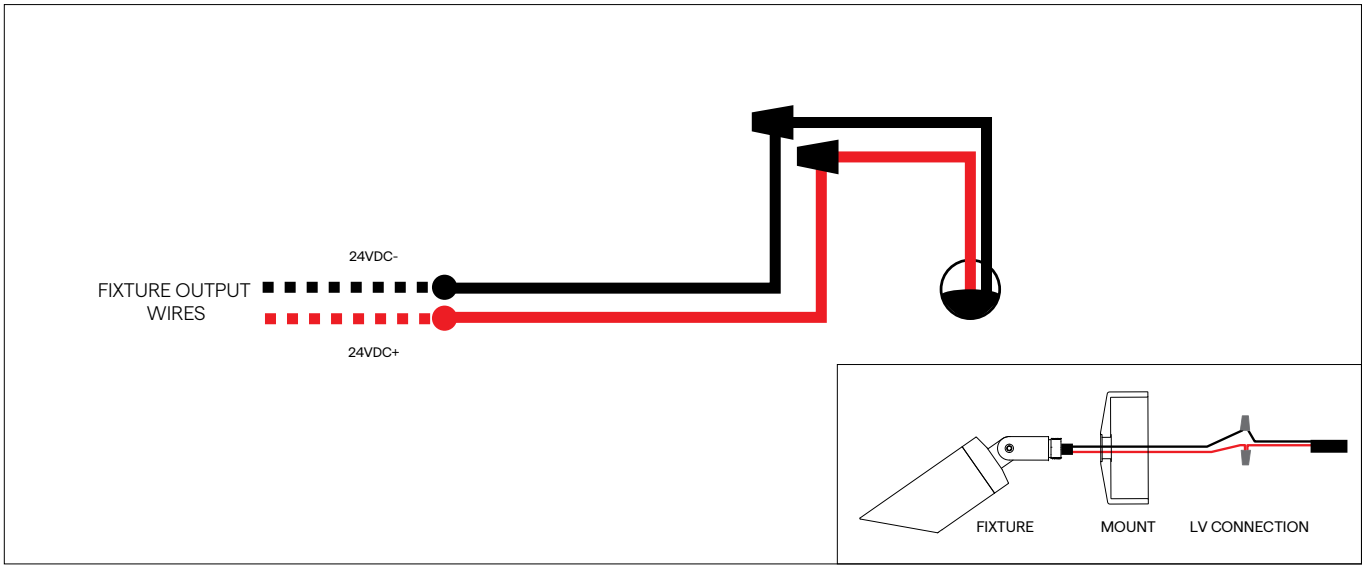
			
M2.5 Allen Key	M4 Allen Key	Flat Head Screw Driver	12" Omniflex® Line
ALLEN KEY	ALLEN KEY	SCREW DRIVER	FLEXIBLE LINE

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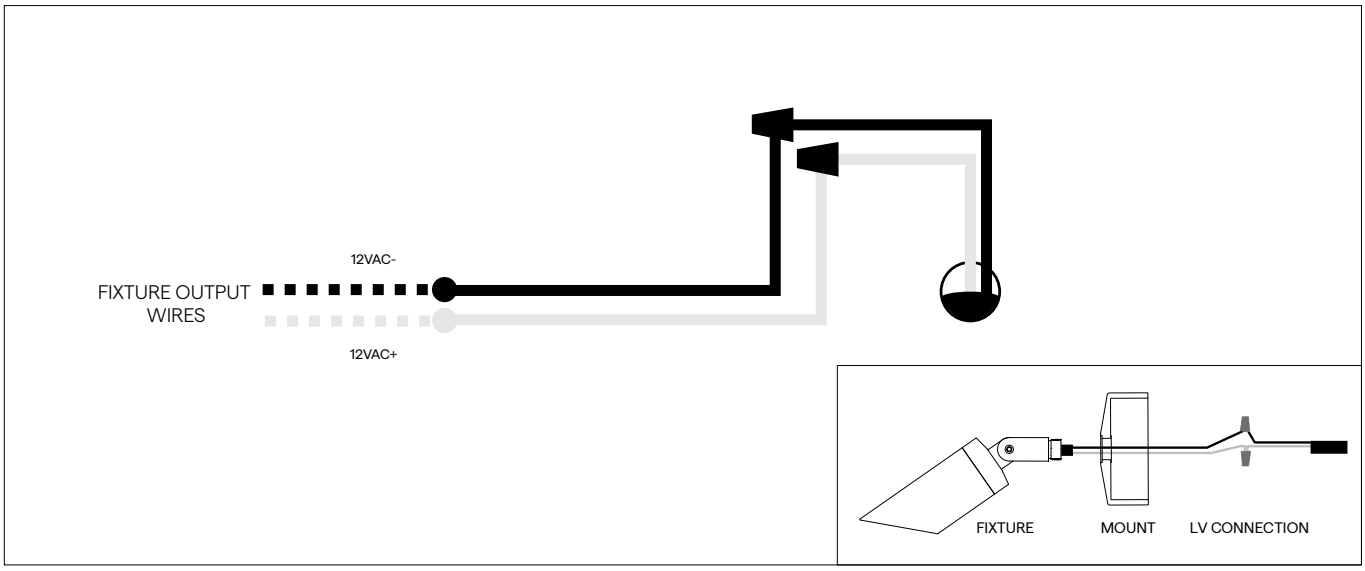
Specification subject to change. Rev-07-29-26

WIRING DIAGRAM

LOW VOLTAGE: 24VDC

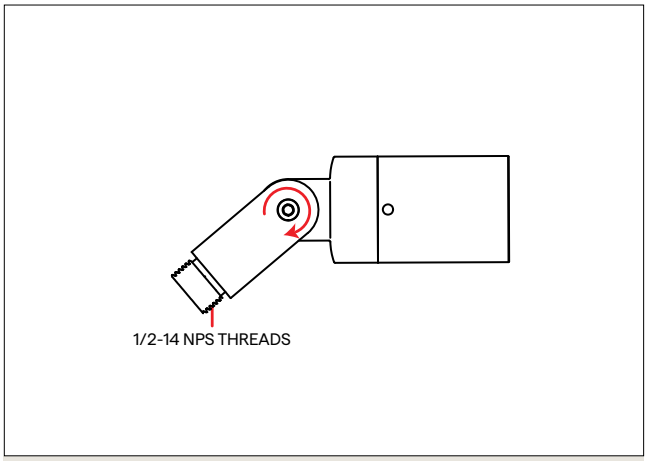


LOW VOLTAGE: 12VAC



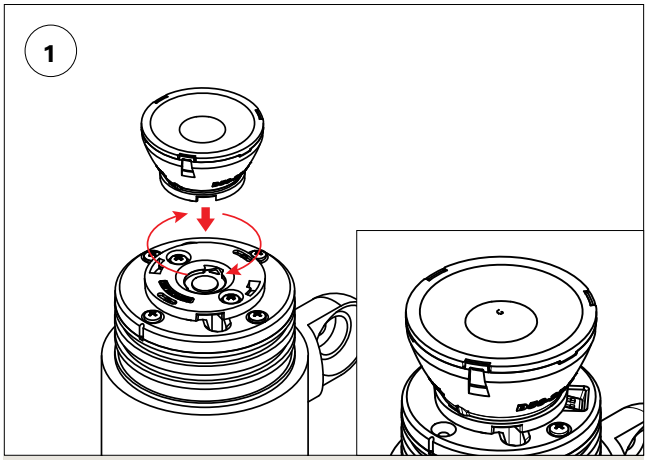
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KNUCKLE ADJUSTMENT

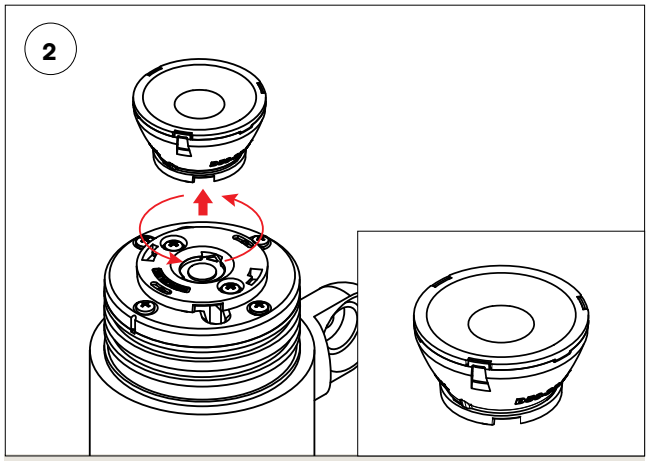


- Adjust and lock fixture at desired angle, using M4 Allen Key provided.

OPTICS INSTALLATION



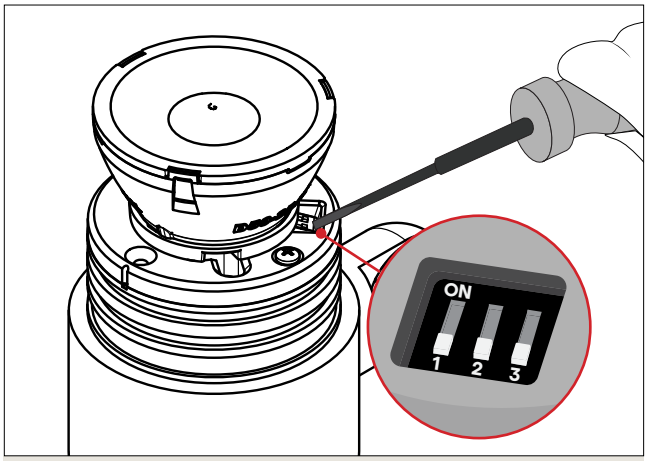
- Position the optic to align with COB holder. Apply downward pressure and rotate clockwise until it clicks into place.



- Rotate the optic counter-clockwise until disengaged from the COB holder. Then pull up to remove.

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DIP SWITCH ADJUSTMENT



- **To Switch:** Use a flathead screwdriver to toggle dip switch positions to adjust output. Refer to chart below for output settings.

12VAC

VOYA-2.5-12VAC-COB-A

Output								
Rated Current(A)	150	170	190	220	250	300	375	500
DIP Code	TTT	TT⊥	T⊥T	T⊥⊥	⊥TT	⊥T⊥	⊥⊥T	⊥⊥⊥
Rated Power(W)	2.9	3.1	3.3	3.6	4.1	4.7	5.4	6.8

T On ⊥ Off,

VOYA-2.5-12VAC-COB-SW

Output								
Rated Current(A)	150	170	190	220	250	300	375	500
DIP Code	TTT	TT⊥	T⊥T	T⊥⊥	⊥TT	⊥T⊥	⊥⊥T	⊥⊥⊥
Rated Power(W)	4.6	4.9	5.3	5.9	6.6	7.9	9.5	12.5

T On ⊥ Off,

24VDC

VOYA-2.5-24VDC-COB-A

Output								
Rated Current(A)	10	40	70	100	150	225	350	600
DIP Code	⊥⊥⊥	T⊥⊥	⊥T⊥	⊥⊥T	TT⊥	T⊥T	⊥TT	TTT
Rated Power(W)	1.1	1.4	1.7	1.9	2.4	3.1	4.3	6.4

T On ⊥ Off,

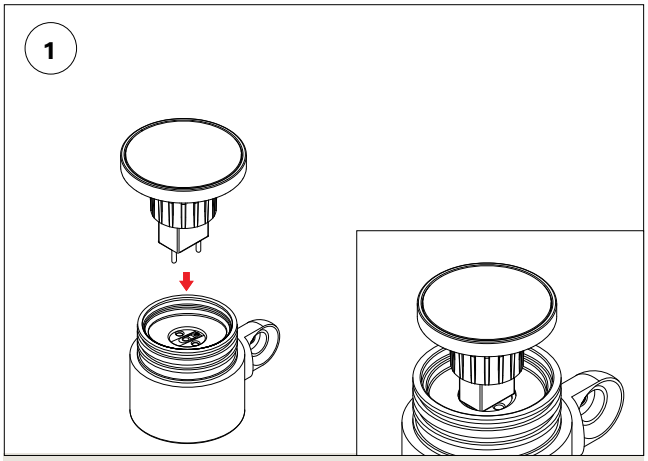
VOYA-2.5-24VDC-COB-SW

Output								
Rated Current(A)	10	40	70	100	150	225	350	600
DIP Code	⊥⊥⊥	T⊥⊥	⊥T⊥	⊥⊥T	TT⊥	T⊥T	⊥TT	TTT
Rated Power(W)	0.7	1.2	1.8	2.4	3.3	4.7	7.1	12.1

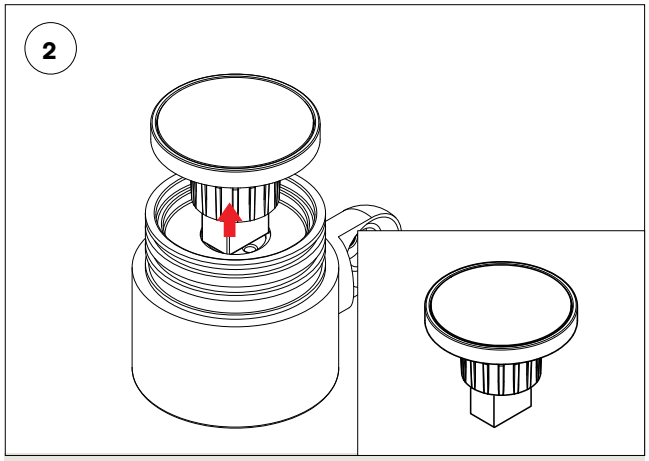
T On ⊥ Off,

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LAMP INSTALLATION



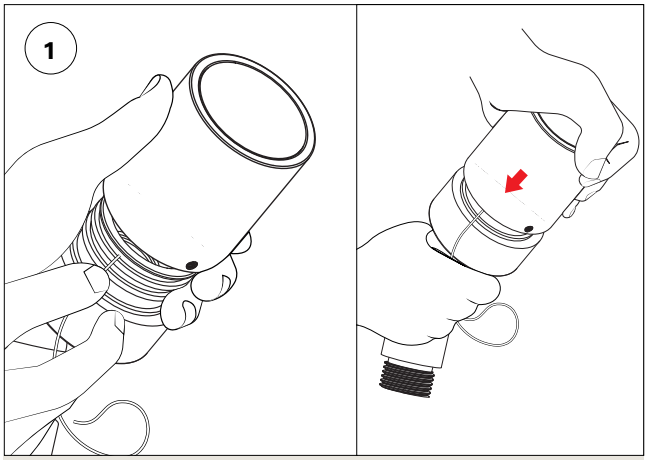
- **To Install:** Position the lamp over the top fixture opening. Apply downward pressure until the lamp engages with the lamp socket.



- **To Remove:** Pull the lamp straight out to disengage and remove it from the lamp socket.

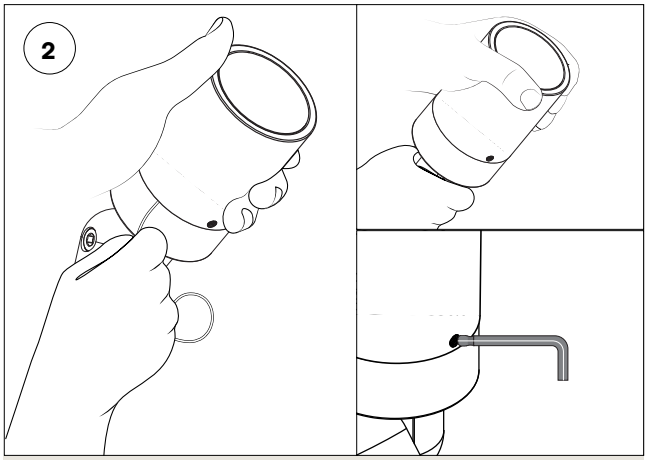
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SNOOT INSTALLATION



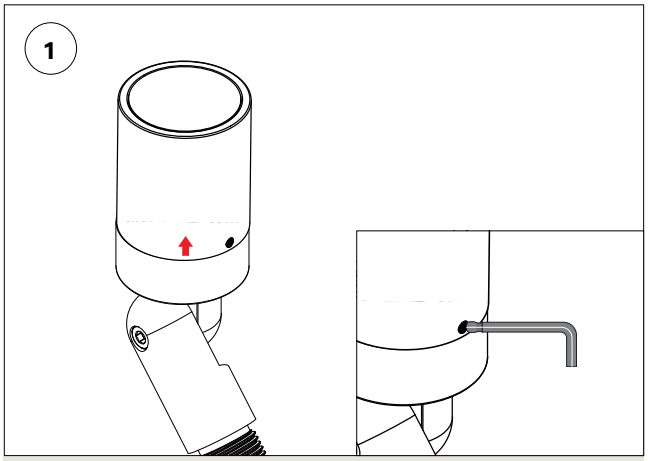
To Install

- **Align snoot:** Position snoot over fixture body and align it. Place the Omniflex® line over the gasket area.
- **Slide and rock onto base:** Slide snoot onto one side of fixture body. Rock gently back and forth while pressing down firmly until one side is fully seated.



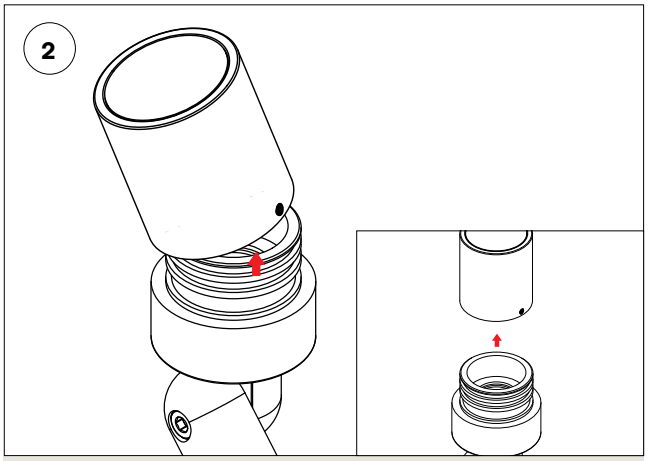
- **Secure the airtight seal:** Once the snoot is fully closed, pull the fishing wire through the snoot. Rotate the snoot until it is fully engaged, ensuring an airtight seal is maintained.
- **Secure set screw:** Tighten snoot set screw with M2.5 Allen Key, snug only. **DO NOT OVERTIGHTEN.**

For fixtures with weep hole, orient at lowest aiming angle for proper water drainage.



To Remove

- **Loosen set screw:** Loosen snoot set screw with M2.5 Allen Key, do not remove fully.



- **Rock and lift off:** Rock snoot side to side while gently pulling upward to release from fixture body.

