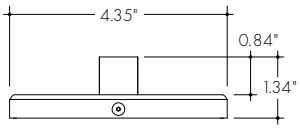
## Features

- 24VDC Class 2 fixtures made to order up to 76".
- Suitable for direct view wall mount, vanity, and accent lighting
- Class 2 listed for damp locations
- Dot free even illumination
- Integral power supply included, fits inside a single gang box behind the backplate. 120 VAC only, dimmable with MLV, ELV, and Incandescent dimmers (see dimmer compatibilty chart)
- Proprietary strong bond solder method handles up to 50 lbs of pull force on wire leads and connectors
- High Color Quality options offer premium quality and vibrant colors with R9 values up to 97
- High Efficacy options offer best in class output and efficacy with over 720 lm/ft and up to 91 lm/W
- 5 Year warranty




**Finish Options** (see page 2 for additional information)

- Silver Anodized
- Black
- Bronze
- White
- Matte Black
- Warm Nickel
- Aged Brass
- Polished Gold
- Chrome

## Technical Information

| MODEL | High Color Quality | | High Efficacy | | | | High Efficacy | |
|---|---|---|---|---|---|---|---|---|
| **OUTPUT OPTIONS** | **60X2HO** | **60X2VHO** | **HE48LO** | **HE48SO** | **HE48MO** | **HE48HO** | **HE64VHO** | **HE64XHO** |
| **Lumens Output (3000K)** (with a Frosted Lens) | 434 lm/ft | 542 lm/ft | 172 lm/ft | 239 lm/ft | 319 lm/ft | 511 lm/ft | 647 lm/ft | 727 lm/ft |
| **Average Power Consumption** (for a 4' section) | 7.3 W/ft | 9.4 W/ft | 1.9 W/ft | 2.8 W/ft | 3.5 W/ft | 6.5 W/ft | 7.5 W/ft | 9.6 W/ft |
| **Efficacy** | 59 lm/W | 58 lm/W | 91 lm/W | 85 lm/W | 91 lm/W | 79 lm/W | 86 lm/W | 76 lm/W |
| **Max Run Length** (in series) | 26 ft | 21 ft | 48 ft | 42 ft | 33 ft | 21 ft | 15 ft | 13 ft |
| **Max Ambient Temperature*** | 50°C [122°F] | | 50°C [122°F] | | | | 50°C [122°F] | |

*Max Ambient Temperature to maintain L70 of 50k+ hours. Exceeding Max Ambient Temperature may result in decreased life/output. Consult Technical Support for specific inquiries.

**High Color Quality (60X2)**

| CCT | Multiplier (reference - 3000K) | CRI | TM-30 $R_f$ | TM-30 $R_g$ | TM-30 $R_9$ |
|---|---|---|---|---|---|
| **2200K** | 0.70 | 96 | 95 | 101 | 89 |
| **2400K** | 0.72 | 98 | 97 | 101 | 91 |
| **2700K** | 0.74 | 97 | 96 | 101 | 91 |
| **3000K** | 1.00 | 97 | 95 | 104 | 97 |
| **3500K** | 1.02 | 97 | 94 | 105 | 97 |
| **4100K** | 1.07 | 97 | 90 | 99 | 97 |

**High Efficacy (HE48/HE64)**

| CCT | Multiplier (reference - 3000K) | CRI | TM-30 $R_f$ | TM-30 $R_g$ | TM-30 $R_9$ |
|---|---|---|---|---|---|
| **2200K** | 0.73 | 92 | 91 | 97 | 42 |
| **2500K** | 0.81 | 93 | 96 | 96 | 62 |
| **2700K** | 0.94 | 92 | 90 | 99 | 58 |
| **3000K** | 1.00 | 92 | 89 | 99 | 57 |
| **3500K** | 1.02 | 92 | 89 | 99 | 60 |
| **4000K** | 1.02 | 92 | 86 | 94 | 71 |

## Ordering Code

MODEL - LENGTH[1] - OUTPUT - CCT - LENS[2] - FINISH[3]

