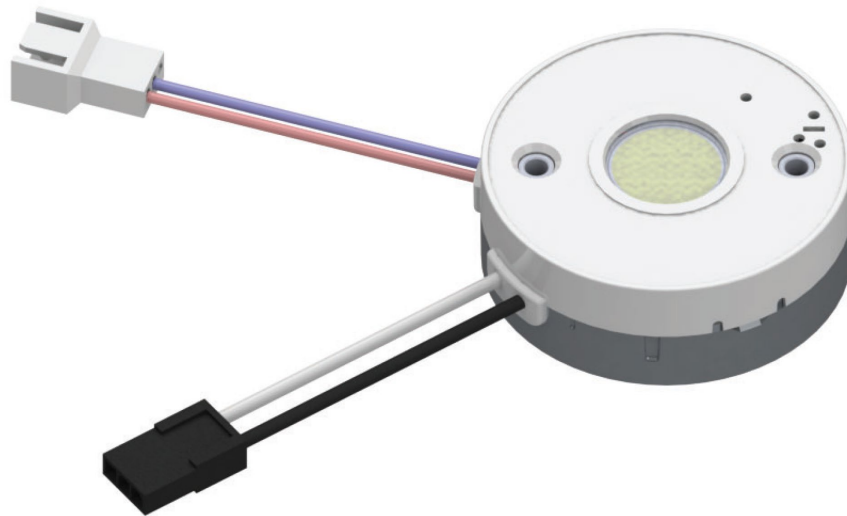




# Bridgelux® DriveLux (DX1-M) Static White 13mm Engine (Multi-Dim) AC Input Light Engine

Product Data Sheet DS1272

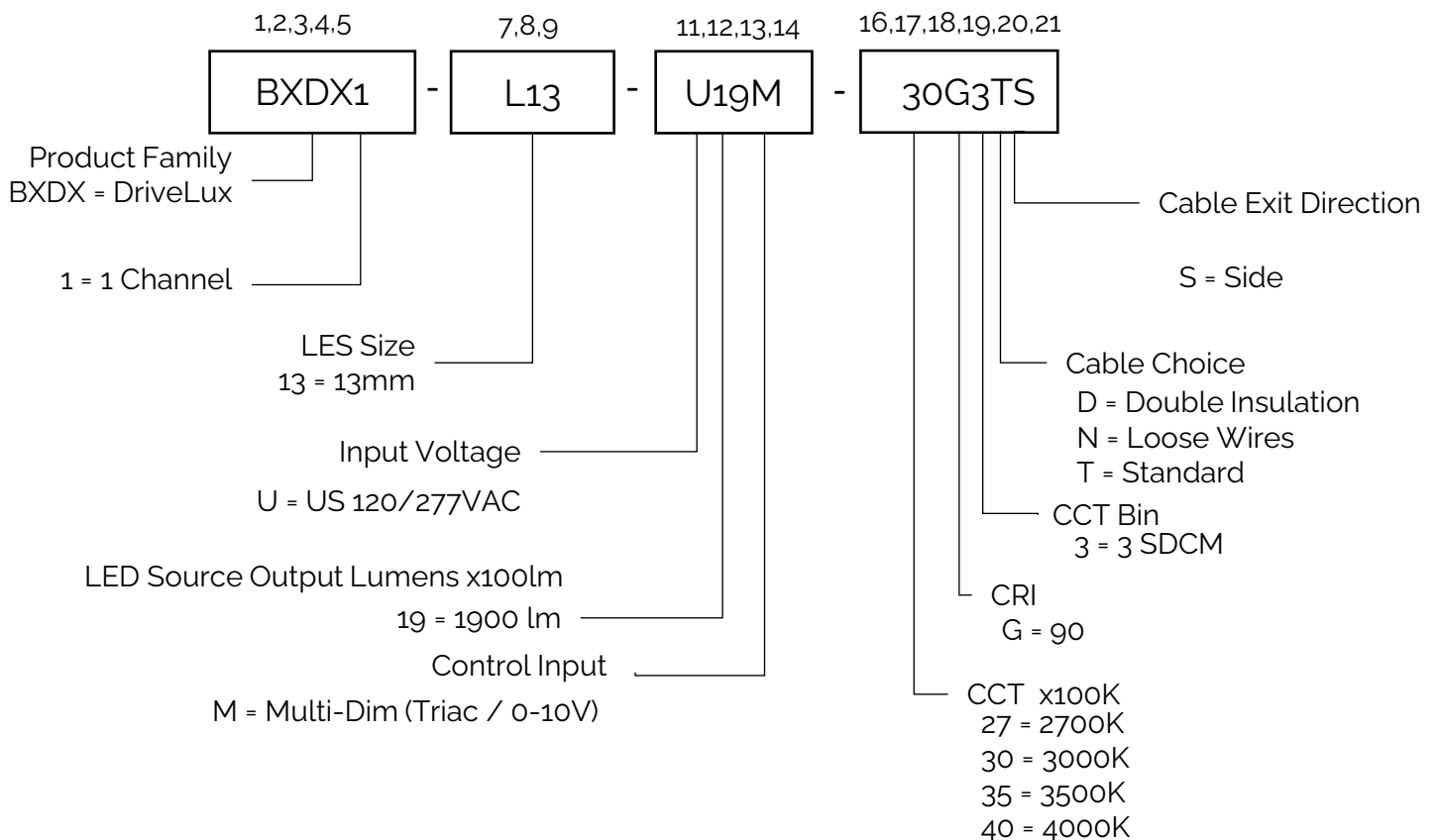
# Product Feature Map

Bridgelux's DriveLux (DX1-M) light engine revolutionizes everything. Bridgelux's global expertise in LEDs and driver has led to a significant breakthrough in lighting technology – integrating the AC-DC driver directly into the light engine, ensuring the highest quality of light. Crucially, DriveLux (DX1-M) provides comprehensive cost reductions, from the expense, size, and manufacturing complexity of fixtures with traditional external drivers to inventory SKU reduction – aligning performance, control, and cost to meet every requirement."



## Product Nomenclature

The part number designation for Bridgelux DriveLux (DX1-M) Light Engine is explained as follows:



# Product Selection Guide

Table 1: Product Selection Guide (examples)

| Part Number                                      | Configuration                                                       |
|--------------------------------------------------|---------------------------------------------------------------------|
| BXDX1-L13-U19M-27G3T <sup>1</sup> S <sup>2</sup> | 120/277VAC, 10mm, 1900lm, 2700K, CRI90, 3 SDCM, Triac/0-10V Dimming |
| BXDX1-L13-U19M-30G3T <sup>1</sup> S <sup>2</sup> | 120/277VAC, 10mm, 1900lm, 3000K, CRI90, 3 SDCM, Triac/0-10V Dimming |
| BXDX1-L13-U19M-35G3T <sup>1</sup> S <sup>2</sup> | 120/277VAC, 10mm, 1900lm, 3500K, CRI90, 3 SDCM, Triac/0-10V Dimming |
| BXDX1-L13-U19M-40G3T <sup>1</sup> S <sup>2</sup> | 120/277VAC, 10mm, 1900lm, 4000K, CRI90, 3 SDCM, Triac/0-10V Dimming |

1 Cable Choice:

- D = Double Insulation (300mm)
- N = Loose Wires (300mm)
- T = Standard

2 Cable Exit Direction:

- S = Side

Table 2: AC Input Power Cable (Ordered Separately)

| Part Number      | Configuration                                                                             |
|------------------|-------------------------------------------------------------------------------------------|
| BXDX-AC-NA413-QD | 2-wire AC Input Power Cable, Black/White, 413mm, for North America, with quick disconnect |

Table 3: DC Control Cable (Ordered Separately)

| Part Number     | Configuration                                                  |
|-----------------|----------------------------------------------------------------|
| BXDX-DC2W-NA100 | 2-wire DC Control Cable, Violet/Pink, 100mm, for North America |

# Electrical Characteristics

Table 4: Electrical Characteristics

| Parameter           | Unit | Specification                             |
|---------------------|------|-------------------------------------------|
| Nominal voltage     | V    | 120 / 277 VAC                             |
| Nominal frequency   | Hz   | 50 / 60 Hz                                |
| AC voltage range    | V    | 108 – 305 Vac                             |
| Input current (max) | A    | < 0.12 A                                  |
| Input Power (Typ.)  | W    | 13.8 W                                    |
| THD                 | %    | < 20% (Dimming 100% - 10% )               |
| Power factor        | -    | > 0.95 (Dimming 100% - 15%)               |
| Inrush current      | A    | Meet NEMA-410 requirements (@25° C)       |
| Standby Power       | mW   | < 500mW (@ 120Vac)<br>< 1000mW (@ 277Vac) |
| Dimming Control     |      | Triac / ELV (@120Vac)<br>0-10V            |
| Flicker             |      | Compliance with IEEE 1789-2015            |
| Start-up Time       | s    | < 0.5 s                                   |