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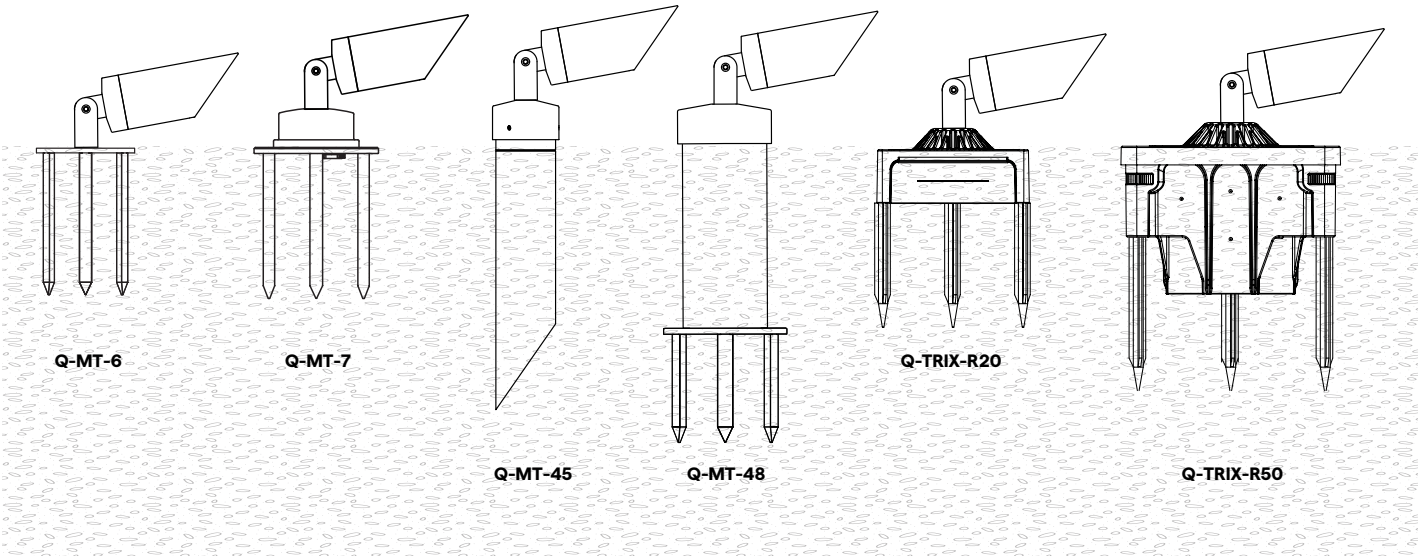
DIRECT BURIAL

Landscape Lighting Installation Instructions

ATTENTION: Please read all instructions BEFORE installation

- Product must be installed by a licensed electrician. Field modifications void the warranty.
- Warranty is valid only with QTL power supplies.
- Diagrams are for representation only and are not to scale.
- DO NOT cover the luminaire with soil or mulch.
- Squeeze silicone into the NPT threads on Q-TRIX units before mounting the fixture.
- Burial cable must be rated for direct burial and buried a minimum of 6" deep.
- J-BOX, connectors, and wire are supplied by the installer.
- Use a liquid-tight connector for 120V wire entry to the Q-MT-48.
- Voya 3.5 fixture shipped installed on the mounts - Q-MT-48, Q-MT-49 or Q-MT-50. Follow instructions for how to splice wires

METHODS OF INSTALLATION



- LUMINAIRE & MOUNT COMPATIBILITY (PAGE 2)
- COMPONENTS & HARDWARE (PAGE 3)
- SURFACE PREP (PAGE 4)
- DIRECT BURIAL - NO DRIVER (PAGE 5-9)
- DIRECT BURIAL - WITH DRIVER (PAGE 10-11)
- DIRECT BURIAL - DRIVER WITH DIMMER (PAGE 12-13)
- DIRECT BURIAL - Q-TRIX (PAGE 14-15)

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LUMINAIRE & MOUNT COMPATIBILITY

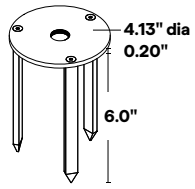
	Q-MT-6	Q-MT-7	Q-MT-45	Q-MT-48 No Driver	Q-MT-48 With Driver	Q-TRIX-R20 No Driver	Q-TRIX-R50 With Driver
VOYA-EM-1.75-MR11-12VAC	✓	✓	✓			✓	✓
VOYA-EM/SM-2.5	✓	✓	✓			✓	✓
VOYA-EM/SM-3.0-PAR20/GU10				✓			
VOYA-EM/SM-3.5-COB-120VAC					✓		
Excelsior UL-1	✓	✓					
Excelsior UL-1L	✓	✓					
Excelsior UL-2	✓	✓					
Excelsior UL-2L	✓	✓					
Excelsior UL-4	✓	✓					
Excelsior UL-4L	✓	✓					
Excelsior UL-5	✓	✓					
Excelsior UL-5L	✓	✓					
Excelsior UL-6	✓	✓					
Excelsior UL-6L	✓	✓					
Excelsior UL-7	✓	✓					
Excelsior UL-7L	✓	✓					
Excelsior PL-1	✓	✓	✓				
Excelsior PL-2	✓	✓	✓				
Excelsior PL-3	✓	✓	✓				
Excelsior PL-4	✓	✓	✓				
Excelsior PL-10	✓	✓	✓				
Excelsior PL-11	✓	✓	✓				
Excelsior PL-15	✓	✓	✓				
Excelsior PL-23	✓	✓	✓				
Excelsior PL-7	✓	✓	✓				
Excelsior PL-7L	✓	✓	✓				
Excelsior PL-27	✓	✓	✓				
Excelsior PL-28	✓	✓	✓				
Excelsior PL-5	✓	✓	✓				
Excelsior PL-6	✓	✓	✓				

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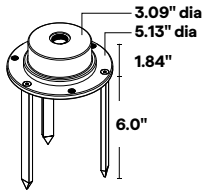
DIRECT BURIAL

Landscape Lighting Installation Instructions

Q-MT-6

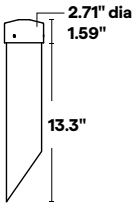


Q-MT-7

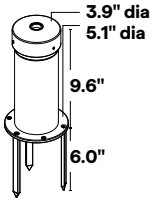


With Water Protection

Q-MT-45

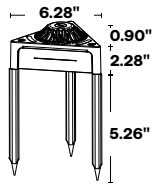


Q-MT-48



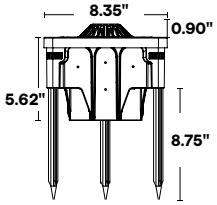
With Water Protection
No Driver | With Driver

Q-TRIX-R20



With Water Protection
No Driver

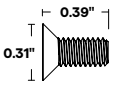
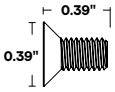
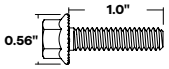
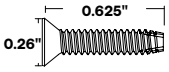
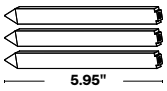
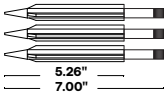
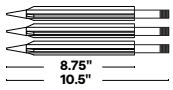
Q-TRIX-R50



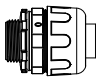
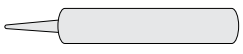
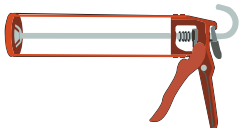
With Water Protection
With Driver

COMPONENTS & HARDWARE

PROVIDED HARDWARE

 **#PN** Q-MT-7 **QTY** 3	 **#PN** Q-MT-6, Q-MT-7 **QTY** 3, 3	 **#PN** Q-MT-45 **QTY** 3	 **TYPE** SCREWS For Q-TRIX-R50 **QTY** 3
M4x10mm	M5x12mm	M5x6mm	1/4"-20x1"
FLAT HEAD HEX SCREW	PHILLIPS FLAT HEAD SCREW	SET SCREW	SERRATED-FLANGE HEX HEAD SCREWS
 **TYPE** SCREWS For Q-TRIX-R20 **QTY** 3	 **#PN** Q-MT-6, Q-MT-7, Q-MT-48 **QTY** 3, 3, 3	 **TYPE** STAKE **QTY** 3	 **TYPE** STAKE **QTY** 3
6-32x5/8"	Stake: Use M5×12mm Phillips FH screws	Stake for Q-TRIX-R20	Stake for Q-TRIX-R50
PHILLIPS FLAT HEAD THREAD SCREW	PLANTING STAKE	PLANTING STAKE	PLANTING STAKE

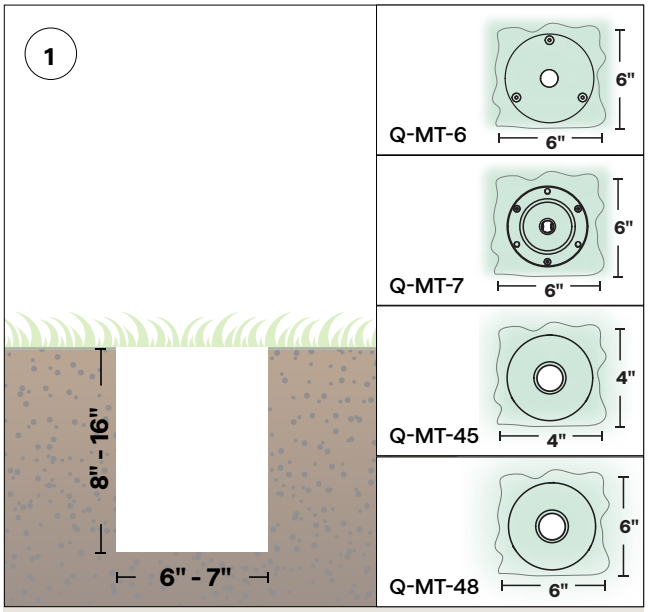
RECOMMENDED HARDWARE | **SUGGESTED TOOLS/MATERIALS**

 **#PN** Q-MT-6 **QTY** 1	 **#PN** Q-MT-7, Q-MT-48 **QTY** 1, 1		
1/2-14 NPS HEX NUT	1/2" Liquid-Tight Connector (By Others)	Waterproof Silicone	
HEX NUT / JAM NUT	CONDUIT CONNECTOR	ALL PURPOSE SILICONE	CAULKING GUN

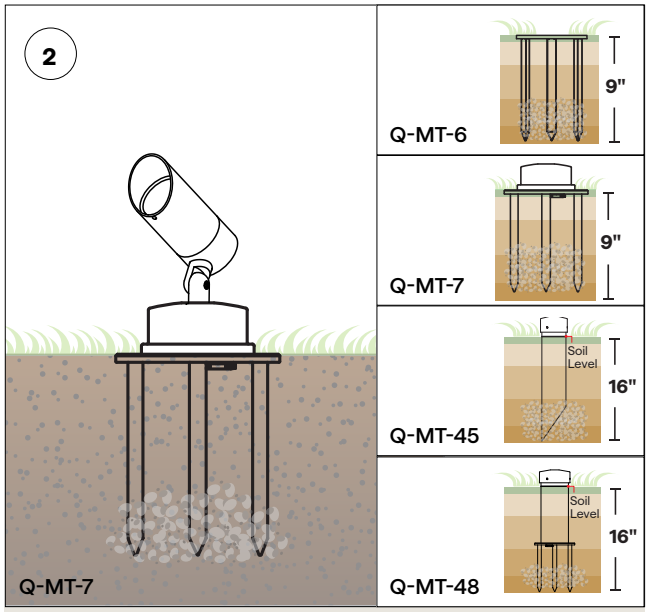
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SURFACE PREP

EXCAVATE (DIG HOLE): Q-MT-6, Q-MT-7, Q-MT-45, Q-MT-48

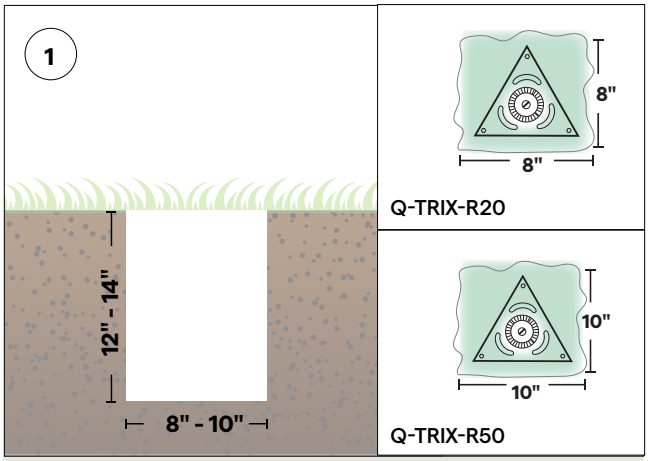


- Dig the hole to match the size of the housing for the product, as shown above for the hole length and width.

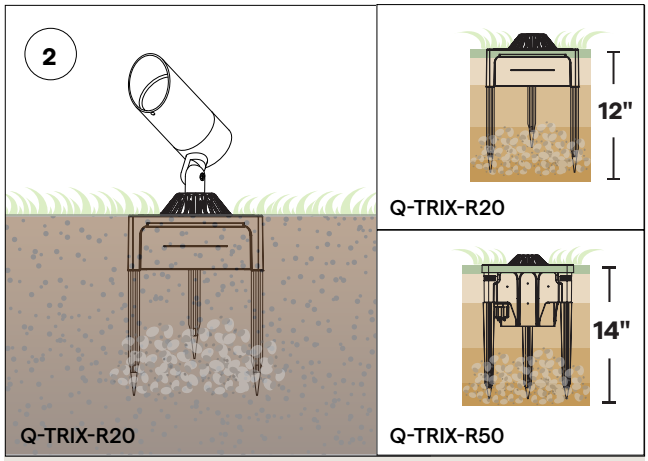


- Dig the hole to match the size of the housing for the product, as shown above for the hole depth.

EXCAVATE (DIG HOLE): Q-TRIX-R20, Q-TRIX-R50



- Dig the hole to match the size of the housing for the product, as shown above for the hole length and width.



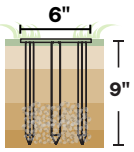
- Dig the hole to match the size of the housing for the product, as shown above for the hole depth.

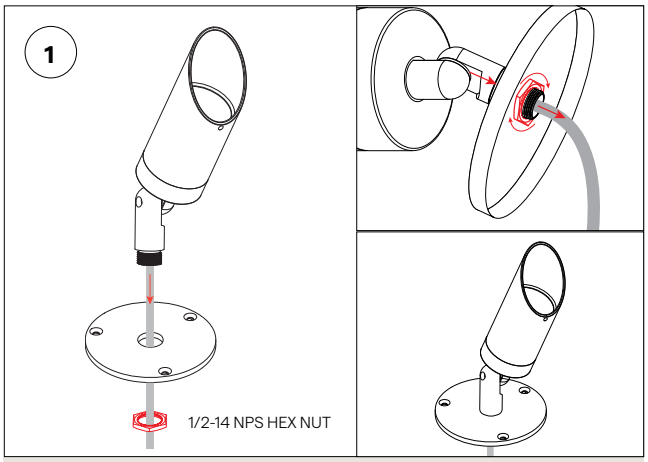
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DIRECT BURIAL

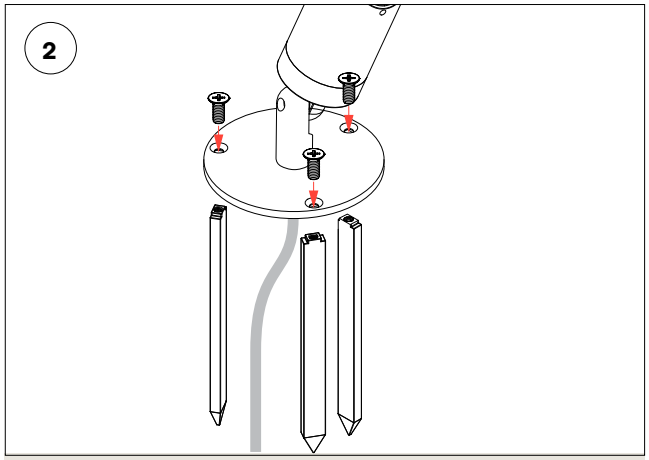
Landscape Lighting Installation Instructions

MOUNTING METHOD: **DIRECT BURIAL - NO DRIVER**
Q-MT-6

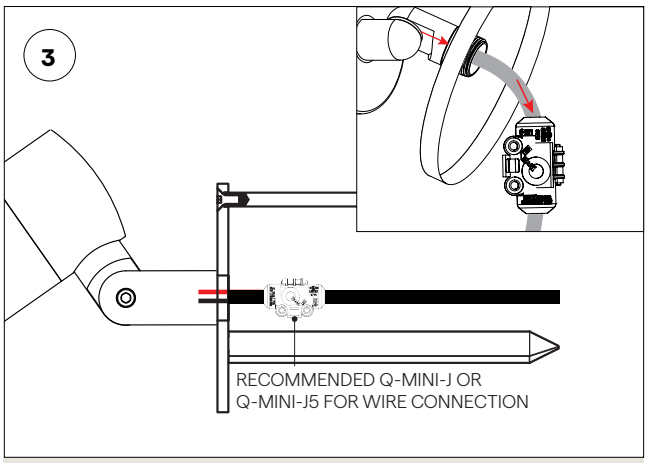




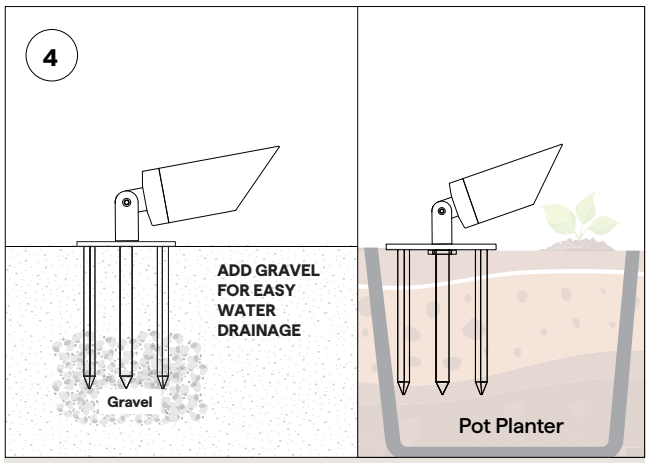
- Feed the fixture lead wire down through the plate, then screw fixture down with HEX NUT until fully seated.



- Attach the three (3) planting stakes to the underside of the mount using the supplied screws.



- Use liquid-tight wire nuts or QTL Q-Mini-J and follow the wiring diagram in the luminaire installations.
- Follow the wiring diagram in the luminaire instructions.



- Add gravel for easy drainage then backfill hole with soil as shown.

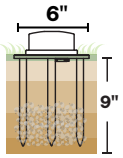
DO NOT COVER THE LUMINAIRE.

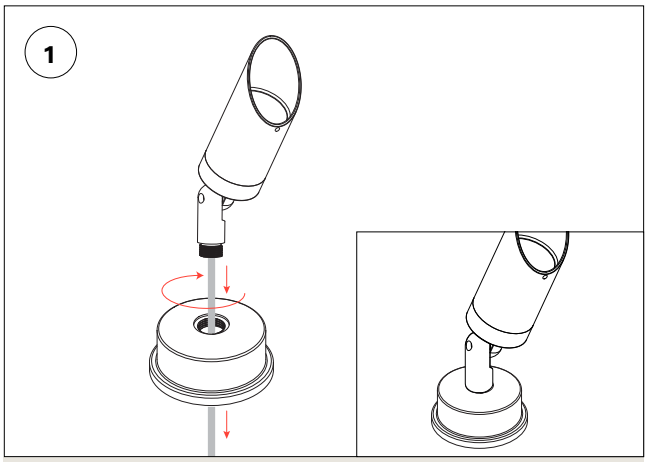
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DIRECT BURIAL

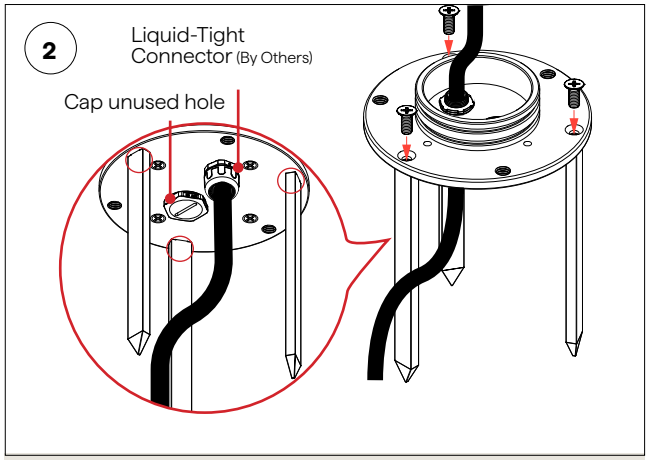
Landscape Lighting Installation Instructions

MOUNTING METHOD: **DIRECT BURIAL - NO DRIVER**
Q-MT-7

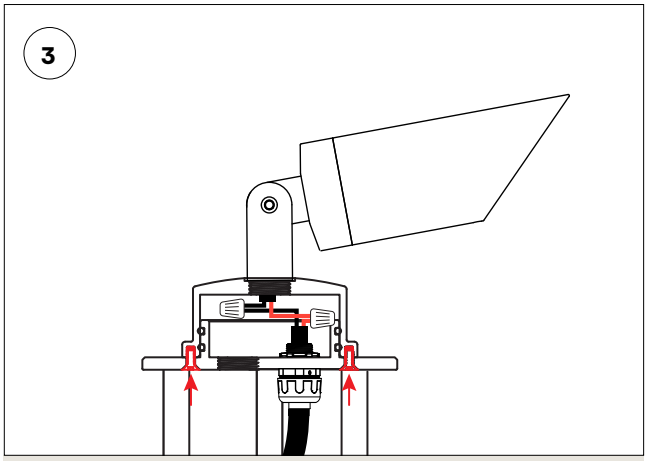




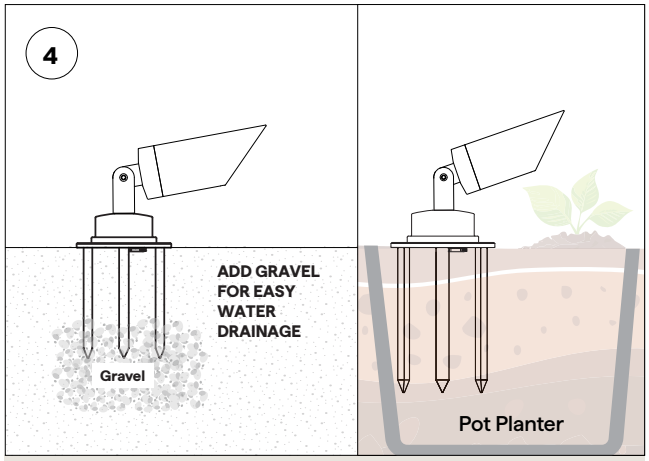
- Feed the fixture lead wire down through the canopy, then thread the fixture stem into the canopy opening and rotate until fully seated.



- Route the wire into 1/2" liquid-tight connector.
- Attach the three (3) planting stakes to the underside of the mount using the supplied screws.



- Follow the wiring diagram in the luminaire instructions. Install canopy screws from under plate to complete the installation.



- Add gravel for easy drainage then backfill hole with soil as shown.

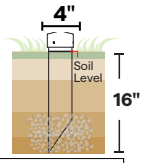
DO NOT COVER THE LUMINAIRE.