**MODEL**
- CLSW - Clareo S Wall
- CLQW - Clareo Q Wall

**LENGTH[1]**
- 24" - 76" 2" increments

**OUTPUT**
- 60X2HO - High
- 60X2VHO - Very High
- HE48LO - Low
- HE48SO - Standard
- HE48MO - Medium
- HE48HO - High
- HE64VHO - Very High
- HE64XHO - Max

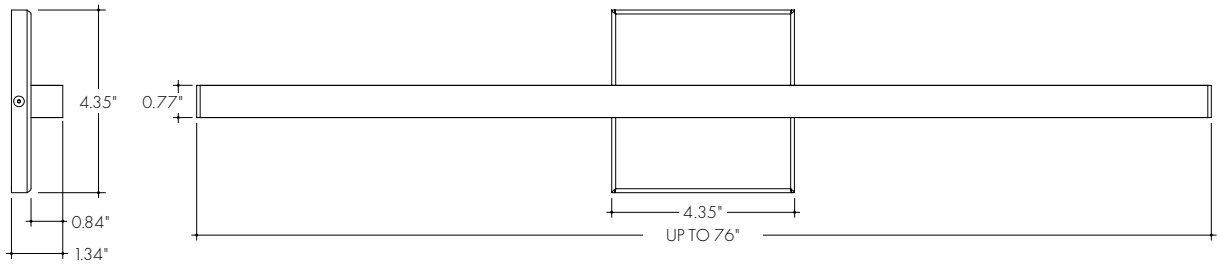
**CCT**
- 22K - 2200K
- 24K - 2400K
- 27K - 2700K
- 30K - 3000K
- 35K - 3500K
- 41K - 4100K
- 22K 2200K
- 25K - 2500K
- 27K - 2700K
- 30K - 3000K
- 35K - 3500K
- 40K 4000K

**LENS[2]**
- F - Frosted

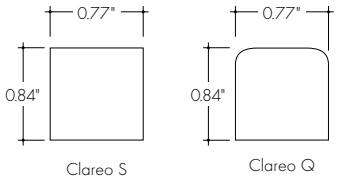
**FINISH[3]**
- SA - Silver Anodized
- BK - Black
- BZ - Bronze
- WH - White
- MBK - Matte Black
- WN - Warm Nickel
- AB - Aged Brass
- PG - Polished Gold[4]
- CH - Chrome[4]

1 - Custom lengths and increments are available, please consult Inside Sales with specific request.
2 - All High Efficacy options can be used to comply with Title 24 JA8. High Color Quality options can be used to comply with Title 24 JA8 depending on Output, CCT, and Lens selections. See multiplier charts to calculate specific efficacies.
3 - Non SA finishes may have extended lead times. Custom RALs are available, please consult Inside Sales with specific request.
4 - Polished Gold finishes have a maximum fixture length of 48", and Chrome finishes have a maximum fixture length of 72".

## Product Dimensions



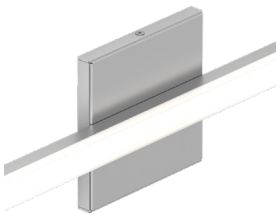

**Model Profiles**




## Finish Options

- Finish options are available in a wide variety, allowing for complete customization of style and aesthetic.
- Non Silver Anodized finishes may have extended lead times.
- Polished Gold finishes have a maximum fixture length of 48", and Chrome finishes have a maximum fixture length of 72".
- Custom RALs are available, please consult Inside Sales with specific request.

**Silver Anodized**



Silver Anodized is a soft silver with a clear finish.

**Black**

Black is a true deep black with a glossy finish.

**Bronze**

Bronze is a rich, dark brown with a satin finish.

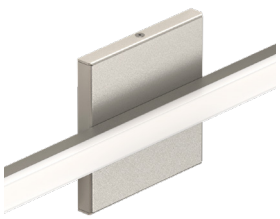
**White**

White is a polar bright white and field paintable.

**Matte Black**

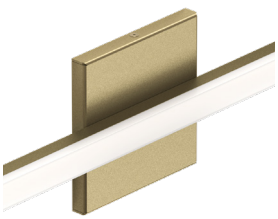
Matte Black is a dark, pitch-black with a soft flat finish.

**Warm Nickel**



Warm Nickel is a soft, silvery smoke with warm tones and a satin finish.

**Aged Brass**



Aged Brass is a deep brown shade with slightly golden undertones.