Table 5a: Photometric Characteristics (Light Engine without Diffuser)

| Part Number           | CCT [K] | Rel. %  | Lumens [lm] | CRI min. | Rg min. | Lm/W | Remarks          |
|-----------------------|---------|---------|-------------|----------|---------|------|------------------|
| BXDX1-L13-U19M-27G3TX | 2700K   | 97.71%  | 1882        | 90       | 60      | 137  | without Diffuser |
| BXDX1-L13-U19M-30G3TX | 3000K   | 100.00% | 1926        | 90       | 60      | 141  | without Diffuser |
| BXDX1-L13-U19M-35G3TX | 3500K   | 99.37%  | 1914        | 90       | 60      | 140  | without Diffuser |
| BXDX1-L13-U19M-40G3TX | 4000K   | 100.18% | 1929        | 90       | 60      | 141  | without Diffuser |

Table 5b: Photometric Characteristics (Light Engine with Diffuser)

| Part Number           | CCT [K] | Rel. %  | Lumens [lm] | CRI min. | Rg min. | Lm/W | Remarks       |
|-----------------------|---------|---------|-------------|----------|---------|------|---------------|
| BXDX1-L13-U19M-27G3TX | 2700K   | 97.71%  | 1618        | 90       | 60      | 118  | with Diffuser |
| BXDX1-L13-U19M-30G3TX | 3000K   | 100.00% | 1656        | 90       | 60      | 121  | with Diffuser |
| BXDX1-L13-U19M-35G3TX | 3500K   | 99.37%  | 1646        | 90       | 60      | 120  | with Diffuser |
| BXDX1-L13-U19M-40G3TX | 4000K   | 100.18% | 1659        | 90       | 60      | 121  | with Diffuser |