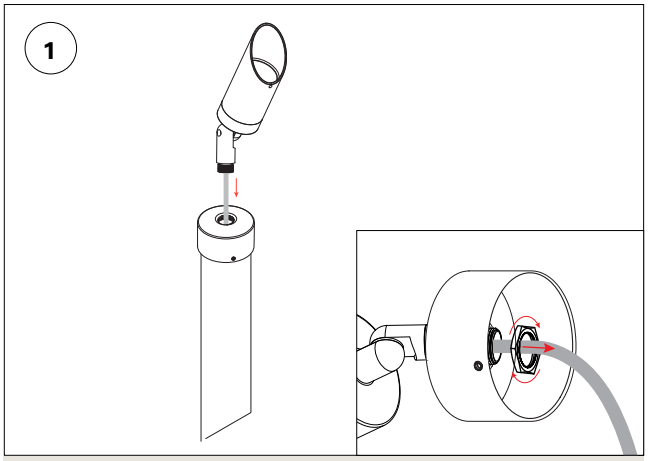
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DIRECT BURIAL

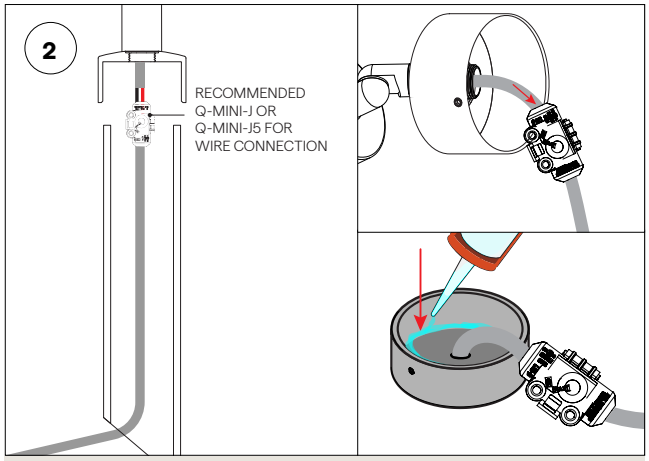
Landscape Lighting Installation Instructions

MOUNTING METHOD: **DIRECT BURIAL - NO DRIVER**
Q-MT-45

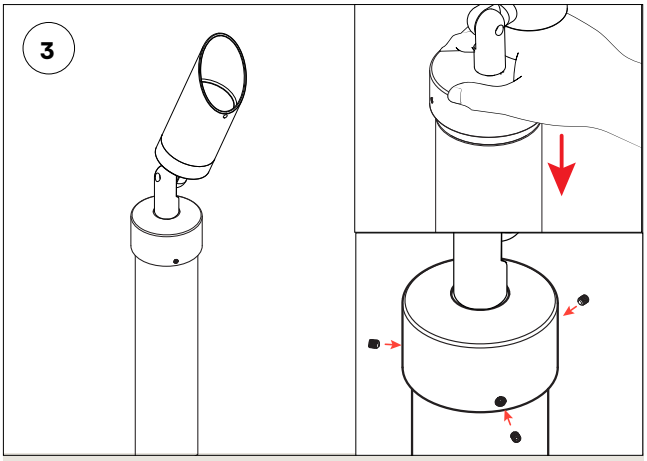




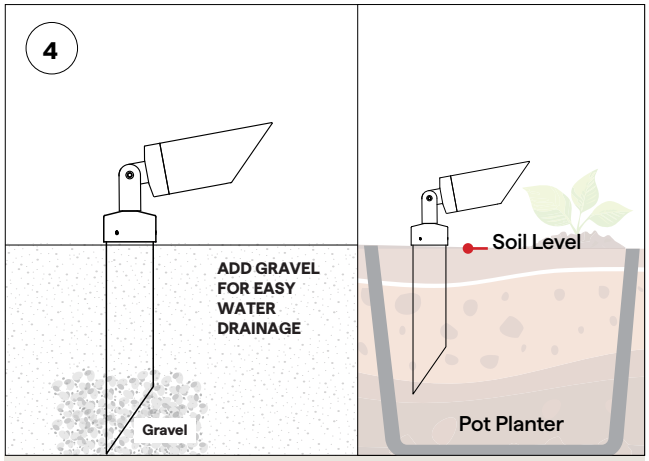
- Feed the fixture lead wire down through the canopy, then thread the fixture stem into the canopy opening and rotate until fully seated.



- Pull supply wire out of the PVC tube and splice the fixture wires.
- Use liquid-tight wire nuts or QTL Q-Mini-J and follow the wiring diagram in the luminaire installations.
- After wiring apply a 3/8-inch bead of silicone to the inner corner of the Q-MT-45 cap. Use a finger or tool to spread the bead evenly, ensuring all corners are fully covered.



- Place canopy over tube and Press the cap firmly until it is fully seated over the Q-MT-48 tube.
- Insert the three (3) side set screws and tighten until firm. Allow the silicone to set for 2 hours before testing or powering the device.
- Connection complete ready for burial.



- Add gravel for easy drainage then backfill hole with soil as shown.

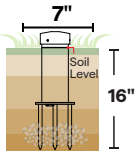
DO NOT COVER THE LUMINAIRE.

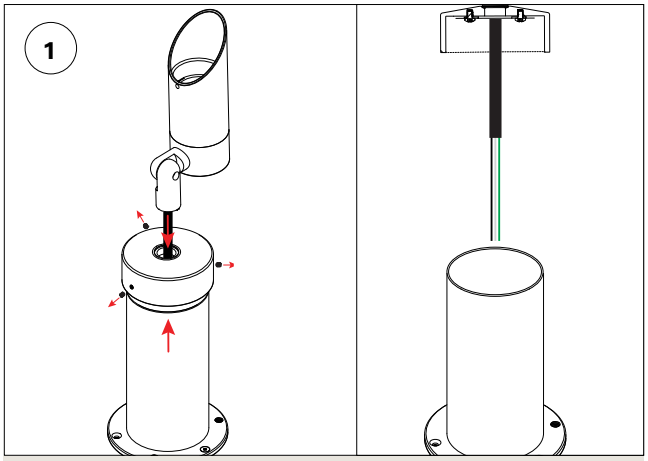
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DIRECT BURIAL

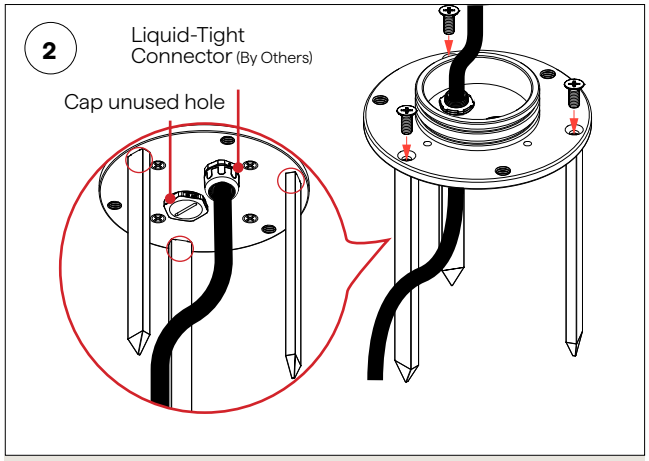
Landscape Lighting Installation Instructions

MOUNTING METHOD: **DIRECT BURIAL - NO DRIVER**
Q-MT-48

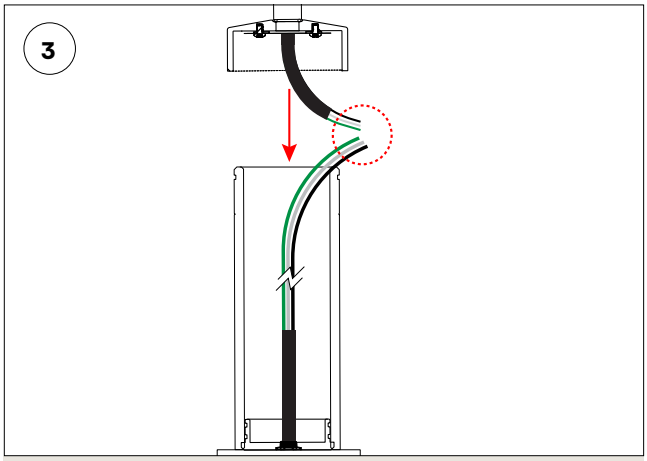




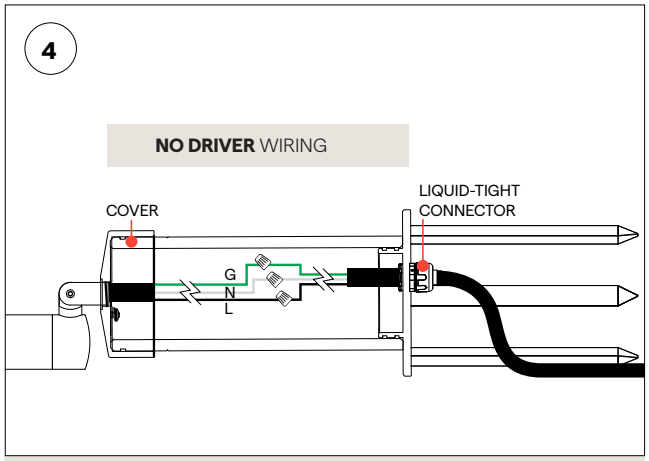
- Remove the set screws, then remove the top cap.
- Install fixture onto canopy.
- Feed the fixture lead wire down through the canopy then thread the fixture into the canopy opening and rotate until fully seated.



- Route the wire into 1/2" liquid-tight connector (by others).
- Attach the three (3) planting stakes to the underside of the mount using the supplied screws.



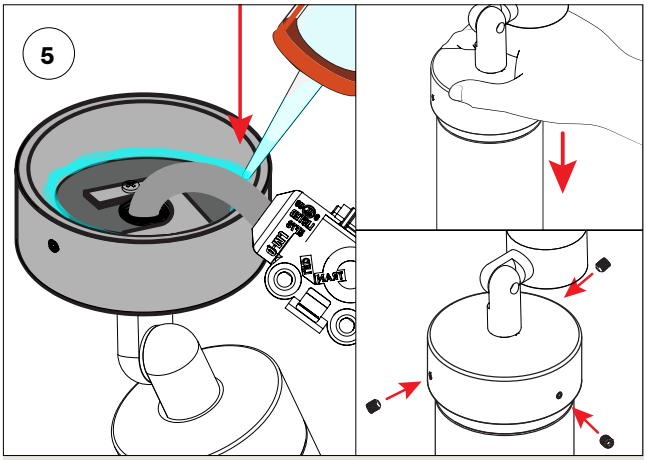
- For ease of splicing, pull the line-voltage wire out of the tube to splice it to the fixture wire using wire nuts (by others) follow luminaire wiring instructions.



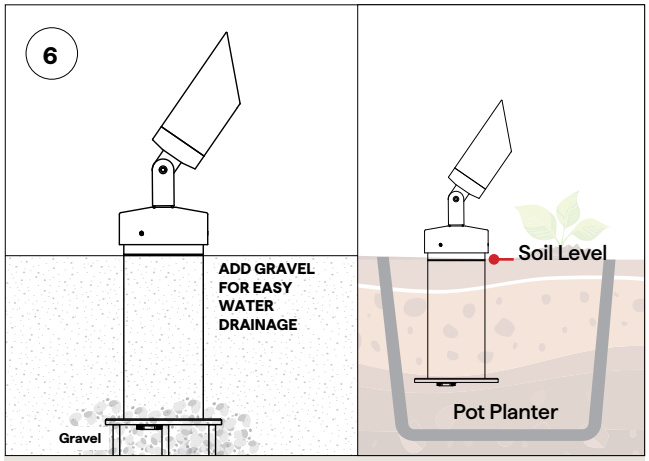
- Visual representation of complete wiring.
- Follow the wiring diagram in the luminaire instructions.

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MOUNTING METHOD: **DIRECT BURIAL - NO DRIVER**
Q-MT-48



- After wiring apply a 3/8-inch bead of silicone to the inner corner of the Q-MT-48 top cap. Use a finger or tool to spread the bead evenly, ensuring all corners are fully covered.
- Place canopy over tube and Press the cap firmly until it is fully seated over the Q-MT-48 tube.
- Insert the three (3) side set screws and tighten until firm. Allow the silicone to set for 2 hours before testing or powering the device.
- Connection complete ready for burial.

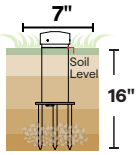


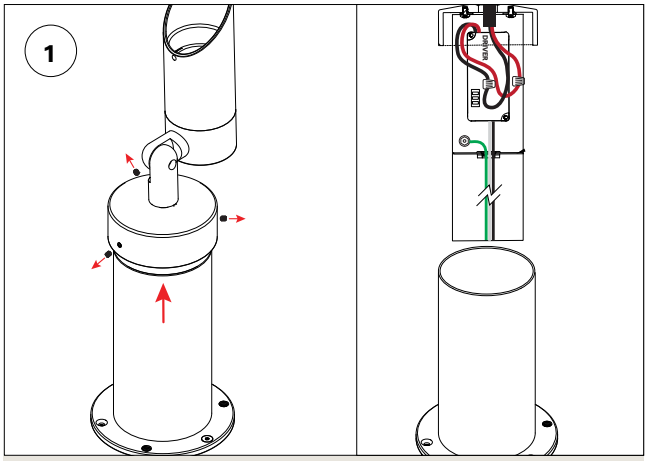
- Add gravel for easy drainage then backfill hole with soil as shown.

DO NOT COVER THE LUMINAIRE.

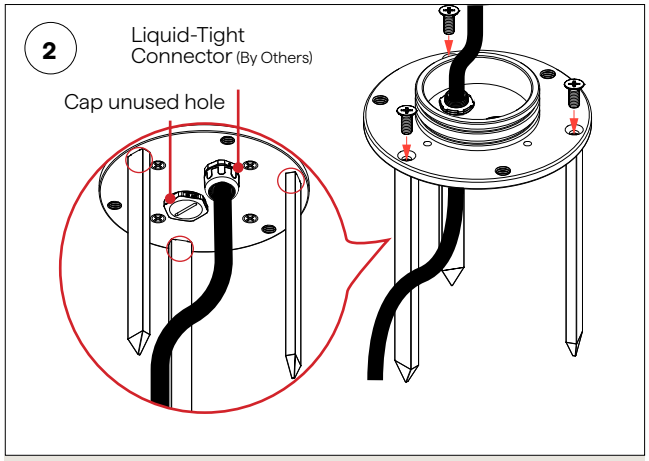
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MOUNTING METHOD: **DIRECT BURIAL - WITH DRIVER**
Q-MT-48

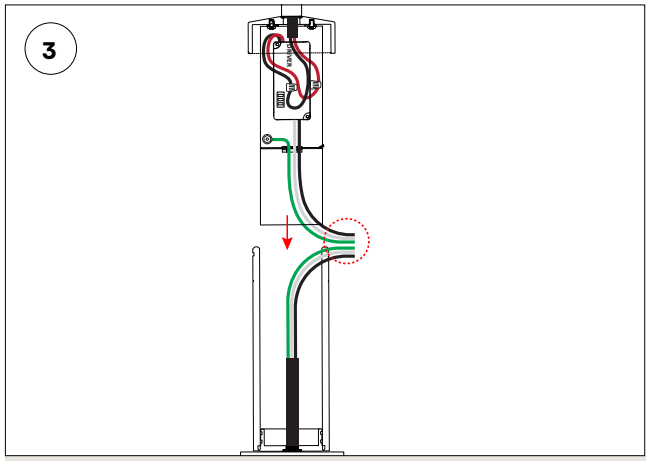




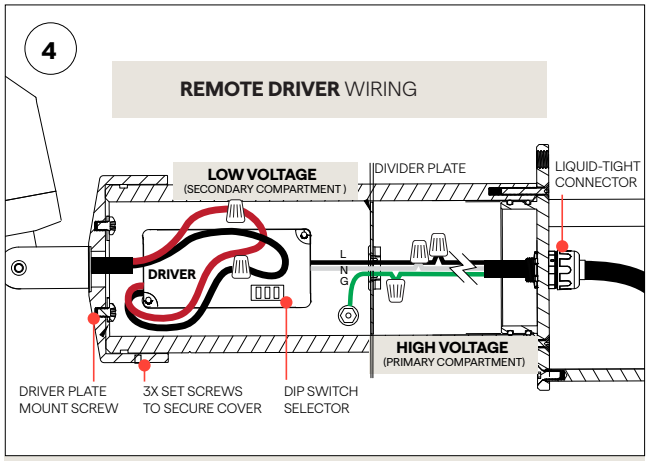
- Remove the set screws, then remove the top cap along with driver attached.



- Route the wire into 1/2" liquid-tight connector (by others).
- Attach the three (3) planting stakes to the underside of the mount using the supplied screws.



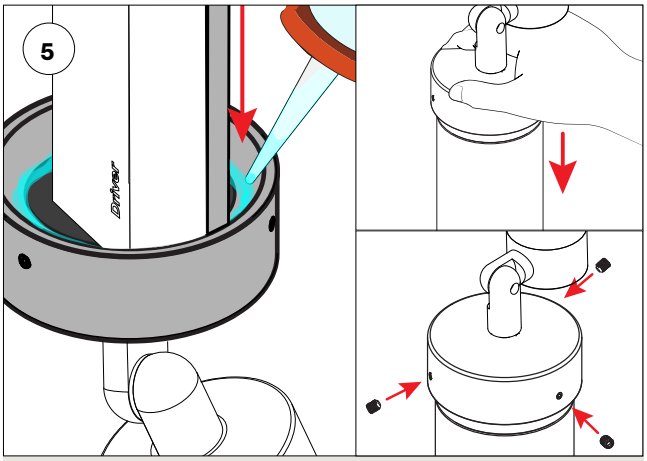
- For ease of splicing, pull the line-voltage wire out of the tube and splice it to the fixture wire using wire nuts (by others) follow luminaire wiring instructions.



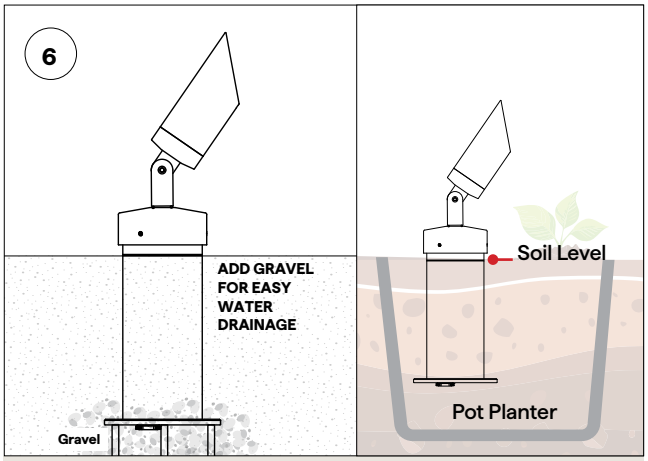
- Visual representation of complete wiring.
- Follow the wiring diagram in the luminaire instructions.

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MOUNTING METHOD: **DIRECT BURIAL - WITH DRIVER**
Q-MT-48



- Apply a 3/8-inch bead of silicone to the inner corner of the Q-MT-48 top cap. Use a finger or tool to spread the bead evenly, ensuring all corners are fully covered.
- Place canopy over tube and Press the cap firmly until it is fully seated over the Q-MT-48 tube.
- Insert the three (3) side set screws and tighten until firm. Allow the silicone to set for 2 hours before testing or powering the device.
- Connection complete ready for burial.

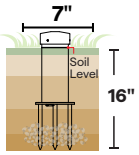


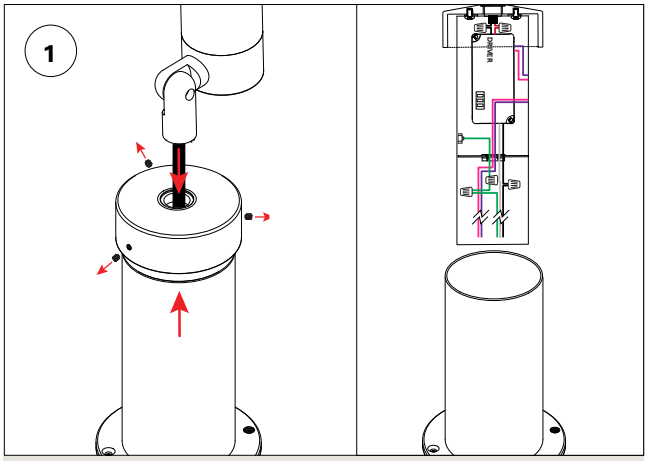
- Add gravel for easy drainage then backfill hole with soil as shown.

DO NOT COVER THE LUMINAIRE.