**Polished Gold**

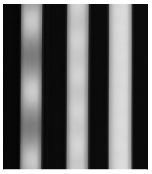
Polished Gold is bright and radiant for a brilliant finish.

**Chrome**

Chrome is a highly reflective silver polish.

## Light Transmission and Dotting

| Output Options | Lens/Accessory | |
|---|---|---|
| | CLQ Frosted Lens | CLS Frosted Lens |
| 60X2HO | ND | ND |
| 60X2VHO | ND | ND |
| HE48LO | ND | ND |
| HE48SO | ND | ND |
| HE48MO | ND | ND |
| HE48HO | ND | ND |
| HE64VHO | ND | ND |
| HE64XHO | ND | ND |
| **Transmission Percentage** | 100% | 96% |

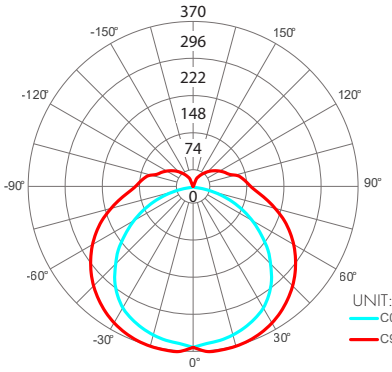


**CD** **SD** **ND**

**CD** - Clear Dotting
**SD** - Slight Dotting
**ND** - No Dotting

## Photometry

CLQ-48-60X2VHO-30K-RF
Clareo Q, 4ft, 3000K, VHO, Frosted Lens

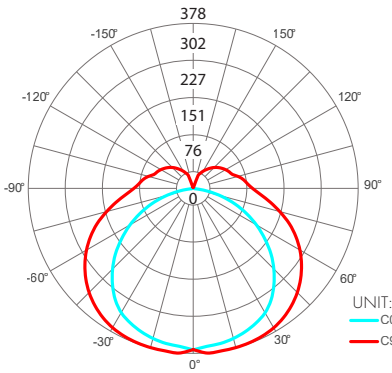



Zonal Lumen Summary 3000K

| Zone | Lumen | % Fixture |
|---|---|---|
| 0-30 | 439 | 19.1% |
| 0-40 | 737 | 32.1% |
| 0-60 | 1372 | 59.7% |
| 0-90 | 1967 | 85.5% |
| Total 0-180 | 2300 | 100% |

Beam Angle
133°

CLS-48-60X2VHO-30K-SF
Clareo S, 4ft, 3000K, VHO, Frosted Lens




Zonal Lumen Summary 3000K

| Zone | Lumen | % Fixture |
|---|---|---|
| 0-30 | 409 | 18.5% |
| 0-40 | 690 | 31.3% |
| 0-60 | 1295 | 58.8% |
| 0-90 | 1857 | 84.3% |
| Total 0-180 | 2204 | 100% |

Beam Angle
132°

## Power Consumption

Tested at Full Power with PDC Series power supplies.
Standard Nominal Lengths offered provide minimal shadowing. For alternate lengths, please consult Inside Sales with specific request.