# Photometric Characteristics

Figure 1: Typical Color Spectrum

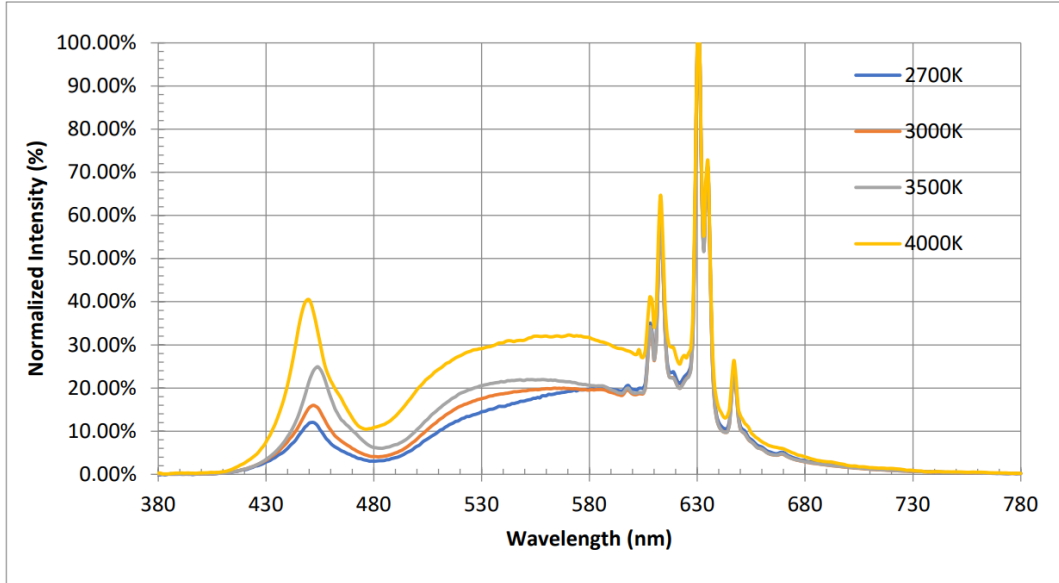


Figure 2: White Test Bins in xy Color Space

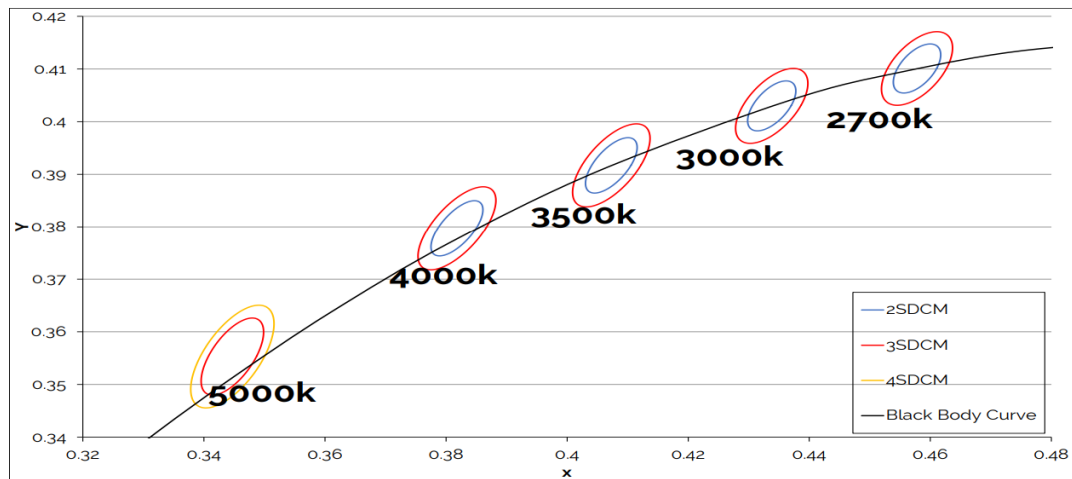


Table 6: White Bin Coordinates and Associated Typical CCT

| CCT Bin                          | 2700K            | 3000K           | 3500K            | 4000K            |
|----------------------------------|------------------|-----------------|------------------|------------------|
| ANSI Bin<br>(for reference only) | 2580K – 2870K    | 2870K – 3220K   | 3220K – 3710K    | 3710K – 4260K    |
| 3 SDCM                           | 2651K – 2794K    | 2968K – 3136K   | 3369K – 3586K    | 3851K – 4130K    |
| 2 SDCM                           | 2674K – 2769K    | 2995K – 3107K   | 3404K – 3548K    | 3895K – 4081K    |
| Center Point (x,y)               | (0.4578, 0.4101) | (0.4338, 0.403) | (0.4073, 0.3917) | (0.3818, 0.3797) |

# Electrical Characteristics

Table 4: Phase-Cut Dimming Control Characteristics

| Parameter                    | Unit | Specification                 |
|------------------------------|------|-------------------------------|
| Compatible Phase-Cut Dimming | -    | Leading-edge<br>Trailing-edge |
| Support Input Voltage        |      | 120Vac                        |
| Dimming Range                |      | 10% - 100%                    |

Table 5: Compatible Phase-Cut Dimmer (120Vac only)

| No. | Mfg.   | Model     | Remark | No. | Mfg.    | Model   | Remark      |
|-----|--------|-----------|--------|-----|---------|---------|-------------|
| 1   | Lutron | DVCL-153P | TRIAC  | 7   | Lutron  | RRD-PRO | TRIAC / ELV |
| 2   | Lutron | TGCL-153P | TRIAC  | 8   | Leviton | DSEo6   | ELV         |
| 3   | Lutron | SCL-153P  | TRIAC  |     |         |         |             |
| 4   | Lutron | MACL-153M | TRIAC  |     |         |         |             |
| 5   | Lutron | DVRP-253P | ELV    |     |         |         |             |
| 6   | Lutron | SELV-300P | ELV    |     |         |         |             |

Table 6: 0-10V / 1-10V Dimming Control Characteristics

| Parameter                           | Unit | Specification                                                                                                                               |
|-------------------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Dim+, Dim-                          | -    | The 0~10V or resistor dimming can be used to dim the output current via a standard commercial wall dimmer (0~10VDC) that sink current only. |
| Dimming Curve                       | -    | Linear (see "Dimming Curve")                                                                                                                |
| Source Current on 0~10V Dimming Pin | -    | 150 $\mu$ A                                                                                                                                 |
| Dimming Range                       |      | 1% - 100%                                                                                                                                   |
| Dimming Voltage for Full Bright     | V    | > 8.0V                                                                                                                                      |
| Dimming Voltage for OFF             | V    | < 1.5V                                                                                                                                      |