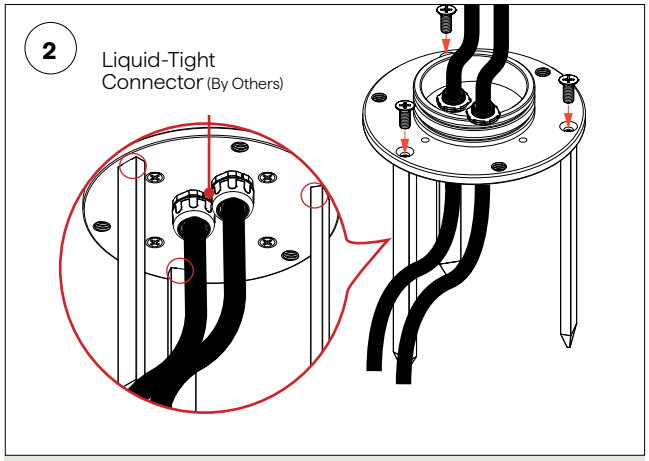
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MOUNTING METHOD: **DIRECT BURIAL - DRIVER WITH DIMMER**
Q-MT-48

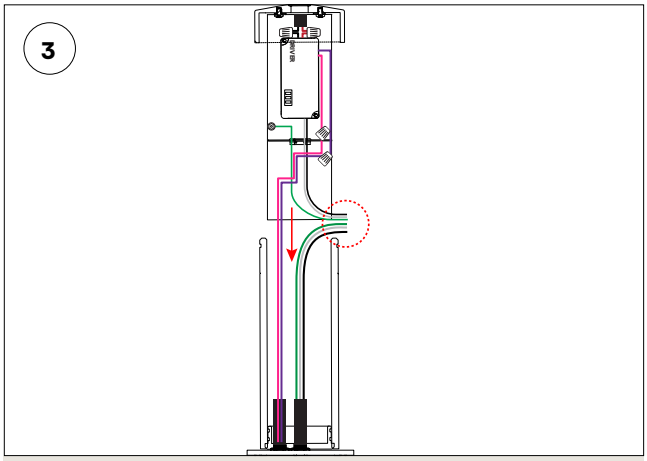




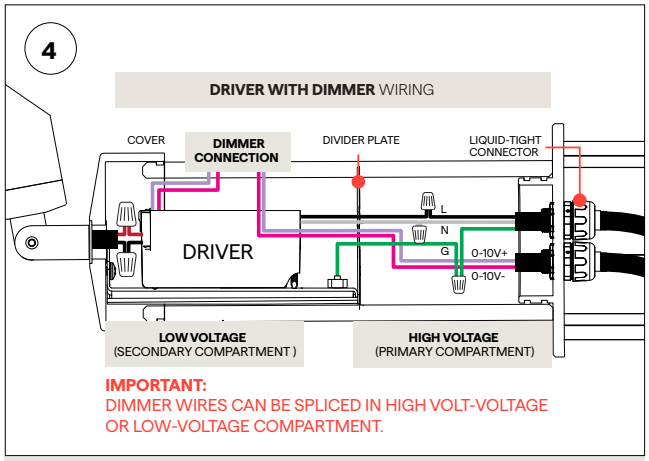
- Remove the set screws, then remove the top cap along with driver attached.



- Route the wire into 1/2" liquid-tight connector (by others).
- Attach the three (3) planting stakes to the underside of the mount using the supplied screws.



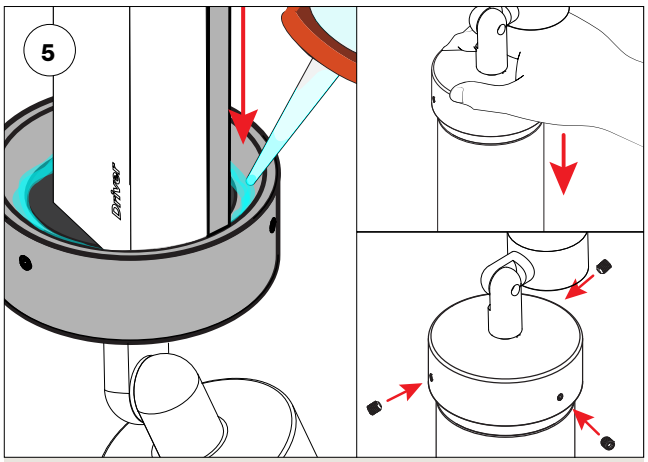
- For ease of splicing, pull the line-voltage wire out of the tube and splice it to the fixture wire using wire nuts (by others) follow luminaire wiring instructions.



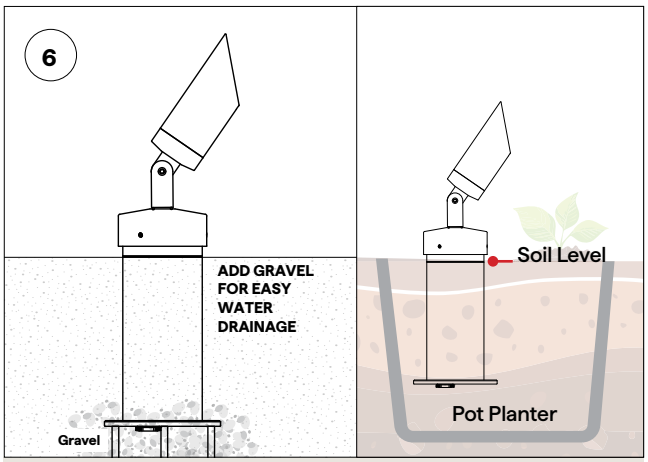
- Visual representation of complete wiring.
- Follow the wiring diagram in the luminaire instructions.

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MOUNTING METHOD: **DIRECT BURIAL - DRIVER WITH DIMMER**
Q-MT-48



- Apply a 3/8-inch bead of silicone to the inner corner of the Q-MT-48 top cap. Use a finger or tool to spread the bead evenly, ensuring all corners are fully covered.
- Place canopy over tube and Press the cap firmly until it is fully seated over the Q-MT-48 tube.
- Insert the three (3) side set screws and tightened until firm. Allow the silicone to set for 2 hours before testing or powering the device.
- Connection complete ready for burial.



- Add gravel for easy drainage then backfill hole with soil as shown.

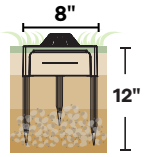
DO NOT COVER THE LUMINAIRE.

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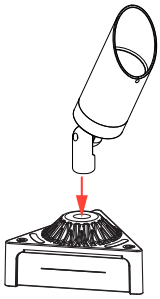
DIRECT BURIAL

Landscape Lighting Installation Instructions

MOUNTING METHOD: **DIRECT BURIAL - Q-TRIX NO DRIVER**
Q-TRIX-R20



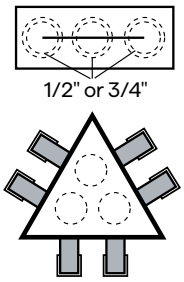
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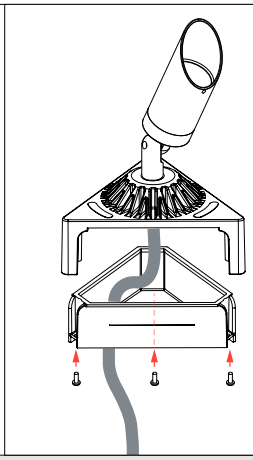


- Remove the cap to expose the 1/2" NPT threads and center knockout (KO), then install the fixture.

IMPORTANT
SQUEEZE SILICONE INTO THE THREADS
BEFORE MOUNTING FIXTURE

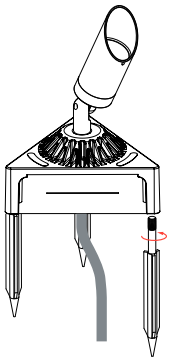
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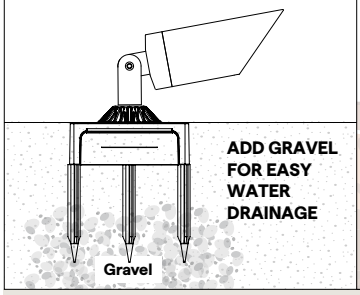
- Complete the wiring and power connection, then secure the bottom of the Q-TRIX unit with the three (3) supplied screws.

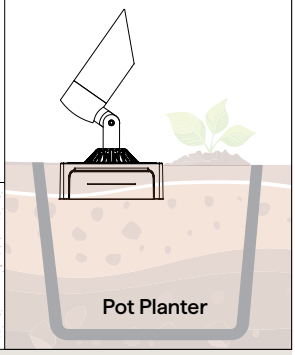
3



- Install the three (3) stakes to the Q-TRIX-R20 by screwing them in place in the direction shown.

4





- Add gravel for easy drainage then backfill hole with soil as shown.
- Refer to the Q-TRIX-R20 product page for more detailed installation guidelines.

DO NOT COVER THE LUMINAIRE.

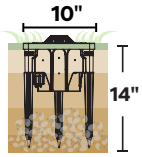
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DIRECT BURIAL

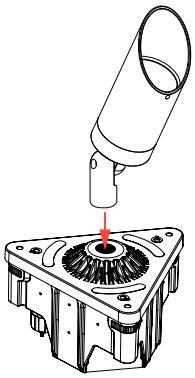
Landscape Lighting Installation Instructions

MOUNTING METHOD: **DIRECT BURIAL - Q-TRIX WITH DRIVER**

Q-TRIX-R50



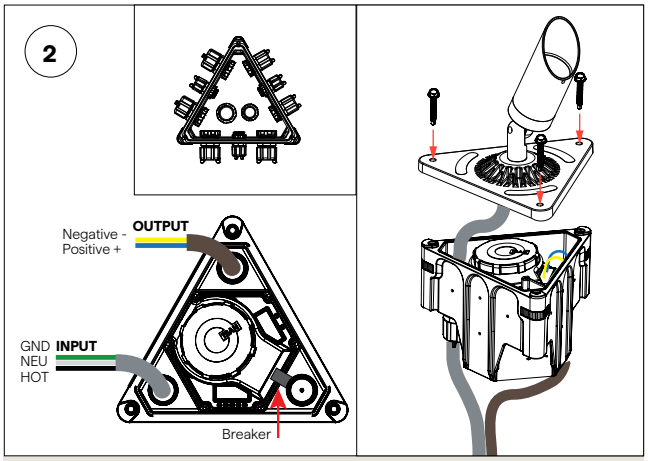
1



- Remove the cap to expose the 1/2" NPT threads and center knockout (KO), then install the fixture.

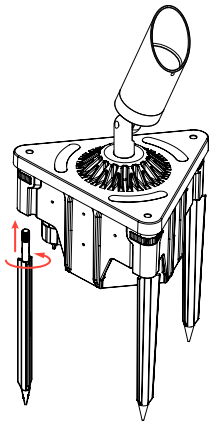
IMPORTANT
SQUEEZE SILICONE INTO THE THREADS
BEFORE MOUNTING FIXTURE

2



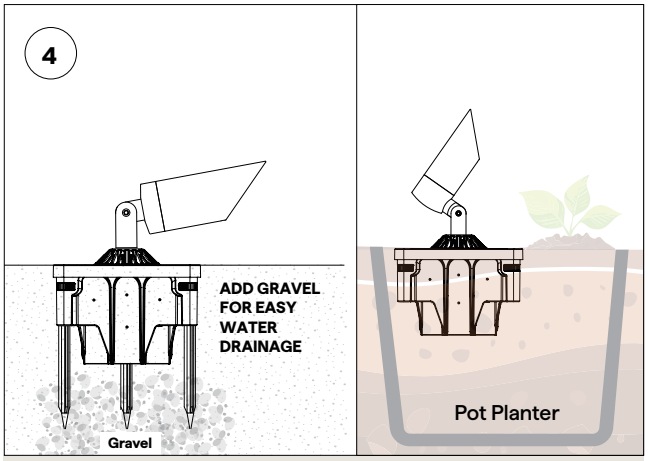
- Complete the wiring and power connection, then secure the bottom of the Q-TRIX unit with the three (3) supplied screws.

3



- Install the three (3) stakes to the Q-TRIX-R50 by screwing them in place in the direction shown.

4



- Add gravel for easy drainage then backfill hole with soil as shown.
- Refer to the Q-TRIX-R50 product page for more detailed installation guidelines.

DO NOT COVER THE LUMINAIRE.

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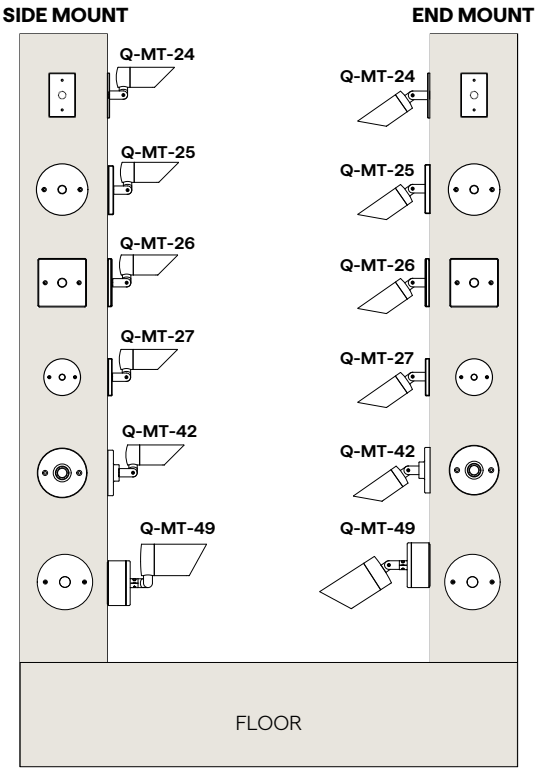
SURFACE & RECESSED J-BOX

Landscape Lighting Installation Instructions

ATTENTION: Please read all instructions BEFORE installation

- Product must be installed by a licensed electrician. Field modifications void the warranty.
- Warranty is valid only with QTL power supplies.
- Diagrams are for representation only and are not to scale.
- Apply silicone around the edge of the canopy for additional water protection.
- Ensure the J-BOX is flush and securely fastened before mounting the canopy.
- J-BOX, conduit, and connectors are supplied by the installer — not included.
- RISK OF FIRE OR INJURY / SAVE THESE INSTRUCTIONS
- Install per NEC and local codes.

METHODS OF INSTALLATION



- LUMINAIRE & MOUNT COMPATIBILITY (PAGE 2)
- COMPONENTS & HARDWARE (PAGE 3)
- SURFACE/WALL J-BOX - NO DRIVER (PAGE 4)
- RECESSED J-BOX - NO DRIVER (PAGE 5)
- RECESSED J-BOX - 120V DRIVER (PAGE 6)

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SURFACE & RECESSED J-BOX

Landscape Lighting Installation Instructions

LUMINAIRE & MOUNT COMPATIBILITY

	Q-MT-24	Q-MT-25	Q-MT-26	Q-MT-27	Q-MT-42	Q-MT-49BF No Driver	Q-MT-49BF With Driver	Q-MT-49SF No Driver	Q-MT-49SF With Driver
VOYA-EM-1.75-MR11-12VAC	✓	✓	✓	✓	✓				
VOYA-EM/SM-2.5	✓	✓	✓	✓	✓				
VOYA-EM/SM-3.0-PAR20/GU10	✓	✓	✓	✓	✓	✓		✓	
VOYA-EM/SM-3.5-COB-120VAC							✓		✓
Excelsior DL-6		✓		✓					
Excelsior DL-7		✓		✓					
Excelsior DL-8		✓		✓					
Excelsior DL-10		✓		✓					
Excelsior DL-10L		✓		✓					
Excelsior DL-11		✓		✓					
Excelsior DL-11L		✓		✓					
Excelsior DL-12		✓		✓					
Excelsior DL-12L		✓		✓					
Excelsior DL-13		✓		✓					
Excelsior DL-13L		✓		✓					
Excelsior DL-14		✓		✓					
Excelsior DL-14L		✓		✓					
Excelsior DL-28	✓	✓	✓	✓					
Excelsior DL-29	✓	✓	✓	✓					
Excelsior DL-30	✓	✓	✓	✓					
Excelsior UL-28		✓	✓	✓					
Excelsior UL-29		✓	✓	✓					
Excelsior UL-30		✓	✓	✓					
Excelsior WA-1		✓	✓	✓					
Excelsior WA-1L		✓	✓	✓					
Excelsior WA-2		✓	✓	✓					
Excelsior WA-2L		✓	✓	✓					
Excelsior WA-4		✓	✓	✓					
Excelsior WA-4L		✓	✓	✓					
Excelsior WA-5		✓	✓	✓					
Excelsior WA-5L		✓	✓	✓					
Excelsior WA-6		✓	✓	✓					
Excelsior WA-6L		✓	✓	✓					
Excelsior WA-23		✓	✓	✓					
Excelsior WA-24		✓	✓	✓					
Excelsior WA-25		✓	✓	✓					
Excelsior WA-26		✓	✓	✓					
Excelsior WA-27		✓	✓	✓					
Excelsior WA-28		✓	✓	✓					
Excelsior WA-7		✓	✓	✓					
Excelsior WA-7L		✓	✓	✓					
Excelsior WA-8		✓	✓	✓					
Excelsior WA-8L		✓	✓	✓					
Excelsior WA-10		✓	✓	✓					
Excelsior WA-10L		✓	✓	✓					
Excelsior WA-12		✓	✓	✓					
Excelsior WA-12L		✓	✓	✓					
Excelsior WA-29		✓	✓	✓					
Excelsior WA-30		✓	✓	✓					
Excelsior WA-31		✓	✓	✓					
Excelsior WA-38		✓	✓	✓					
Excelsior WA-39		✓	✓	✓					
Excelsior WA-40		✓	✓	✓					

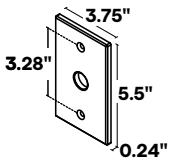
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SURFACE & RECESSED J-BOX

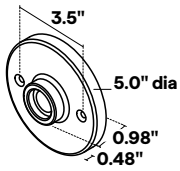
Landscape Lighting Installation Instructions

SURFACE/WALL J-BOX PLATES

Q-MT-24

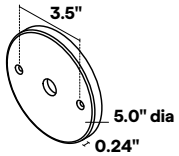


Q-MT-42

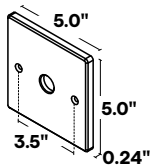


RECESSED J-BOX PLATES

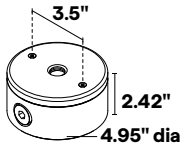
Q-MT-25



Q-MT-26

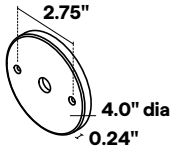


Q-MT-49

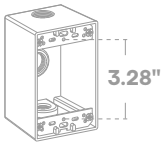


With Water Protection

Q-MT-27

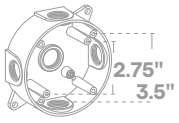


RECOMMENDED JUNCTION BOXES (BY OTHERS)



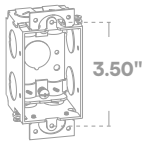
6-32x1.25"

SINGLE GANG
WEATHERPROOF J-BOX



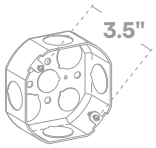
10-24x 1.25"

4/O
WEATHERPROOF J-BOX



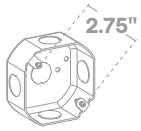
6-32×1.25"

SINGLE GANG
RECESSED J-BOX



8-32x1.25"

4/O
RECESSED J-BOX

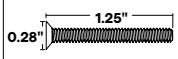


8-32x1.25"

3/O
RECESSED J-BOX

COMPONENTS & HARDWARE

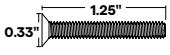
PROVIDED HARDWARE



#PN	QTY
Q-MT-24	2
Q-MT-49	2

6-32x1.25"

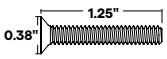
FLAT HEAD SCREW



#PN	QTY
Q-MT-25	2
Q-MT-26	2
Q-MT-27	2

8-32x1.25"

FLAT HEAD SCREW



#PN	QTY
Q-MT-42	2

10-24x 1.25"

FLAT HEAD SCREW



#PN	QTY
Q-MT-42	1

10-32x3/16"

SET SCREW

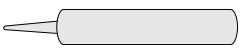
SUGGESTED TOOLS/MATERIALS



#PN	QTY
Q-MT-24	1
Q-MT-25	1
Q-MT-26	1
Q-MT-27	1

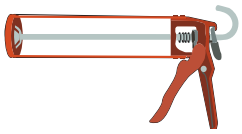
1/2-14 NPS HEX NUT

HEX NUT / JAM NUT



Waterproof Silicone

ALL PURPOSE SILICONE



CAULKING GUN

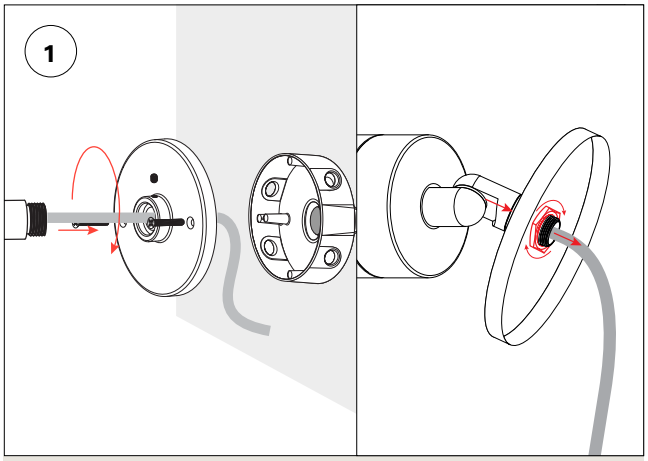
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SURFACE & RECESSED J-BOX