**High Color Quality (60X2)**

| Nominal Length (in) | Actual Length | Watts | | Nominal Length (in) | Actual Length | Watts | |
|---|---|---|---|---|---|---|---|
| | | HO | VHO | | | HO | VHO |
| **12** | – | – | – | **47** | – | – | – |
| **13** | – | – | – | **48** | 47 4/16 | 28.2 | 36.0 |
| **14** | – | – | – | **49** | 48 11/16 | 29.3 | 37.4 |
| **15** | – | – | – | **50** | – | – | – |
| **16** | – | – | – | **51** | 50 1/16 | 29.9 | 38.1 |
| **17** | – | – | – | **52** | 51 8/16 | 31.0 | 39.5 |
| **18** | – | – | – | **53** | 52 14/16 | 31.5 | – |
| **19** | – | – | – | **54** | – | – | – |
| **20** | – | – | – | **55** | 54 5/16 | 32.1 | – |
| **21** | – | – | – | **56** | 55 11/16 | 33.1 | – |
| **22** | – | – | – | **57** | – | – | – |
| **23** | – | – | – | **58** | 57 2/16 | 33.7 | – |
| **24** | 23 6/16 | 14.3 | 18.5 | **59** | 58 8/16 | 34.8 | – |
| **25** | 24 12/16 | 15.5 | 20.2 | **60** | 59 15/16 | 35.3 | – |
| **26** | – | – | – | **61** | – | – | – |
| **27** | 26 3/16 | 16.1 | 20.9 | **62** | 61 5/16 | 35.9 | – |
| **28** | 27 9/16 | 17.3 | 22.4 | **63** | 62 12/16 | 36.9 | – |
| **29** | 29 | 17.9 | 23.2 | **64** | – | – | – |
| **30** | – | – | – | **65** | 64 2/16 | 37.4 | – |
| **31** | 30 6/16 | 19.1 | 24.7 | **66** | 65 9/16 | 38.4 | – |
| **32** | 31 13/16 | 19.7 | 25.4 | **67** | 66 15/16 | 38.9 | – |
| **33** | – | – | – | **68** | – | – | – |
| **34** | 33 3/16 | 20.3 | 26.2 | **69** | 68 6/16 | 39.4 | – |
| **35** | 34 10/16 | 21.6 | 27.7 | **70** | – | – | – |
| **36** | – | – | – | **71** | – | – | – |
| **37** | 36 | 22.2 | 28.4 | **72** | – | – | – |
| **38** | 37 7/16 | 23.3 | 29.9 | **73** | – | – | – |
| **39** | 38 13/16 | 23.9 | 30.5 | **74** | – | – | – |
| **40** | – | – | – | **75** | – | – | – |
| **41** | 40 4/16 | 24.4 | 31.2 | **76** | – | – | – |
| **42** | 41 10/16 | 25.5 | 32.6 | **77** | – | – | – |
| **43** | – | – | – | **78** | – | – | – |
| **44** | 43 1/16 | 26.0 | 33.3 | **79** | – | – | – |
| **45** | 44 7/16 | 27.1 | 34.7 | **80** | – | – | – |
| **46** | 45 14/16 | 27.7 | 35.3 | **81** | – | – | – |

## Power Consumption

Tested at Full Power with PDC Series power supplies.
Standard Nominal Lengths offered provide minimal shadowing. For alternate lengths, please consult Inside Sales with specific request.