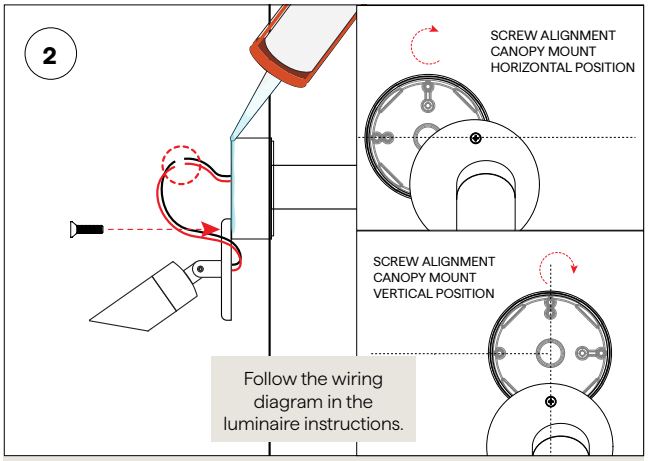
Landscape Lighting Installation Instructions

MOUNTING METHOD: **SURFACE/WALL J-BOX - NO DRIVER**

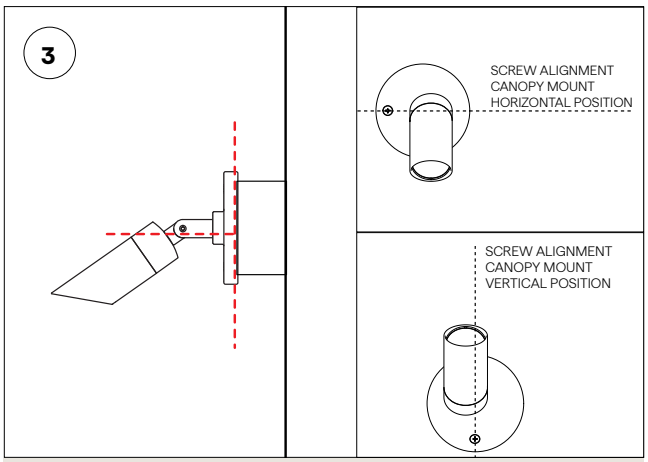
Q-MT-24, Q-MT-42



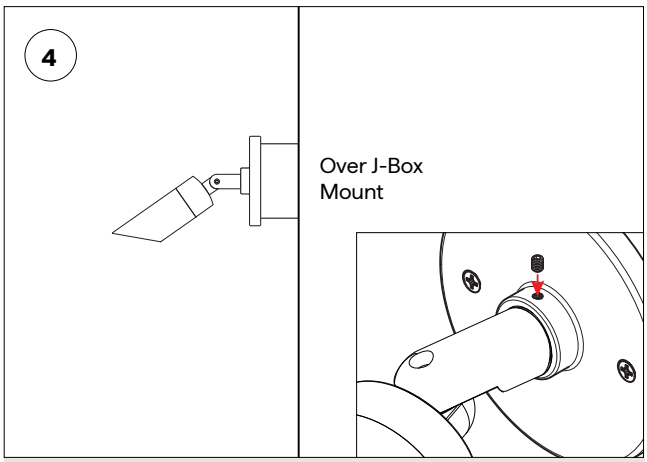
- Prepare the J-BOX by removing knockouts for wire entry
- Install the surface-mount J-BOX on the wall following the manufacturer's instructions.
- Bring the power supply wires through the J-BOX connectors.
- Q-MT-42: Install the fixture onto the canopy and screw it on until seated.
- Q-MT-24: Install the fixture onto the canopy and secure it with the provided jam nut.



- Mount one side of the canopy with the provided screws.
- Cut the wires to length as needed and splice the fixture and J-BOX wires together.
- Add a bead of silicone around the trim of the J-BOX for additional water protection as needed.



- Tuck the excess wires into the J-BOX, rotate the canopy into position, and install the provided screw into the J-BOX.

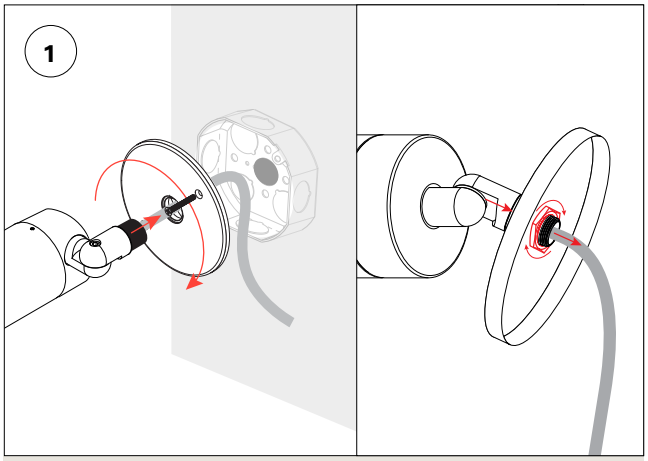


- Q-MT-42: The fixture can be rotationally adjusted slightly with the provided set screw on the canopy. Other canopies do not have this feature.
- Installation complete.

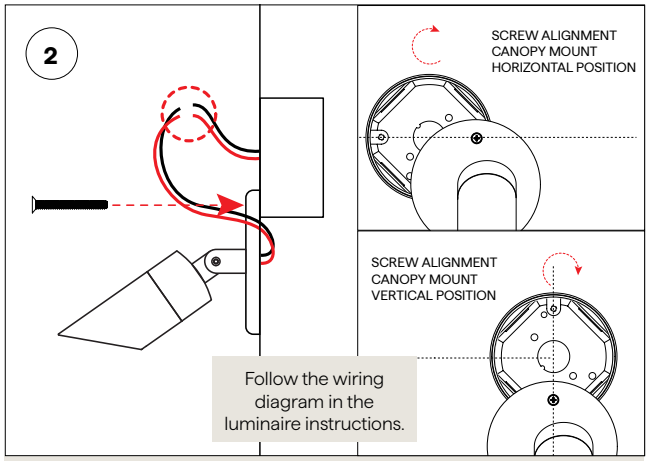
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MOUNTING METHOD: **RECESSED J-BOX - NO DRIVER**

Q-MT-25, Q-MT-26, Q-MT-27, Q-MT-49BF

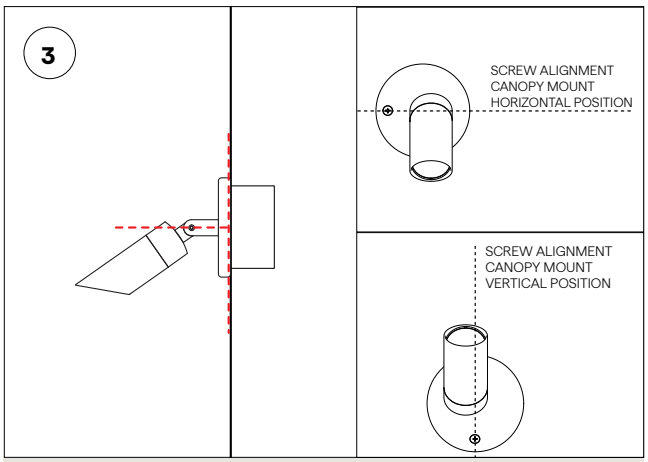


- Prepare the J-BOX by removing knockouts for wire entry.
- Install the recessed J-BOX behind the surface following the manufacturer's instructions.
- Bring the power supply wires through the J-BOX connectors.
- Q-MT-49: Install the fixture onto the canopy and screw it on until seated.
- Q-MT-25, Q-MT-26, Q-MT-27: Install the fixture onto the canopy and secure it with the provided jam nut.

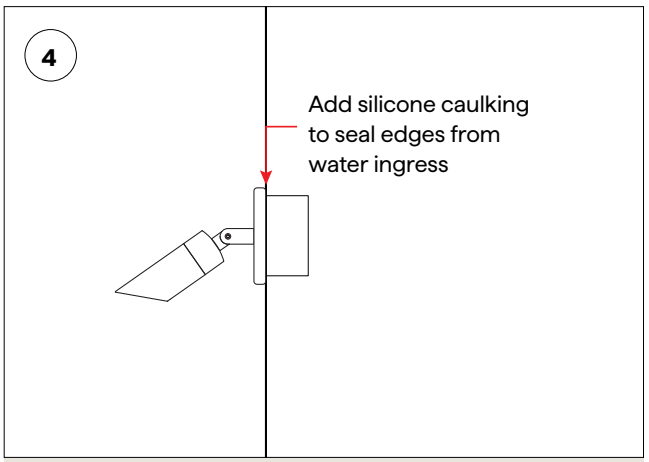


- Mount one side of the canopy with the provided screws.
- Cut the wires to length as needed and splice the fixture and J-BOX wires together.

NOTE: *The canopy must completely cover the J-BOX and the excess hole cutout. Mounting screws are not provided. Secure the Q-MT-49 base using #10 mounting screws (by others).*



- Tuck the excess wires into the J-BOX, rotate the canopy into position, and install the provided screw into the J-BOX.



- Add additional silicone caulking for extra protection against water ingress.
- Installation complete.

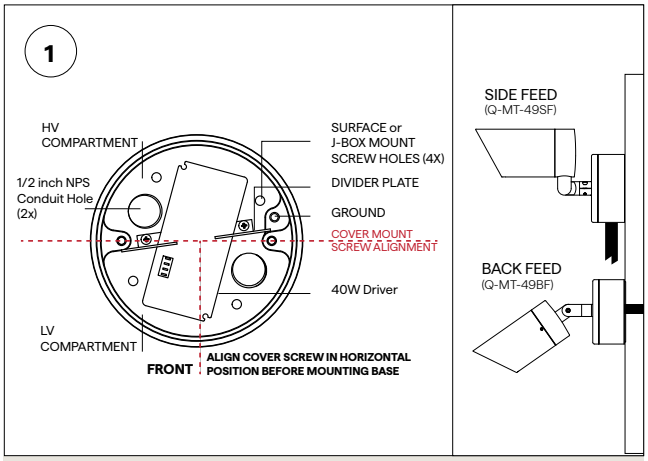
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SURFACE & RECESSED J-BOX

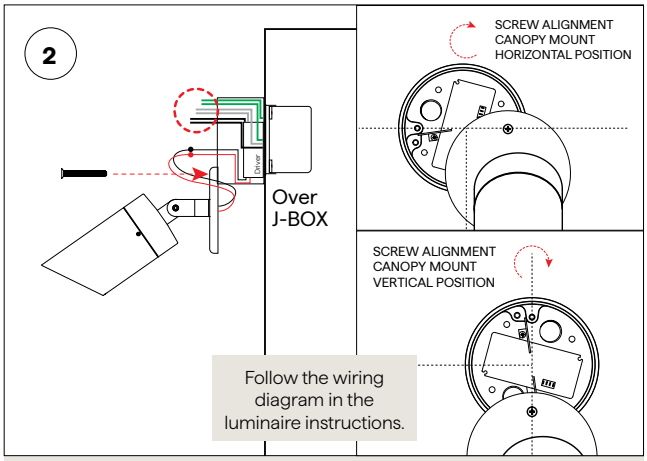
Landscape Lighting Installation Instructions

MOUNTING METHOD: **RECESSED J-BOX - 120V DRIVER**

Q-MT-49BF, Q-MT-49SF

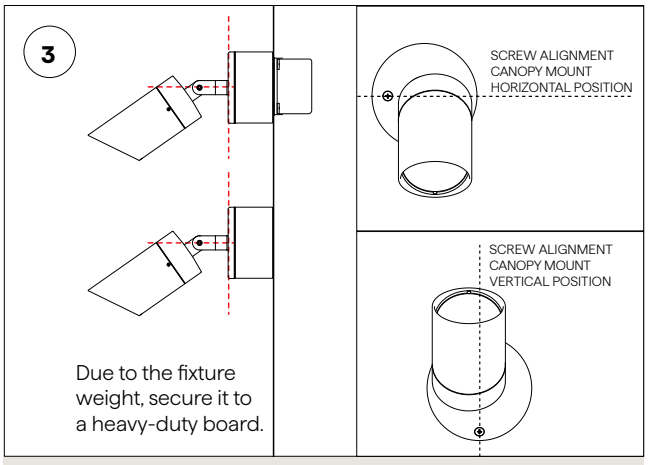


- Prepare the J-BOX by removing knockouts for wire entry.
- Install the recessed J-BOX behind the surface following the manufacturer's instructions.
- Bring the power supply wires through the J-BOX connectors.

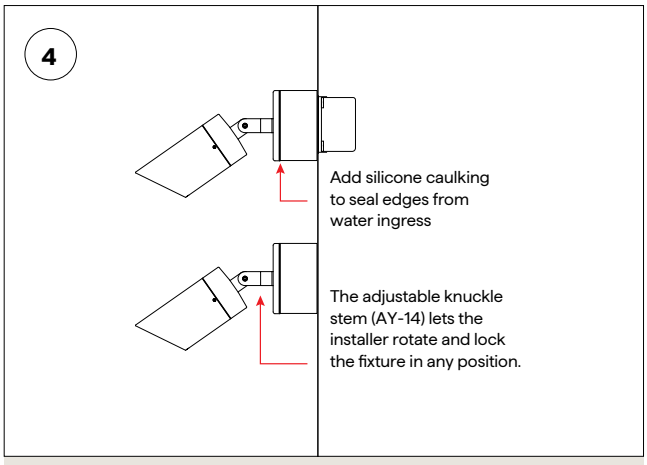


- Remove one canopy screw and rotate the canopy to access the wire compartment.
- Mount the VOYA 3.5" base (Q-MT-49) to the recessed J-BOX using the manufacturer's suggested hardware.
- Cut the wires to length as needed and splice the fixture and power supply / dimming wires together. (Reference the VOYA 3.5" COB luminaire instructions for the specific wiring diagram.)

NOTE: *The canopy must completely cover the J-BOX and the excess hole cutout. Mounting screws are not provided. Secure the Q-MT-49 base using #10 mounting screws (by others).*



- Tuck the excess wires into the Q-MT-49 base, rotate the canopy back into position, and secure it with the provided screw.



- Add additional silicone caulking for extra protection against water ingress.
- Installation complete.

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SURFACE/WALL

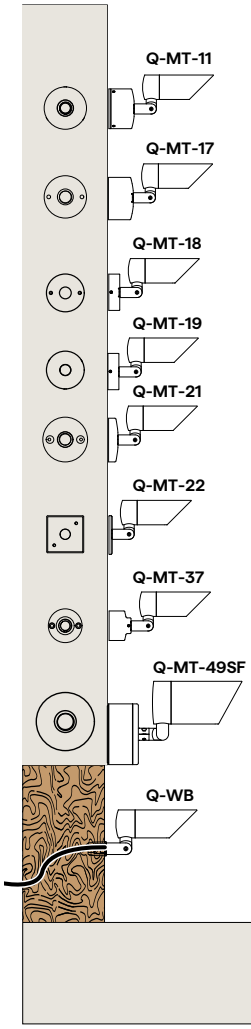
Landscape Lighting Installation Instructions

⚠ ATTENTION: Please read all instructions BEFORE installation

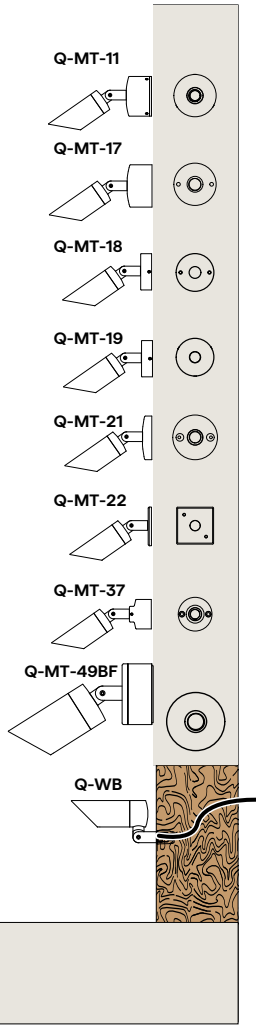
- Product must be installed by a licensed electrician. Field modifications void the warranty.
- Warranty is valid only with QTL power supplies.
- Diagrams are for representation only and are not to scale.
- Apply silicone around the edge of the canopy for additional water protection.
- Ensure the mounting surface is plumb and can support the fixture weight.
- Use the appropriate wire gauge for the run length.
- Use a liquid-tight connector for 120V wire entry.
- RISK OF FIRE OR INJURY / SAVE THESE INSTRUCTIONS
- Install per NEC and local codes.

METHODS OF INSTALLATION

SIDE MOUNT



END MOUNT



- LUMINAIRE & MOUNT COMPATIBILITY (PAGE 2)
- COMPONENTS & HARDWARE (PAGE 3)
- SURFACE/WALL - NO DRIVER (PAGE 4-5)
- SURFACE/WALL - WITH DRIVER (PAGE 6)
- WOOD BEAM (PAGE 7)

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LUMINAIRE & MOUNT COMPATIBILITY

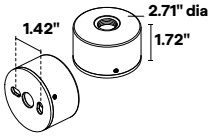
	Q-MT-11	Q-MT-17	Q-MT-18	Q-MT-19	Q-MT-21	Q-MT-22	Q-MT-37	Q-MT-49BF No Driver	Q-MT-49BF With Driver	Q-MT-49SF No Driver	Q-MT-49SF With Driver	Q-WB
VOYA-EM-1.75-MR11-12VAC	✓	✓	✓	✓	✓	✓	✓					✓
VOYA-EM/SM-2.5	✓	✓	✓	✓	✓	✓	✓					✓
VOYA-EM/SM-3.0-PAR20/GU10								✓		✓		
VOYA-EM/SM-3.5-COB-120VAC									✓		✓	
Excelsior DL-6	✓				✓							
Excelsior DL-7	✓				✓							
Excelsior DL-8	✓				✓							
Excelsior DL-10	✓				✓							
Excelsior DL-10L	✓				✓							
Excelsior DL-11	✓				✓							
Excelsior DL-11L	✓				✓							
Excelsior DL-12	✓				✓							
Excelsior DL-12L	✓				✓							
Excelsior DL-13	✓				✓							
Excelsior DL-13L	✓				✓							
Excelsior DL-14	✓				✓							
Excelsior DL-14L	✓				✓							

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SURFACE/WALL

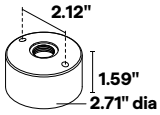
Landscape Lighting Installation Instructions

Q-MT-11

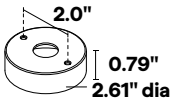


With Water Protection

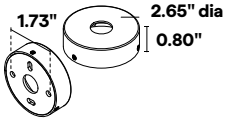
Q-MT-17



Q-MT-18

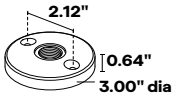


Q-MT-19

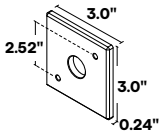


With Water Protection

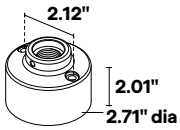
Q-MT-21



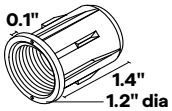
Q-MT-22



Q-MT-37

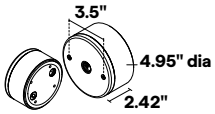


Q-WB



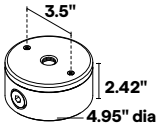
Wood Beam Mount

Q-MT-49BF



With Water Protection

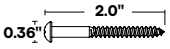
Q-MT-49SF



With Water Protection

COMPONENTS & HARDWARE

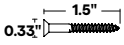
PROVIDED HARDWARE



#PN	QTY
Q-MT-17	2
Q-MT-18	2

#10-3/16x2"

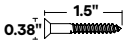
ROUND HEAD SCREW



#PN	QTY
Q-MT-21	2

#8-3/16x1.5"

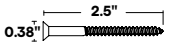
FLAT HEAD SCREW



#PN	QTY
Q-MT-22	2

#10-3/16x1.5"

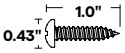
FLAT HEAD SCREW



#PN	QTY
Q-MT-37	2

#10-3/16x2.5"

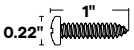
FLAT HEAD SCREW



#PN	QTY
Q-MT-11	2

#12-SS Round Head 1.0"

PHILLIPS ROUND HEAD SCREW



#PN	QTY
Q-MT-19	2

316 SS Round Head 1.0"

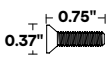
ROUND HEAD SCREW



#PN	QTY
Q-MT-11	3
Q-MT-19	3
Q-MT-37	1

10-32x3/16"

SET SCREW



#PN	QTY
Q-MT-49	2

10-32x3/4"