**High Efficacy (HE48)**

| Nominal Length (in) | Actual Length | Watts | | | | Nominal Length (in) | Actual Length | Watts | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | LO | SO | MO | HO | | | LO | SO | MO | HO |
| **12** | – | – | – | – | – | **47** | 46 2/16 | 6.9 | 10.7 | 13.3 | 24.7 |
| **13** | – | – | – | – | – | **48** | – | – | – | – | – |
| **14** | – | – | – | – | – | **49** | 48 2/16 | 7.1 | 11.2 | 13.9 | 25.4 |
| **15** | – | – | – | – | – | **50** | – | – | – | – | – |
| **16** | – | – | – | – | – | **51** | 50 1/16 | 7.4 | 11.7 | 14.5 | 26.3 |
| **17** | – | – | – | – | – | **52** | – | – | – | – | – |
| **18** | – | – | – | – | – | **53** | 52 1/16 | 7.7 | 12.3 | 15.1 | 27.4 |
| **19** | – | – | – | – | – | **54** | – | – | – | – | – |
| **20** | – | – | – | – | – | **55** | 54 | 8.0 | 12.9 | 15.7 | 28.5 |
| **21** | – | – | – | – | – | **56** | 56 | 8.4 | 13.5 | 16.4 | 29.5 |
| **22** | – | – | – | – | – | **57** | – | – | – | – | – |
| **23** | – | – | – | – | – | **58** | 57 15/16 | 8.7 | 14.0 | 17.0 | 30.6 |
| **24** | – | – | – | – | – | **59** | – | – | – | – | – |
| **25** | 24 8/16 | 3.7 | 5.4 | 7.0 | 14.7 | **60** | 59 15/16 | 9.0 | 14.6 | 17.6 | 31.6 |
| **26** | – | – | – | – | – | **61** | – | – | – | – | – |
| **27** | 26 7/16 | 4.1 | 5.9 | 7.5 | 15.8 | **62** | 61 14/16 | 9.4 | 15.2 | 18.2 | 32.6 |
| **28** | – | – | – | – | – | **63** | – | – | – | – | – |
| **29** | 28 7/16 | 4.4 | 6.4 | 8.1 | 16.8 | **64** | 63 14/16 | 9.7 | 15.6 | 18.7 | 33.7 |
| **30** | – | – | – | – | – | **65** | – | – | – | – | – |
| **31** | 30 6/16 | 4.8 | 6.9 | 8.7 | 17.9 | **66** | 65 13/16 | 10.0 | 16.1 | 19.2 | 34.7 |
| **32** | – | – | – | – | – | **67** | – | – | – | – | – |
| **33** | 32 6/16 | 5.0 | 7.2 | 9.0 | 18.5 | **68** | 67 13/16 | 10.4 | 16.5 | 19.8 | 35.7 |
| **34** | – | – | – | – | – | **69** | – | – | – | – | – |
| **35** | 34 5/16 | 5.4 | 7.7 | 9.6 | 19.5 | **70** | 69 12/16 | 10.7 | 17.0 | 20.3 | 36.7 |
| **36** | – | – | – | – | – | **71** | – | – | – | – | – |
| **37** | 36 5/16 | 5.7 | 8.2 | 10.2 | 20.6 | **72** | 71 12/16 | 11.0 | 17.4 | 20.8 | 37.7 |
| **38** | – | – | – | – | – | **73** | – | – | – | – | – |
| **39** | 38 4/16 | 6.0 | 8.7 | 10.8 | 21.5 | **74** | 73 11/16 | 11.3 | 17.9 | 21.4 | 38.7 |
| **40** | – | – | – | – | – | **75** | – | – | – | – | – |
| **41** | 40 4/16 | 6.2 | 9.2 | 11.4 | 22.3 | **76** | 75 11/16 | 11.6 | 18.4 | 22.0 | 39.6 |
| **42** | – | – | – | – | – | **77** | – | – | – | – | – |
| **43** | 42 3/16 | 6.4 | 9.7 | 12.0 | 23.1 | **78** | – | – | – | – | – |
| **44** | – | – | – | – | – | **79** | – | – | – | – | – |
| **45** | 44 3/16 | 6.7 | 10.2 | 12.6 | 23.9 | **80** | – | – | – | – | – |
| **46** | – | – | – | – | – | **81** | – | – | – | – | – |

## Power Consumption

Tested at Full Power with PDC Series power supplies.
Standard Nominal Lengths offered provide minimal shadowing. For alternate lengths, please consult Inside Sales with specific request.

**High Efficacy (HE64)**

| Nominal Length (in) | Actual Length | Watts | | Nominal Length (in) | Actual Length | Watts | |
|---|---|---|---|---|---|---|---|
| | | VHO | XHO | | | VHO | XHO |
| **12** | – | – | – | **47** | 46 5/16 | 28.2 | 35.9 |
| **13** | – | – | – | **48** | 47 13/16 | 29.5 | 37.6 |
| **14** | – | – | – | **49** | – | – | – |
| **15** | – | – | – | **50** | 49 5/16 | 30.1 | 38.4 |
| **16** | – | – | – | **51** | 50 14/16 | 31.4 | – |
| **17** | – | – | – | **52** | – | – | – |
| **18** | – | – | – | **53** | 52 6/16 | 32.0 | – |
| **19** | – | – | – | **54** | 53 14/16 | 33.3 | – |
| **20** | – | – | – | **55** | – | – | – |
| **21** | – | – | – | **56** | 55 6/16 | 34.0 | – |
| **22** | – | – | – | **57** | 56 14/16 | 35.2 | – |
| **23** | – | – | – | **58** | – | – | – |
| **24** | 23 9/16 | 14.5 | 18.3 | **59** | 58 7/16 | 36.5 | – |
| **25** | – | – | – | **60** | 59 15/16 | 37.2 | – |
| **26** | 25 2/16 | 15.1 | 19.1 | **61** | – | – | – |
| **27** | 26 10/16 | 16.4 | 20.7 | **62** | 61 7/16 | 38.4 | – |
| **28** | – | – | – | **63** | 62 15/16 | 39.1 | – |
| **29** | 28 2/16 | 17.0 | 21.4 | **64** | – | – | – |
| **30** | 29 10/16 | 18.2 | 23.0 | **65** | – | – | – |
| **31** | – | – | – | **66** | – | – | – |
| **32** | 31 3/16 | 18.9 | 23.8 | **67** | – | – | – |
| **33** | 32 11/16 | 20.1 | 25.3 | **68** | – | – | – |
| **34** | – | – | – | **69** | – | – | – |
| **35** | 34 3/16 | 20.7 | 26.1 | **70** | – | – | – |
| **36** | 35 11/16 | 22.0 | 27.6 | **71** | – | – | – |
| **37** | – | – | – | **72** | – | – | – |
| **38** | 37 3/16 | 22.6 | 28.4 | **73** | – | – | – |
| **39** | 38 12/16 | 23.9 | 30.1 | **74** | – | – | – |
| **40** | – | – | – | **75** | – | – | – |
| **41** | 40 4/16 | 24.5 | 30.9 | **76** | – | – | – |
| **42** | 41 12/16 | 25.7 | 32.6 | **77** | – | – | – |
| **43** | – | – | – | **78** | – | – | – |
| **44** | 43 4/16 | 26.4 | 33.4 | **79** | – | – | – |
| **45** | 44 13/16 | 27.6 | 35.1 | **80** | – | – | – |
| **46** | – | – | – | **81** | – | – | – |