HEX FLAT HEAD SCREW



#PN	QTY
Q-MT-18	1
Q-MT-19	1
Q-MT-22	1

1/2-14 NPS HEX NUT

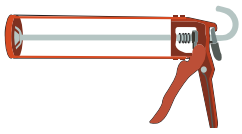
HEX NUT / JAM NUT

SUGGESTED TOOLS/MATERIALS



Waterproof Silicone

ALL PURPOSE SILICONE

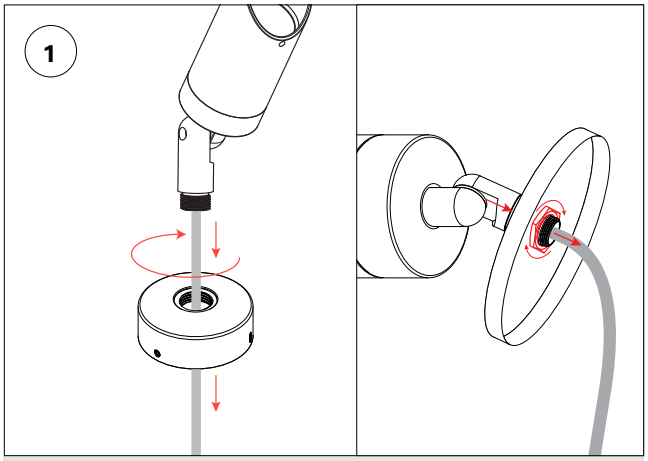


CAULKING GUN

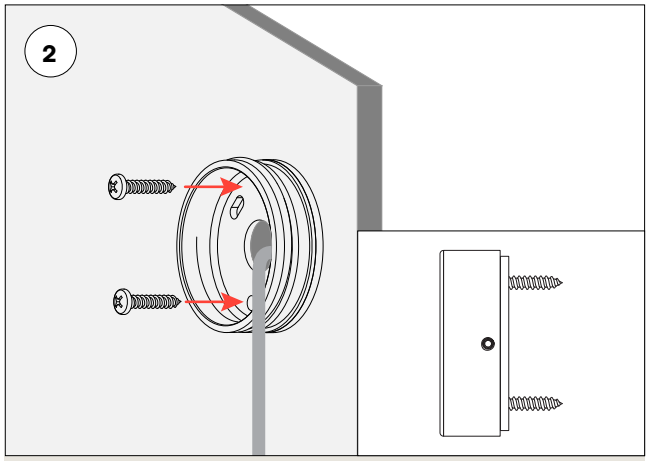
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MOUNTING METHOD: **SURFACE/WALL - NO DRIVER**

Q-MT-11, Q-MT-17, Q-MT-18, Q-MT-19, Q-MT-21, Q-MT-22, Q-MT-37

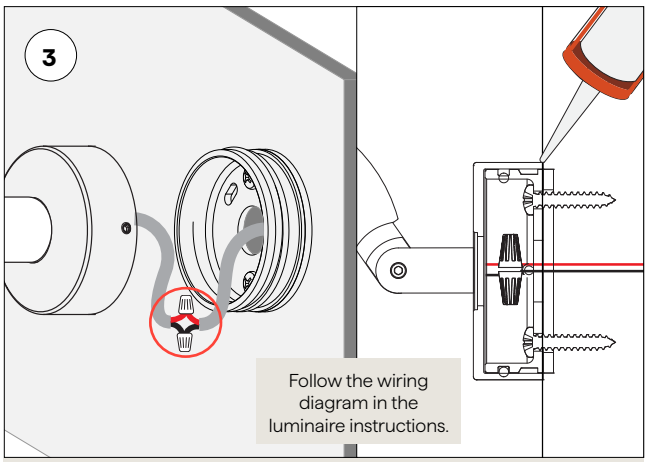


- Feed the fixture lead wire down through the canopy.
- Q-MT-11, Q-MT-17, Q-MT-21, Q-MT-37: Install the fixture onto the canopy and screw it on until seated.
- Q-MT-18, Q-MT-19, Q-MT-22: Install the fixture onto the canopy and secure it with the provided jam nut.



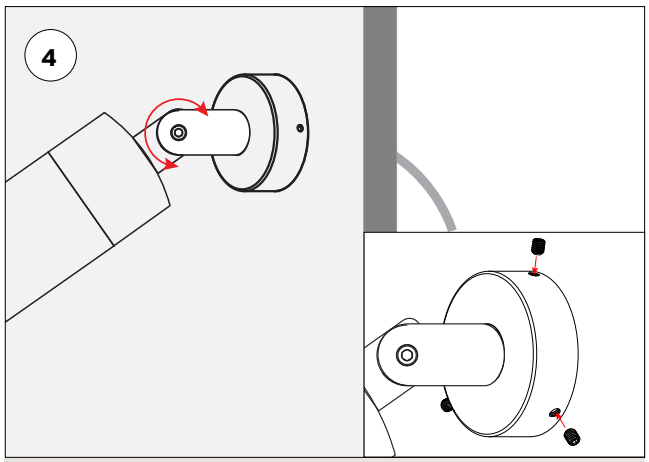
- Align the mounting screw holes in the vertical or horizontal position before mounting the base/canopy.
- Hold the base/canopy against the mounting surface and secure it with the two provided screws. Confirm the surface is level and can support the fixture weight.

NOTE: *Not all mounting methods include both a base and a canopy.*



- Cut the wires to length as needed and splice the fixture and line voltage / power supply wires together. (Reference the luminaire instructions for the specific wiring diagram.)

NOTE: *Silicone can be applied to the edge of the canopy before tightening the screws for additional water protection.*

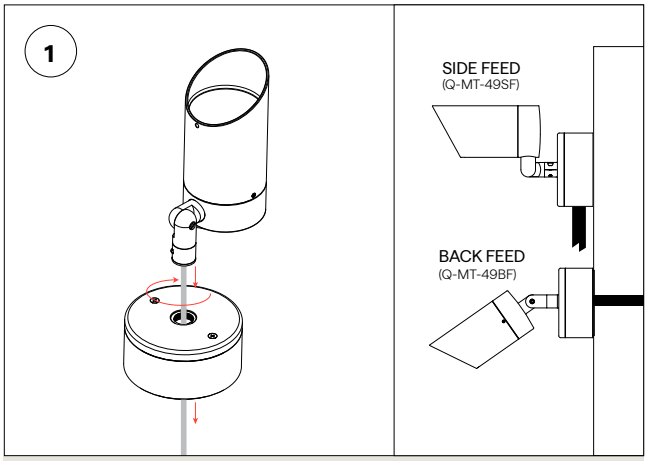


- Q-MT-37: The fixture can be rotationally adjusted slightly with the provided set screw on the canopy. Other canopies do not have this feature.
- Q-MT-11, Q-MT-19: Tighten the provided set screws to secure the fixture in place.
- Installation complete.

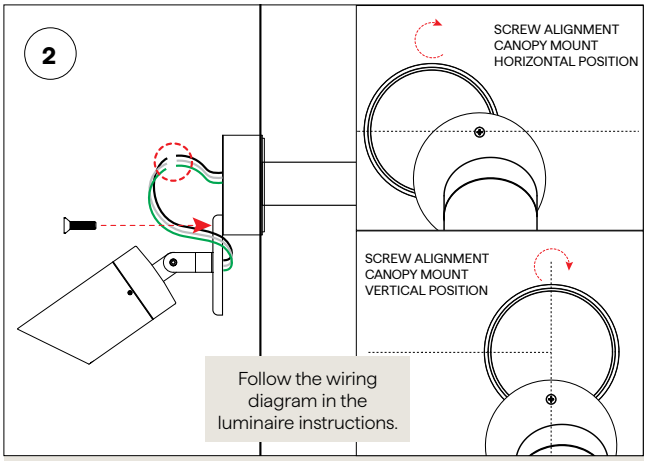
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MOUNTING METHOD: **SURFACE/WALL - NO DRIVER**

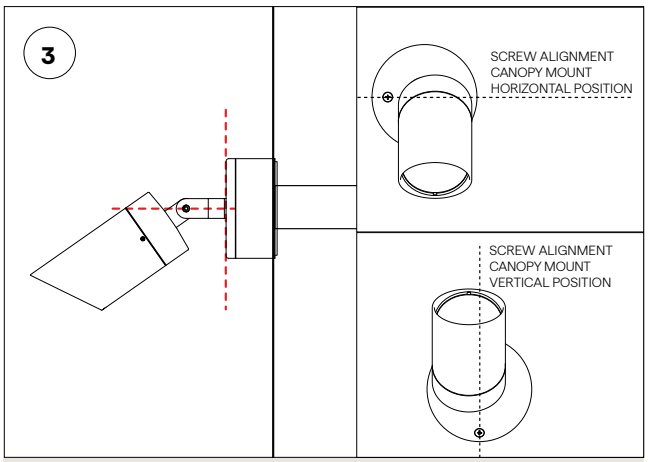
Q-MT-49BF, Q-MT-49SF



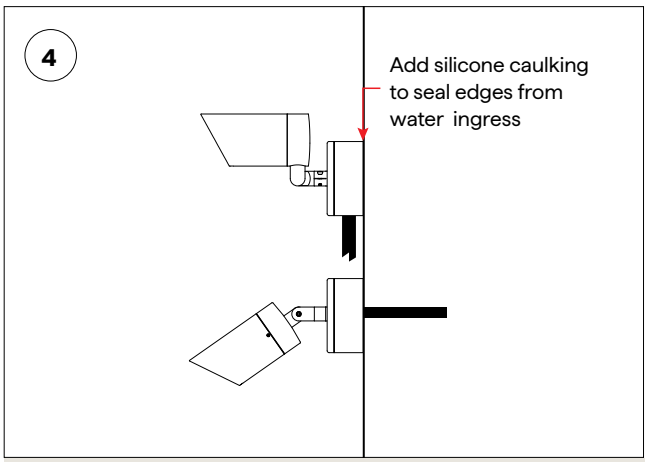
- Remove one canopy screw and rotate the canopy to access the wire compartment.
- Back feed (Q-MT-49BF): Feed the wire through the Q-MT-49 base knockout. Connect per NEC code.
- Side feed (Q-MT-49SF): Feed the wire through the Q-MT-49 base knockout. Connect per NEC code.
- Mount the Q-MT-49 base onto the surface using wood screws (by others). Confirm the surface is level and can support the fixture weight.



- Mount one side of the canopy with the provided screws.
- Cut the wires to length as needed and splice the fixture and line voltage wires together.



- Tuck the excess wires into the Q-MT-49 base, rotate the canopy back into position, and secure it with the provided screw.



- Add additional silicone caulking for extra protection against water ingress.
- Installation complete.

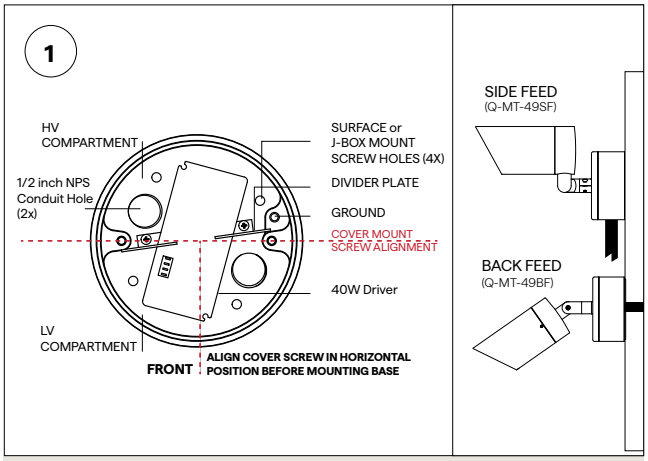
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SURFACE/WALL

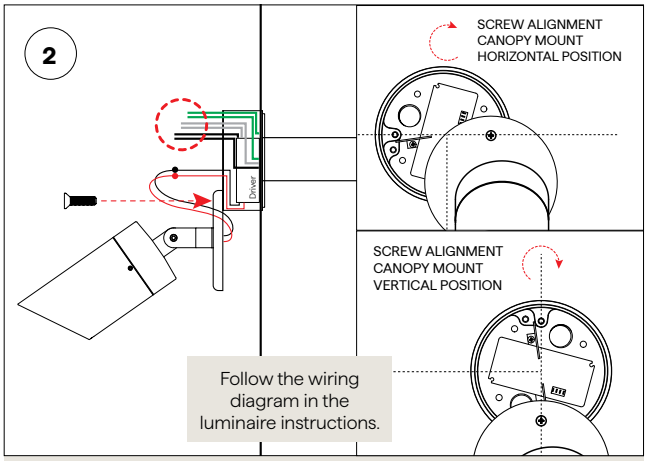
Landscape Lighting Installation Instructions

MOUNTING METHOD: **SURFACE/WALL - 120V DRIVER**

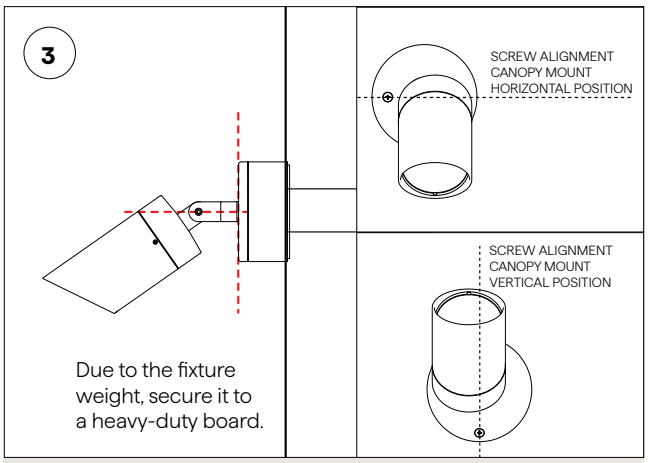
Q-MT-49BF, Q-MT-49SF



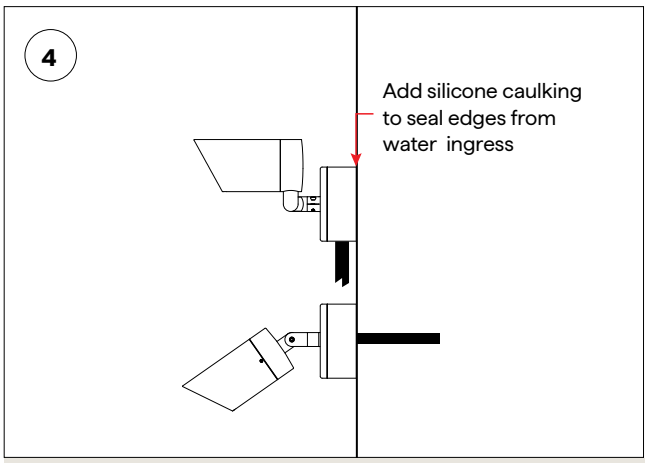
- Remove one canopy screw and rotate the canopy to access the wire compartment.
- Back feed (Q-MT-49BF): Feed the wire through the Q-MT-49 base knockout. Connect per NEC code.
- Side feed (Q-MT-49SF): Feed the wire through the Q-MT-49 base knockout. Connect per NEC code.
- Mount the Q-MT-49 base onto the surface using wood screws (by others). Confirm the surface is level and can support the fixture weight.



- Mount one side of the canopy with the provided screws.
- Cut the wires to length as needed and splice the fixture and power supply / dimming wires together. (Reference the VOYA 3.5" COB luminaire instructions for the specific wiring diagram.)



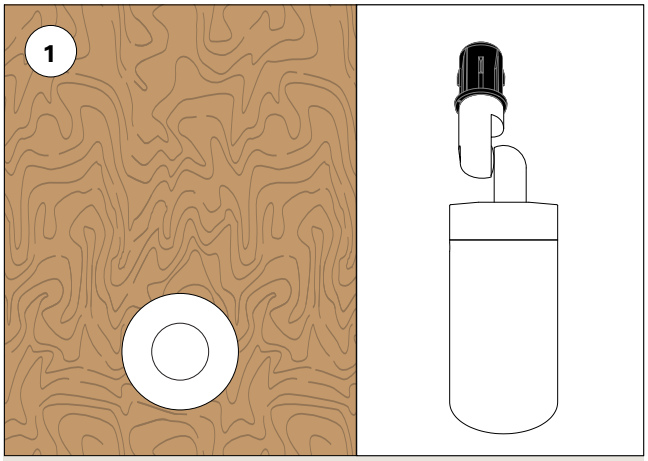
- Tuck the excess wires into the Q-MT-49 base, rotate the canopy back into position, and secure it with the provided screw.



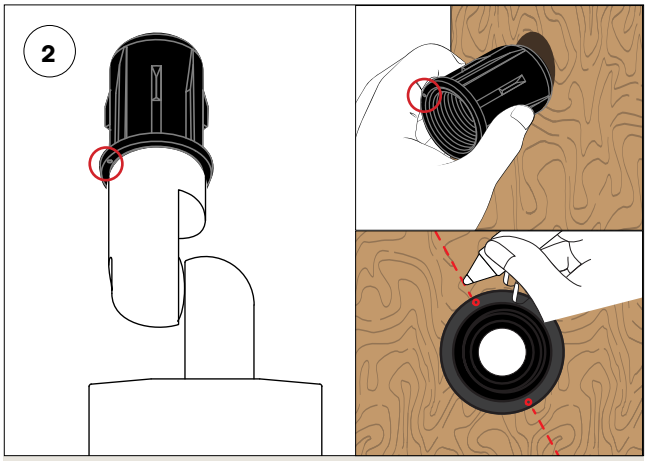
- Add additional silicone caulking for extra protection against water ingress.
- Installation complete.

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MOUNTING METHOD: **WOOD BEAM - NO DRIVER**
Q-WB

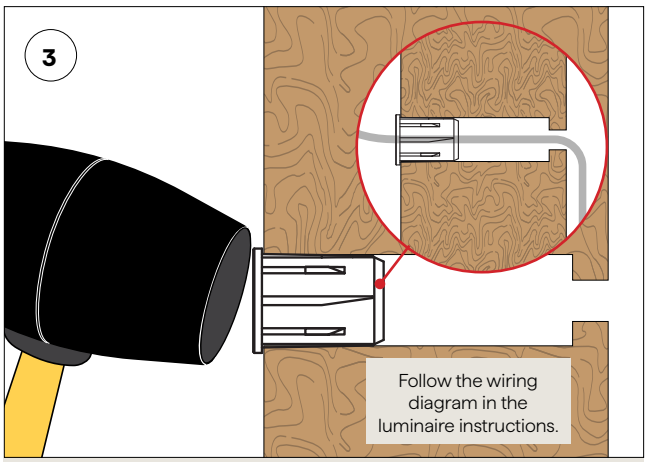


- Drill a 1" diameter hole, 3" deep. Then drill a wire access hole to route the fixture cable through the wood beam.
- Rotate the fixture into the Q-WB mount until fully seated.

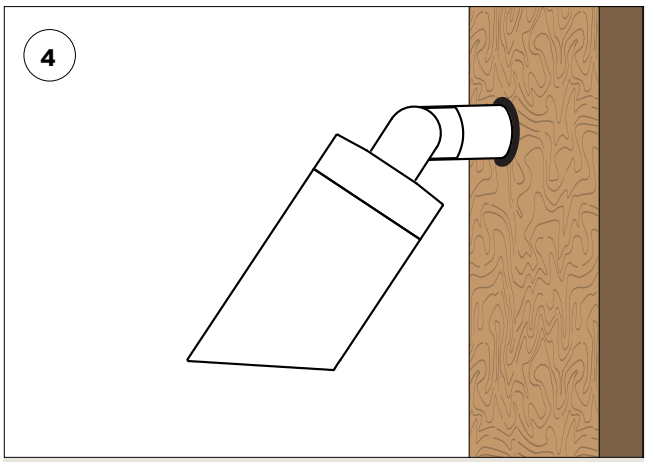


- Orient the fixture in the desired position, then use the indicator dots as reference markers to mark the final fixture position.
- Remove the fixture from the Q-WB mount then proceed to step 3.

NOTE: *The Q-WB mount can only be inserted once and cannot be adjusted afterward.*



- Ensure the indicator dots are aligned with the reference marks.
- Tap the Q-WB mount into the wood with a mallet until it is flush, as shown.
- Cut the wires to length as needed and splice the fixture and power supply wires together. (Reference the luminaire instructions for the specific wiring diagram.)



- Rotate the fixture into the Q-WB mount until fully seated.
- Installation complete.

NOTE: *The Q-WB mount can only be inserted once and cannot be adjusted afterward.*

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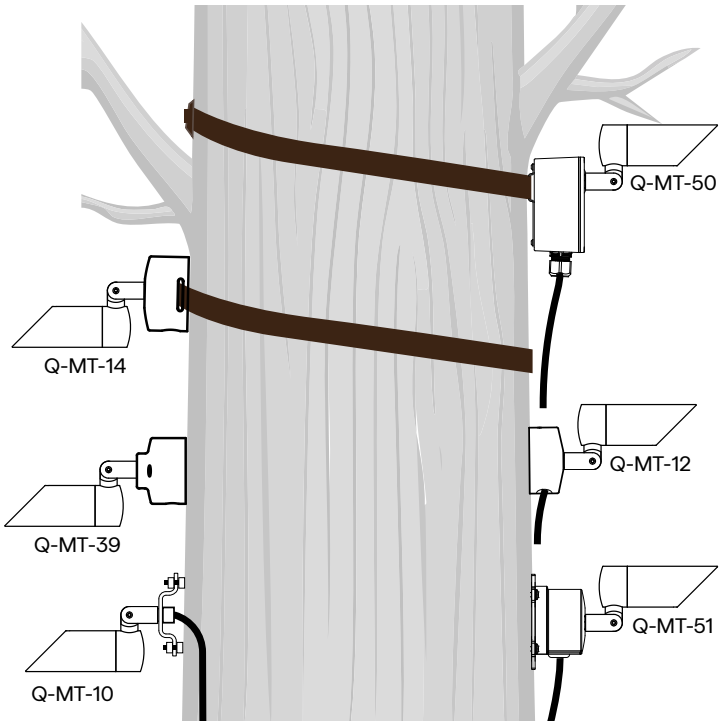
TREE MOUNT

Landscape Lighting Installation Instructions

ATTENTION: Please read all instructions BEFORE installation

- Product must be installed by a licensed electrician. Field modifications void the warranty.
- Warranty is valid only with QTL power supplies.
- Diagrams are for representation only and are not to scale.
- Wrap the nylon ratchet strap around the tree. DO NOT OVERTIGHTEN — overtightening can damage the tree.
- Use the provided or recommended bolts to attach mounts to the tree.
- Use a liquid-tight connector for 120V wire entry.
- RISK OF FIRE OR INJURY / SAVE THESE INSTRUCTIONS
- Install per NEC and local codes.

METHODS OF INSTALLATION



- COMPONENTS & HARDWARE (PAGE 2)
- TREE MOUNT - NO DRIVER (PAGE 3-4)
- TREE MOUNT - 120V DRIVER (PAGE 5)

LUMINAIRE & MOUNT COMPATIBILITY

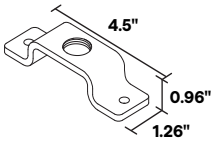
	Q-MT-10	Q-MT-12	Q-MT-14	Q-MT-39	Q-MT-50 No Driver	Q-MT-50 With Driver	Q-MT-51
VOYA-EM-1.75-MR11-12VAC	✓	✓	✓	✓	✓		✓
VOYA-EM/SM-2.5	✓	✓	✓	✓	✓		✓
VOYA-EM/SM-3.0-PAR20/GU10					✓		✓
VOYA-EM/SM-3.5-COB-120VAC						✓	

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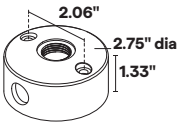
TREE MOUNT

Landscape Lighting Installation Instructions

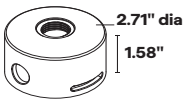
Q-MT-10



Q-MT-12

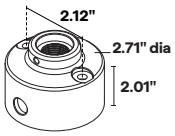


Q-MT-14

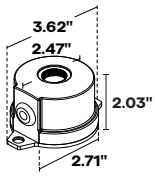


With Tree Strap

Q-MT-39

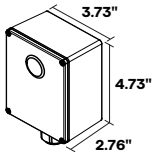


Q-MT-51



With Water Protection

Q-MT-50

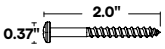


With Water Protection & Tree Strap

No Driver | With Driver

COMPONENTS & HARDWARE

PROVIDED HARDWARE



#PN	QTY
Q-MT-12	2

#10-3/16x2"

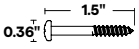
PHILLIPS ROUND HEAD SCREW



#PN	QTY
Q-MT-50	4
Q-MT-51	3

6-32x0.5"

FLAT HEAD SCREW



#PN	QTY
Q-MT-51	2

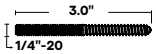
#10-3/16x1.5"

PHILLIPS ROUND HEAD SCREW



1/4-20 NUT

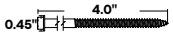
#PN	QTY
Q-MT-10	4



1/4-20x3"

#PN	QTY
Q-MT-10	2

HANGER BOLT



#PN	QTY
Q-MT-39	2

1/4"-20X3"

HEX BOLT SCREW



#PN	QTY
Q-MT-10	1
Q-MT-50	1

1/2-14 NPS HEX NUT

HEX NUT / JAM NUT

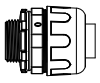


#PN	QTY
Q-MT-14	1
Q-MT-50	1

Nylon Strap Ratchet

TREE MOUNT STRAP

RECOMMENDED HARDWARE



#PN	QTY
Q-MT-50	1

1/2" Liquid-Tight Connector
(By Others)

CONDUIT CONNECTOR

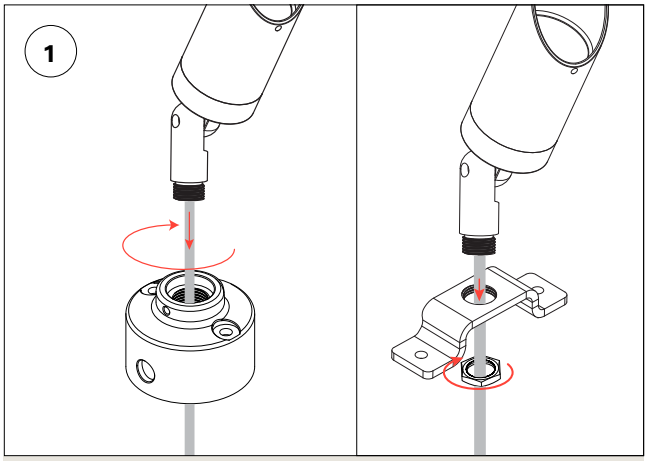
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TREE MOUNT

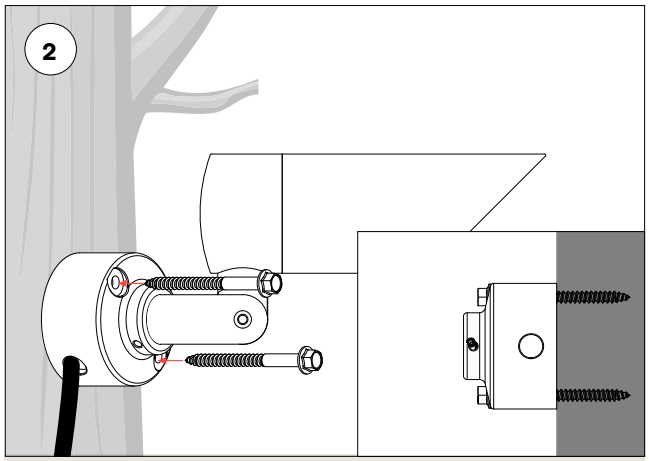
Landscape Lighting Installation Instructions

MOUNTING METHOD: **TREE MOUNT - NO DRIVER**

Q-MT-10, Q-MT-12, Q-MT-14, Q-MT-39, Q-MT-51

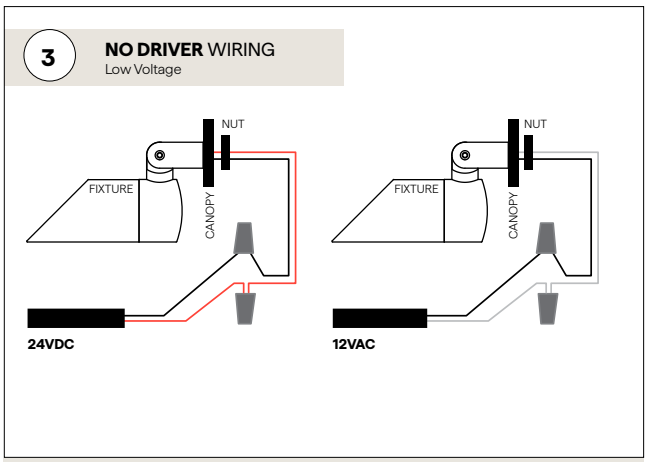


- Feed the fixture lead wire down through the canopy.
- Q-MT-12, Q-MT-14, Q-MT-39, Q-MT-51: Install the fixture onto the canopy and screw it on until seated.
- Q-MT-10: Install the fixture onto the canopy and secure it with the provided jam nut.

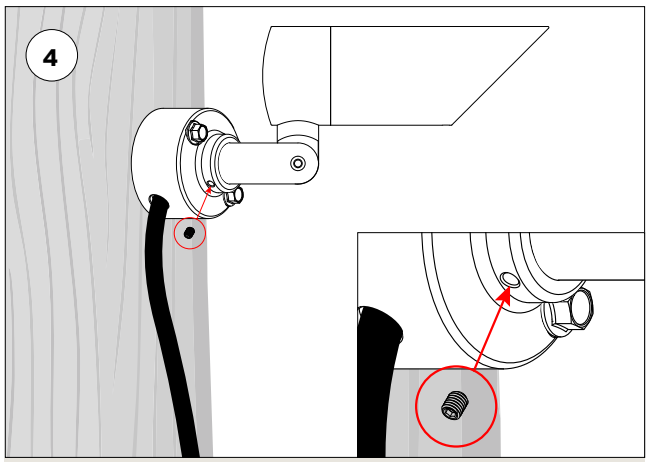


- Align the mounting screw holes in the vertical or horizontal position before mounting the base/canopy.
- Hold the base/canopy against the mounting surface and secure it with the two provided screws.

NOTE: *Not all mounting methods include both a base and a canopy.*



- If the mount has a wire hole, run the power supply wire through the hole before splicing. (Reference the luminaire instructions for wiring details).
- Cut the fixture wire to length as needed and splice the fixture and power supply wires together with liquid-tight wire nuts (by others).



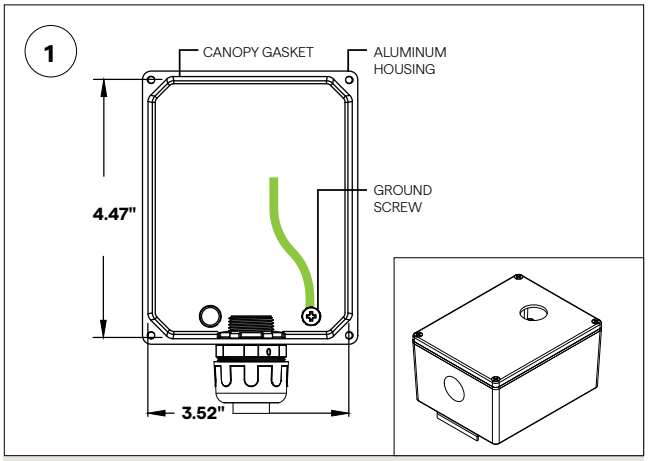
- Q-MT-39: After installation, the fixture can be rotationally adjusted slightly with the provided set screw on the canopy. Other canopies do not have this feature.
- Installation complete.

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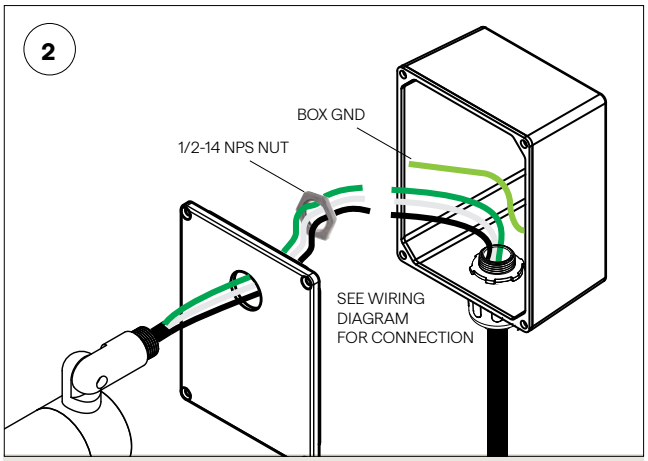
TREE MOUNT

Landscape Lighting Installation Instructions

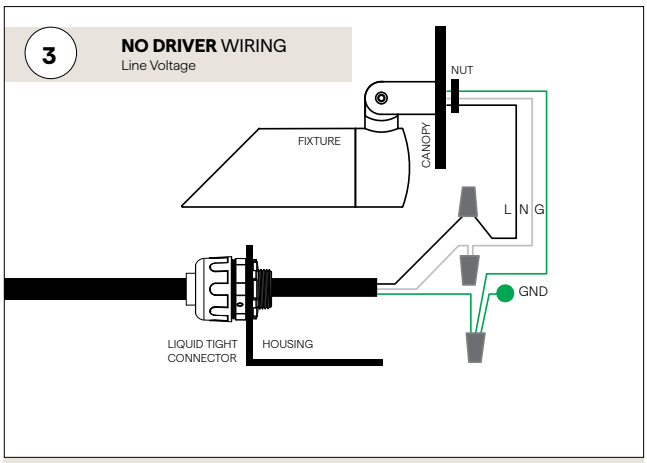
MOUNTING METHOD: **TREE MOUNT - NO DRIVER**
Q-MT-50



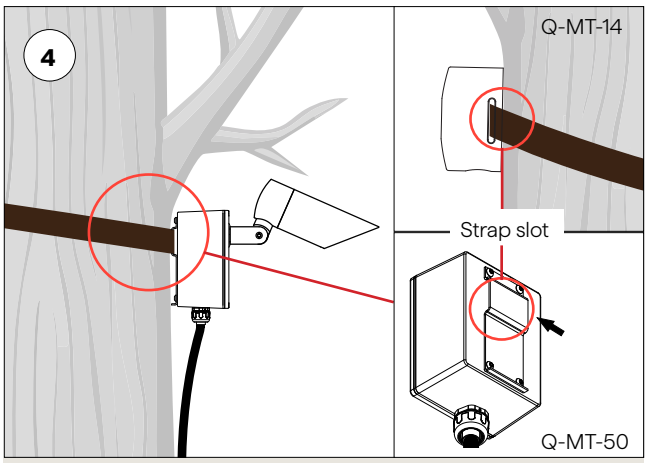
- Remove the four (4) canopy screws and lift off the canopy gasket. Route the power supply cable into the housing through recommended liquid-tight connector.



- Mount the fixture onto the canopy with the 1/2-14 jam nut.
- Splice the wires together with wire nuts (by others). See the luminaire instructions for wiring details.
- Reinstall the canopy.



- Cut the fixture wire to length as needed and splice the fixture and power supply wires together with liquid-tight wire nuts (by others).



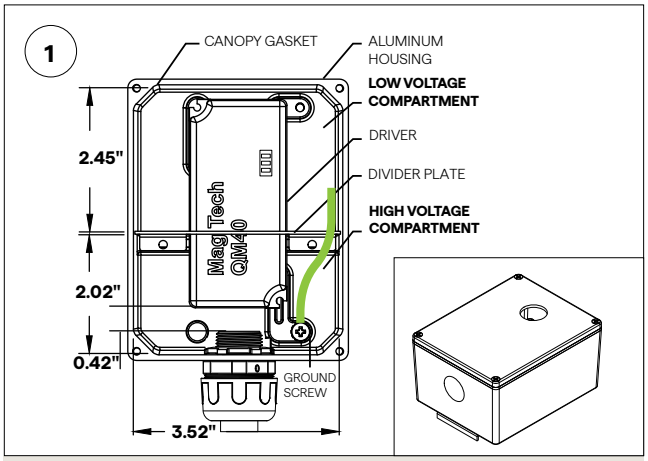
- Weave the tree strap through the slot on the back of the housing, wrap it around the tree, and tighten it with the ratchet until secure. **DO NOT OVERTIGHTEN** — overtightening can damage the tree.
- Installation complete.

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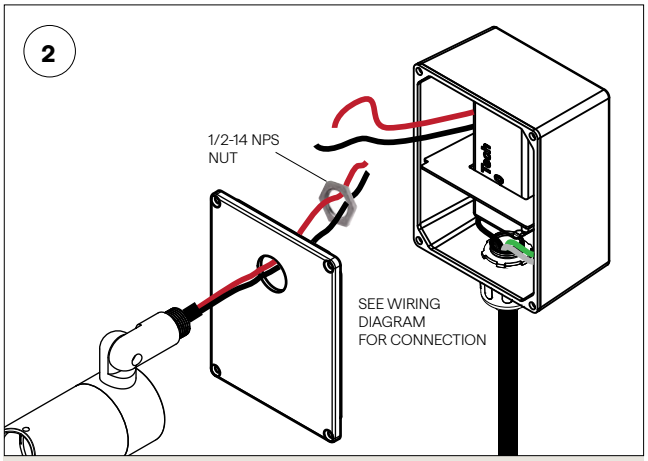
TREE MOUNT

Landscape Lighting Installation Instructions

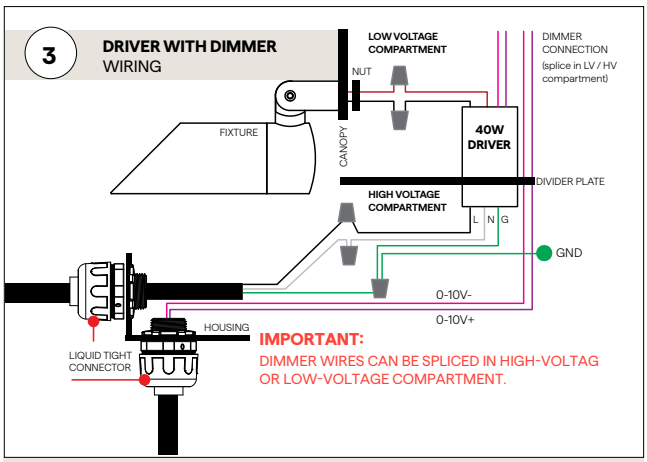
MOUNTING METHOD: **TREE MOUNT - 120V DRIVER**
Q-MT-50



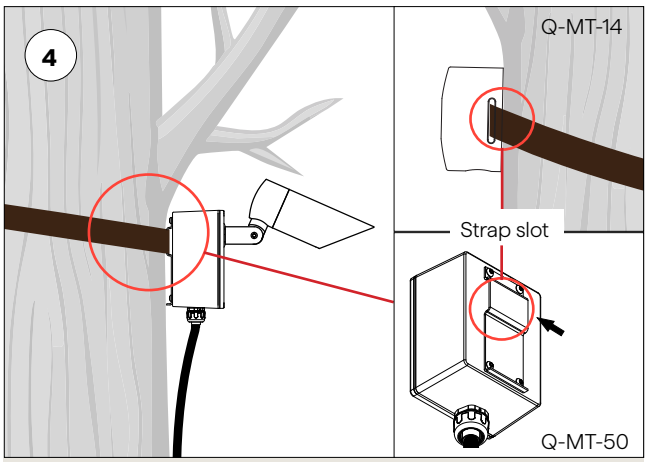
- Remove the four (4) canopy screws and lift off the canopy and gasket. The divider plate separates the HIGH-VOLTAGE (HV) and LOW-VOLTAGE (LV) compartments; the lower part of the 40W driver has the line-voltage wires. Bring the 120V cable into the HV compartment through the liquid-tight connector and splice the wires.
- See the luminaire wiring diagram for additional details.



- Install the fixture on the canopy with the jam nut, rotating the fixture to the desired angle and tightening the nut.
- Use liquid-tight wire nuts to splice the fixture wires and driver wires together, following the wiring diagram in the luminaire instructions.
- Place the canopy over the box and tighten the screws.



- Cut the fixture wire to length as needed and splice the fixture and power supply wires together with liquid-tight wire nuts (by others).



- Weave the tree strap through the slot on the back of the housing, wrap it around the tree, and tighten it with the ratchet until secure. **DO NOT OVERTIGHTEN** — overtightening can damage the tree.
- Installation complete.