## Voltage Drop Calculator

The below chart assumes nominal voltage of 24 Volts and a Voltage Drop Allowance of 3% through the wire

| Wattage [W] | Maximum Wire Length From Power Supply to Start of Run [ft] | | | | | | |
|---|---|---|---|---|---|---|---|
| | 12 AWG | 14 AWG | 16 AWG | 18 AWG | 20 AWG | 22 AWG | 24 AWG |
| **5** | 1088.2 | 684.4 | 430.3 | 270.6 | 170.2 | 107.1 | 67.3 |
| **10** | 544.1 | 342.2 | 215.1 | 135.3 | 85.1 | 53.5 | 33.7 |
| **15** | 362.7 | 228.1 | 143.4 | 90.2 | 56.7 | 35.7 | 22.4 |
| **20** | 272.0 | 171.1 | 107.6 | 67.7 | 42.6 | 26.8 | 16.8 |
| **25** | 217.6 | 136.9 | 86.1 | 54.1 | 34.0 | 21.4 | 13.5 |
| **30** | 181.4 | 114.1 | 71.7 | 45.1 | 28.4 | 17.8 | 11.2 |
| **35** | 155.5 | 97.8 | 61.5 | 38.7 | 24.3 | 15.3 | 9.6 |
| **40** | 136.0 | 85.5 | 53.8 | 33.8 | 21.3 | 13.4 | 8.4 |
| **45** | 120.9 | 76.0 | 47.8 | 30.1 | 18.9 | 11.9 | 7.5 |
| **50** | 108.8 | 68.4 | 43.0 | 27.1 | 17.0 | 10.7 | 6.7 |
| **55** | 98.9 | 62.2 | 39.1 | 24.6 | 15.5 | 9.7 | 6.1 |
| **60** | 90.7 | 57.0 | 35.9 | 22.6 | 14.2 | 8.9 | 5.6 |
| **65** | 83.7 | 52.6 | 33.1 | 20.8 | 13.1 | 8.2 | 5.2 |
| **70** | 77.7 | 48.9 | 30.7 | 19.3 | 12.2 | 7.6 | 4.8 |
| **75** | 72.5 | 45.6 | 28.7 | 18.0 | 11.3 | 7.1 | 4.5 |
| **80** | 68.0 | 42.8 | 26.9 | 16.9 | 10.6 | 6.7 | 4.2 |
| **85** | 64.0 | 40.3 | 25.3 | 15.9 | 10.0 | 6.3 | 4.0 |
| **90** | 60.5 | 38.0 | 23.9 | 15.0 | 9.5 | 5.9 | 3.7 |
| **96** | 56.7 | 35.6 | 22.4 | 14.1 | 8.9 | 5.6 | 3.5 |