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VOYA 2.5" COB STATIC WHITE

Landscape Lighting Color Data

VOYA-2.5-COB-12VAC-SW-ST-95-30-FL-COBSP-12-**-**-12

2988 K

CRI: 98.6

CRI R9: 88.2

TM30 Rf: 97.6

TM30 Rg: 99.0

CQS: 95.5

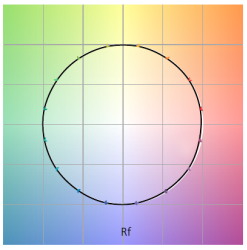
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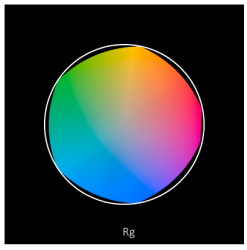
Y: 0.409

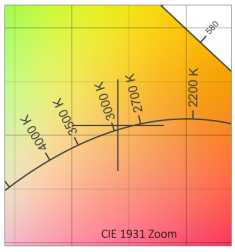
U: 0.251

V: 0.349

Δuv: 0.0016







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
99.9	99.6	98.0	99.0	99.7	98.6	98.2	95.4	88.2	98.3	97.6	95.3	99.7	98.1	97.5
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
94.4	96.1	95.0	96.0	97.0	98.1	95.9	94.7	95.3	94.3	95.2	95.8	96.9	95.3	94.9
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
97.5	98.7	97.5	98.7	98.3	97.4	98.0	98.4	99.2	98.1	97.9	94.4	94.3	95.7	97.2	96.4

TM30			
Hue Bin	R_f	Chroma	Hue
1	97	-1%	0%
2	99	0%	0%
3	97	-1%	0%
4	99	0%	0%
5	98	0%	1%
6	97	-1%	1%
7	98	0%	0%
8	98	1%	1%
9	99	0%	0%
10	98	0%	-1%
11	98	0%	-2%
12	94	0%	-4%
13	94	0%	-5%
14	96	-1%	-3%
15	97	-1%	-1%
16	96	-2%	-2%

VOYA-2.5-COB-12VAC-SW-ST-95-30-FL-COB-16-**-**-12

2997 K

CRI: 98.0

CRI R9: 92.9

TM30 Rf: 97.3

TM30 Rg: 99.3

CQS: 96.2

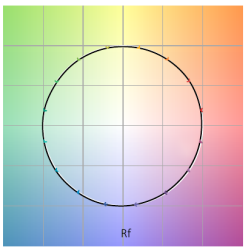
X: 0.438

Y: 0.406

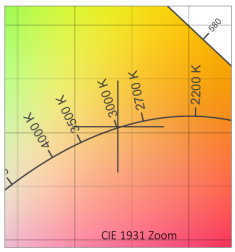
U: 0.251

V: 0.348

Δuv: 0.0004







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
98.5	98.7	98.9	98.0	98.2	96.7	97.9	97.0	92.9	98.4	96.4	94.3	98.3	98.5	99.4
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
95.2	95.9	95.8	96.3	97.5	97.6	96.1	95.7	96.2	95.9	96.6	96.5	97.2	96.6	96.0
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
97.9	98.7	97.3	97.7	98.3	97.3	97.6	97.9	98.0	97.7	97.5	93.6	93.9	95.6	96.3	96.8

TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	97	0%	-1%
4	98	-1%	-1%
5	98	-1%	0%
6	97	-1%	1%
7	98	-1%	1%
8	98	1%	1%
9	98	1%	1%
10	98	1%	0%
11	97	1%	-2%
12	94	1%	-4%
13	94	0%	-5%
14	96	-1%	-3%
15	96	-1%	-1%
16	97	-2%	-2%

VOYA-2.5-COB-12VAC-SW-ST-95-30-FL-COB-23-**-**-12

3004 K

CRI: 98.0

CRI R9: 93.2

TM30 Rf: 97.3

TM30 Rg: 99.3

CQS: 96.3

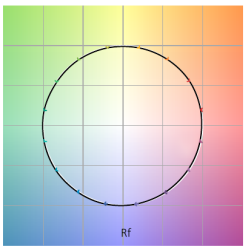
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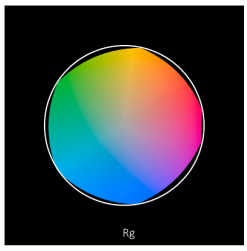
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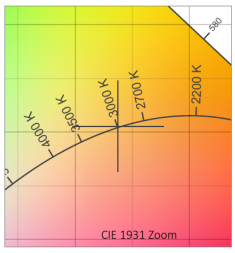
U: 0.250

V: 0.348

Δuv: 0.0004







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
98.5	98.7	98.8	98.0	98.2	96.7	98.0	97.2	93.2	98.5	96.4	94.4	98.3	98.5	99.5
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
95.3	96.0	95.9	96.3	97.5	97.6	96.2	95.8	96.3	95.9	96.6	96.5	97.2	96.6	96.1
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
98.0	98.7	97.4	97.8	98.4	97.4	97.7	97.9	98.1	97.8	97.5	93.7	94.0	95.7	96.4	96.9

TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	97	0%	-1%
4	98	-1%	-1%
5	98	-1%	0%
6	97	-1%	1%
7	98	-1%	1%
8	98	1%	1%
9	98	1%	1%
10	98	1%	0%
11	97	1%	-1%
12	94	1%	-4%
13	94	0%	-5%
14	96	-1%	-3%
15	96	-1%	-1%
16	97	-1%	-2%

NOTES:
- CRI R values, only R1-R8 are used to calculate RA CRI values
- TM30 C values, 16 binned values out of total of 99 C values
- CQS Q values
- Data subject to change, all data has +/- 5% tolerance

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Specification subject to change. Rev-07-28-26

VOYA 2.5" COB STATIC WHITE

Landscape Lighting Color Data

VOYA-2.5-COB-12VAC-SW-ST-95-30-FL-COB-37-**-**-12

3011 K

CRI: 98.1

CRI R9: 93.2

TM30 Rf: 97.3

TM30 Rg: 99.3

CQS: 96.3

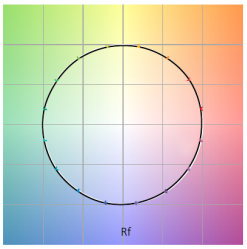
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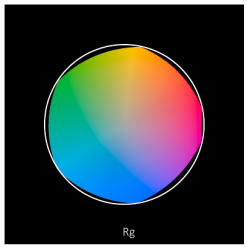
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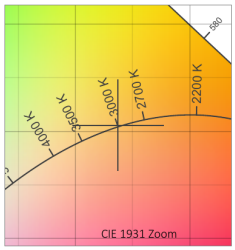
U: 0.250

V: 0.348

Δuv: 0.0005







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
98.5	98.8	98.7	98.0	98.3	96.9	98.1	97.2	93.2	98.7	96.5	94.7	98.4	98.4	99.5
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
95.3	96.0	95.9	96.4	97.5	97.6	96.1	95.7	96.1	95.7	96.5	96.4	97.1	96.7	96.1
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
98.0	98.7	97.3	97.7	98.2	97.3	97.6	97.9	98.1	97.8	97.6	93.8	94.0	95.7	96.4	96.8

TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	97	0%	-1%
4	98	-1%	-1%
5	98	-1%	0%
6	97	-1%	1%
7	98	-1%	1%
8	98	1%	1%
9	98	1%	1%
10	98	1%	0%
11	98	1%	-1%
12	94	1%	-4%
13	94	0%	-5%
14	96	-1%	-3%
15	96	-1%	-1%
16	97	-1%	-2%

VOYA-2.5-COB-12VAC-SW-ST-95-30-FL-COB-51-**-**-12

3011 K

CRI: 98.1

CRI R9: 93.3

TM30 Rf: 97.3

TM30 Rg: 99.3

CQS: 96.2

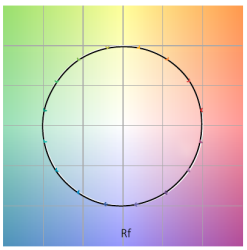
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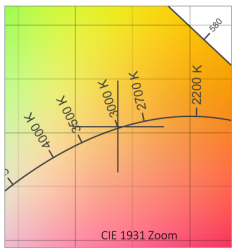
U: 0.250

V: 0.348

Δuv: 0.0006







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
98.5	98.8	98.7	98.0	98.3	96.9	98.2	97.3	93.3	98.7	96.5	94.8	98.4	98.4	99.5
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
95.4	95.9	95.9	96.4	97.6	97.5	96.1	95.6	96.1	95.6	96.4	96.3	97.0	96.7	96.1
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
98.0	98.6	97.2	97.6	98.2	97.3	97.5	97.8	98.0	97.8	97.6	93.8	94.0	95.7	96.4	96.9

TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	97	0%	-1%
4	98	-1%	-1%
5	98	-1%	0%
6	97	-1%	1%
7	98	-1%	1%
8	98	1%	1%
9	98	1%	1%
10	98	1%	0%
11	98	1%	-1%
12	94	1%	-4%
13	94	0%	-5%
14	96	-1%	-3%
15	96	-1%	-1%
16	97	-1%	-2%

VOYA-2.5-COB-12VAC-SW-ST-95-30-GZR-COB-GZR-**-**-12

3036 K

CRI: 98.0

CRI R9: 93.0

TM30 Rf: 97.2

TM30 Rg: 99.2

CQS: 96.2

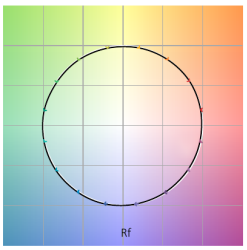
X: 0.435

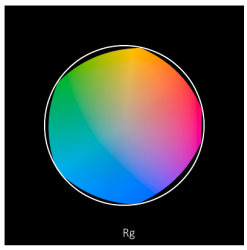
Y: 0.405

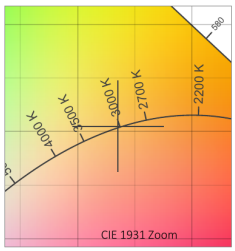
U: 0.249

V: 0.348

Δuv: 0.0005







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
98.5	98.7	98.9	98.0	98.2	96.7	98.0	97.1	93.0	98.4	96.5	94.5	98.3	98.6	99.4
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
95.3	95.9	95.9	96.4	97.6	97.4	96.0	95.6	96.0	95.7	96.5	96.5	97.2	96.6	96.0
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
97.9	98.7	97.2	97.5	98.1	97.2	97.4	97.8	98.0	97.6	97.5	93.7	93.9	95.6	96.3	96.8

TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	97	0%	-1%
4	98	-1%	-1%
5	98	-1%	0%
6	97	-1%	1%
7	97	-1%	1%
8	98	1%	1%
9	98	1%	1%
10	98	1%	0%
11	97	1%	-1%
12	94	1%	-4%
13	94	0%	-5%
14	96	-1%	-3%
15	96	-2%	-1%
16	97	-2%	-2%

NOTES:
- CRI R values, only R1-R8 are used to calculate RA CRI values
- TM30 C values, 16 binned values out of total of 99 C values
- CQS Q values
- Data subject to change, all data has +/- 5% tolerance

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VOYA 2.5" COB STATIC WHITE

Landscape Lighting Color Data

VOYA-2.5-COB-24VDC-SW-ST-95-30-FL-COBSP-12-**-**-12

2957 K

CRI: 98.5

CRI R9: 87.5

TM30 Rf: 97.5

TM30 Rg: 98.9

CQS: 95.8

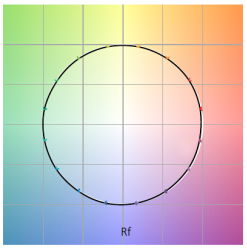
X: 0.442

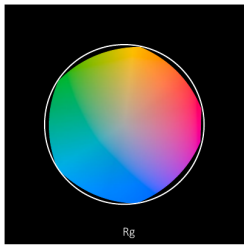
Y: 0.409

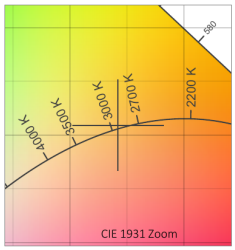
U: 0.252

V: 0.349

Δuv: 0.0013







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
99.8	99.7	98.3	99.2	99.9	98.5	97.7	94.9	87.5	98.4	98.0	97.8	99.7	98.1	97.4
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
94.3	96.0	96.6	97.3	98.0	97.5	96.3	95.5	95.7	94.8	95.7	96.2	97.2	95.1	94.8
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
97.3	98.8	97.8	98.4	98.4	97.4	97.9	98.2	98.6	98.6	98.7	94.7	94.1	95.5	96.8	95.9

TM30			
Hue Bin	R_f	Chroma	Hue
1	97	-1%	0%
2	99	-1%	0%
3	98	-1%	0%
4	98	-1%	-1%
5	98	-1%	1%
6	97	-1%	1%
7	98	-1%	1%
8	98	0%	1%
9	99	0%	1%
10	99	1%	0%
11	99	1%	-1%
12	95	1%	-3%
13	94	0%	-5%
14	96	-1%	-4%
15	97	-1%	-1%
16	96	-2%	-2%

VOYA-2.5-COB-24VDC-SW-ST-95-30-FL-COB-16-**-**-12

2987 K

CRI: 98.6

CRI R9: 90.0

TM30 Rf: 98.1

TM30 Rg: 99.7

CQS: 96.7

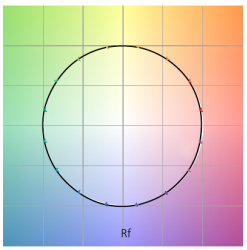
X: 0.439

Y: 0.406

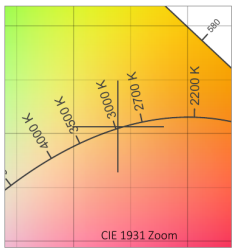
U: 0.251

V: 0.348

Δuv: 0.0006







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
99.7	99.9	97.8	98.9	99.6	98.6	98.2	96.1	90.0	98.6	97.4	97.6	99.6	97.9	98.3
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
94.8	96.5	97.3	97.5	97.5	97.8	97.8	97.4	97.4	97.0	97.0	97.0	97.6	95.8	95.4
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
97.8	98.9	98.5	99.3	98.7	98.2	99.0	98.9	99.2	98.8	99.1	95.5	94.9	96.2	97.5	96.2

TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	99	0%	0%
4	99	0%	0%
5	99	0%	1%
6	98	0%	1%
7	99	0%	0%
8	99	1%	0%
9	99	0%	0%
10	99	0%	0%
11	99	0%	0%
12	96	1%	-3%
13	95	0%	-4%
14	96	0%	-3%
15	97	-1%	-1%
16	96	-2%	-2%

VOYA-2.5-COB-24VDC-SW-ST-95-30-FL-COB-23-**-**-12

2982 K

CRI: 98.6

CRI R9: 90.2

TM30 Rf: 98.1

TM30 Rg: 99.8

CQS: 96.7

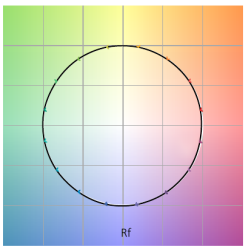
X: 0.439

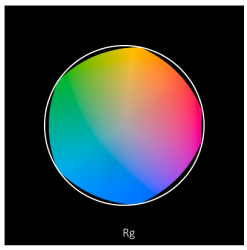
Y: 0.407

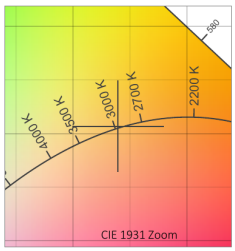
U: 0.251

V: 0.349

Δuv: 0.0007







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
99.6	99.9	97.7	98.8	99.6	98.6	98.3	96.2	90.2	98.5	97.4	97.5	99.6	97.8	98.3
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
94.8	96.5	97.2	97.4	97.4	97.7	97.8	97.4	97.4	97.0	96.9	97.0	97.5	95.9	95.4
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
97.8	98.9	98.5	99.3	98.6	98.2	98.9	98.9	99.2	98.7	99.1	95.5	94.9	96.3	97.5	96.3

TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	99	0%	0%
4	99	0%	0%
5	99	0%	1%
6	98	0%	1%
7	99	0%	0%
8	99	1%	0%
9	99	0%	0%
10	99	0%	0%
11	99	0%	0%
12	96	1%	-3%
13	95	0%	-4%
14	96	0%	-3%
15	97	-1%	-1%
16	96	-2%	-2%

NOTES:
- CRI R values, only R1-R8 are used to calculate RA CRI values
- TM30 C values, 16 binned values out of total of 99 C values
- CQS Q values
- Data subject to change, all data has +/- 5% tolerance

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Specification subject to change. Rev-07-28-26

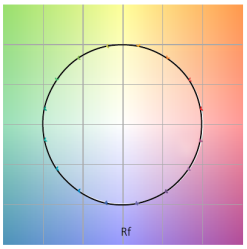
VOYA 2.5" COB STATIC WHITE

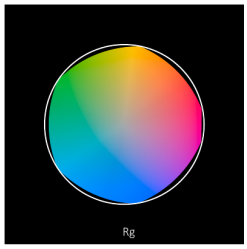
Landscape Lighting Color Data

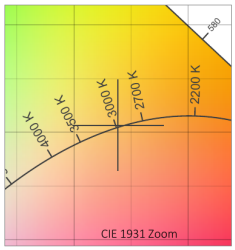
VOYA-2.5-COB-24VDC-SW-ST-95-30-FL-COB-37-**-**-12

2995 K

CRI: 98.6
CRI R9: 90.5
TM30 Rf: 98.1
TM30 Rg: 99.8
CQS: 96.7
X: 0.439
Y: 0.406
U: 0.251
V: 0.348
Δuv: 0.0007







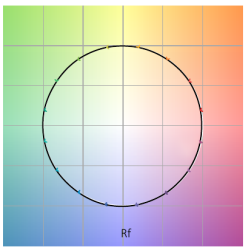
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
99.6	99.9	97.7	98.8	99.6	98.7	98.4	96.4	90.5	98.4	97.4	97.6	99.6	97.8	98.4
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
94.9	96.5	97.2	97.4	97.4	97.7	97.8	97.4	97.4	96.9	96.8	96.9	97.5	96.0	95.5
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
97.8	98.9	98.5	99.3	98.6	98.2	99.0	98.9	99.2	98.7	99.1	95.6	95.0	96.3	96.8	96.6

TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	99	0%	0%
4	99	0%	0%
5	99	0%	1%
6	98	0%	1%
7	99	0%	0%
8	99	1%	0%
9	99	0%	0%
10	99	0%	0%
11	99	0%	0%
12	96	1%	-3%
13	95	0%	-4%
14	96	0%	-3%
15	97	-1%	-2%
16	97	-1%	-2%

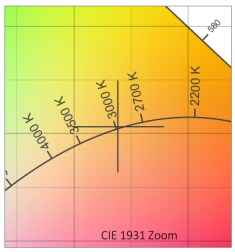
VOYA-2.5-COB-24VDC-SW-ST-95-30-FL-COB-51-**-**-12

2995 K

CRI: 98.6
CRI R9: 90.8
TM30 Rf: 98.1
TM30 Rg: 99.7
CQS: 96.7
X: 0.439
Y: 0.407
U: 0.251
V: 0.348
Δuv: 0.0007







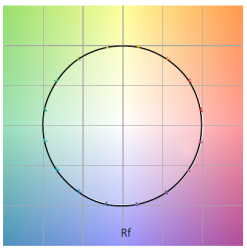
R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
99.5	99.9	97.7	98.7	99.5	98.6	98.5	96.5	90.8	98.5	97.3	97.7	99.5	97.8	98.5
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
95.0	96.5	97.2	97.4	97.4	97.8	97.7	97.3	97.2	96.8	96.8	96.8	97.4	96.1	95.6
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
97.9	98.9	98.5	99.3	98.7	98.2	99.0	98.8	99.2	98.8	99.1	95.6	95.0	96.3	96.8	96.6

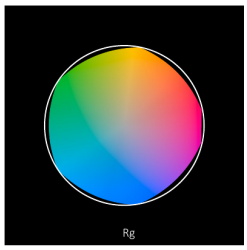
TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	98	0%	0%
4	99	0%	0%
5	99	0%	1%
6	98	0%	1%
7	99	0%	0%
8	99	1%	0%
9	99	0%	0%
10	99	0%	0%
11	99	0%	0%
12	96	1%	-3%
13	95	0%	-4%
14	96	0%	-3%
15	97	-1%	-2%
16	97	-1%	-2%

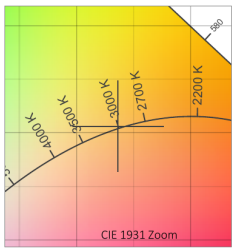
VOYA-2.5-COB-24VDC-SW-ST-95-30-GZR-COB-GZR-**-**-12

3028 K

CRI: 98.7
CRI R9: 89.7
TM30 Rf: 98.1
TM30 Rg: 99.7
CQS: 96.7
X: 0.436
Y: 0.406
U: 0.249
V: 0.348
Δuv: 0.0008







R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
99.9	99.8	97.7	99.0	99.8	98.9	98.3	96.0	89.7	98.1	97.7	98.4	99.7	97.8	98.1
Q1	**Q2**	**Q3**	**Q4**	**Q5**	**Q6**	**Q7**	**Q8**	**Q9**	**Q10**	**Q11**	**Q12**	**Q13**	**Q14**	**Q15**
94.9	96.6	97.6	97.7	97.7	98.0	97.9	97.4	97.3	96.8	96.8	96.9	97.6	95.8	95.4
C1	**C2**	**C3**	**C4**	**C5**	**C6**	**C7**	**C8**	**C9**	**C10**	**C11**	**C12**	**C13**	**C14**	**C15**	**C16**
97.7	98.9	98.5	99.3	98.7	98.2	99.0	98.9	99.2	98.9	99.2	95.8	95.0	96.2	96.6	96.4

TM30			
Hue Bin	R_f	Chroma	Hue
1	98	-1%	0%
2	99	0%	0%
3	98	-1%	0%
4	99	0%	0%
5	99	0%	1%
6	98	0%	1%
7	99	0%	0%
8	99	1%	0%
9	99	0%	0%
10	99	0%	0%
11	99	0%	0%
12	96	1%	-3%
13	95	0%	-4%
14	96	0%	-3%
15	97	-1%	-2%
16	96	-1%	-2%

NOTES:
- CRI R values, only R1-R8 are used to calculate RA CRI values
- TM30 C values, 16 binned values out of total of 99 C values
- CQS Q values
- Data subject to change, all data has +/- 5% tolerance

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Specification subject to change. Rev-07-28-26