Figure 3: 0 - 10V Dimming Curve

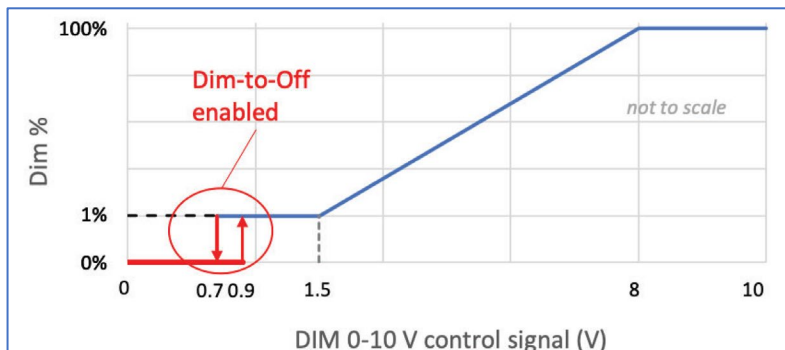
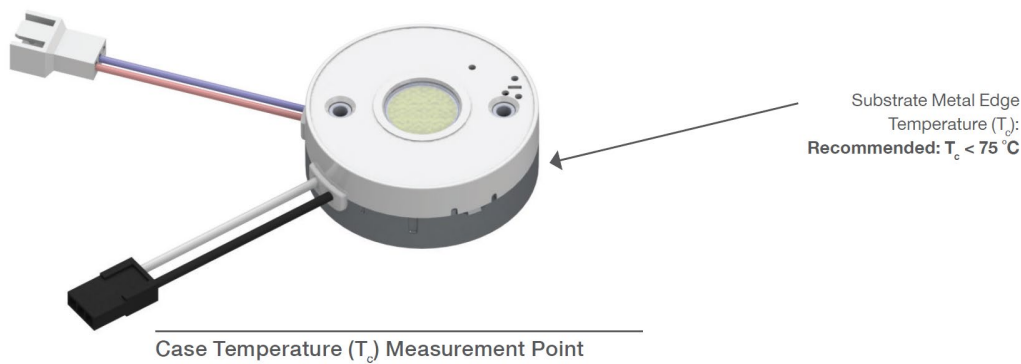
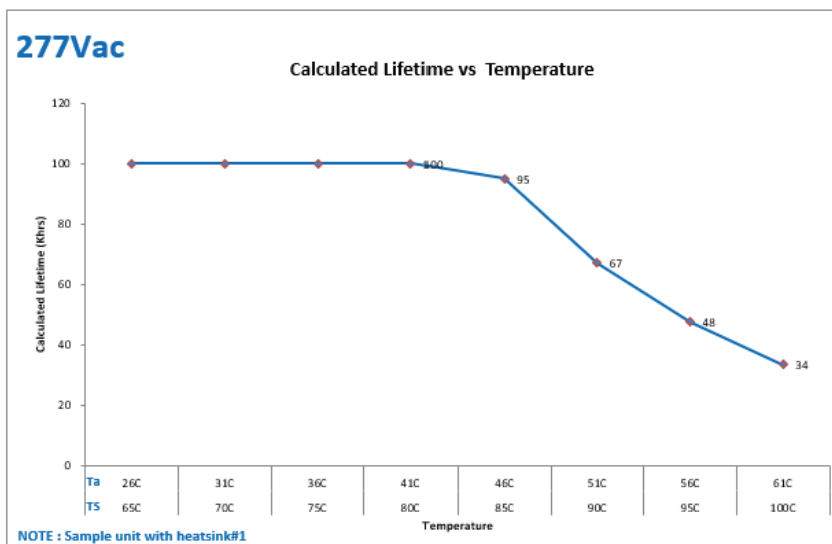
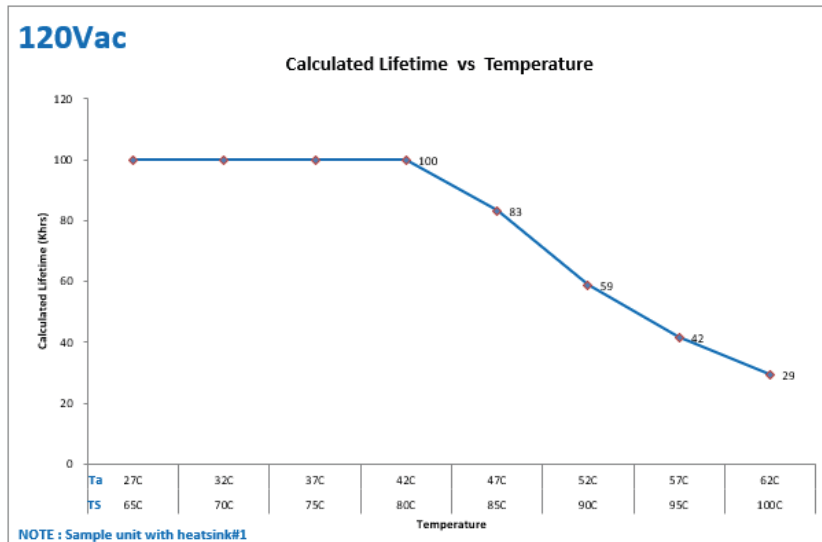


Table 7: Compatible 0-10V Dimmer

| No. | Mfg.    | Model      |
|-----|---------|------------|
| 1   | Lutron  | Nova NFTV  |
| 2   | Lutron  | Diva DVTV  |
| 3   | Lutron  | Diva DVSTV |
| 4   | Leviton | IP710-DL   |

# Estimated Lifetime

Figure 4: Estimated Lifetime



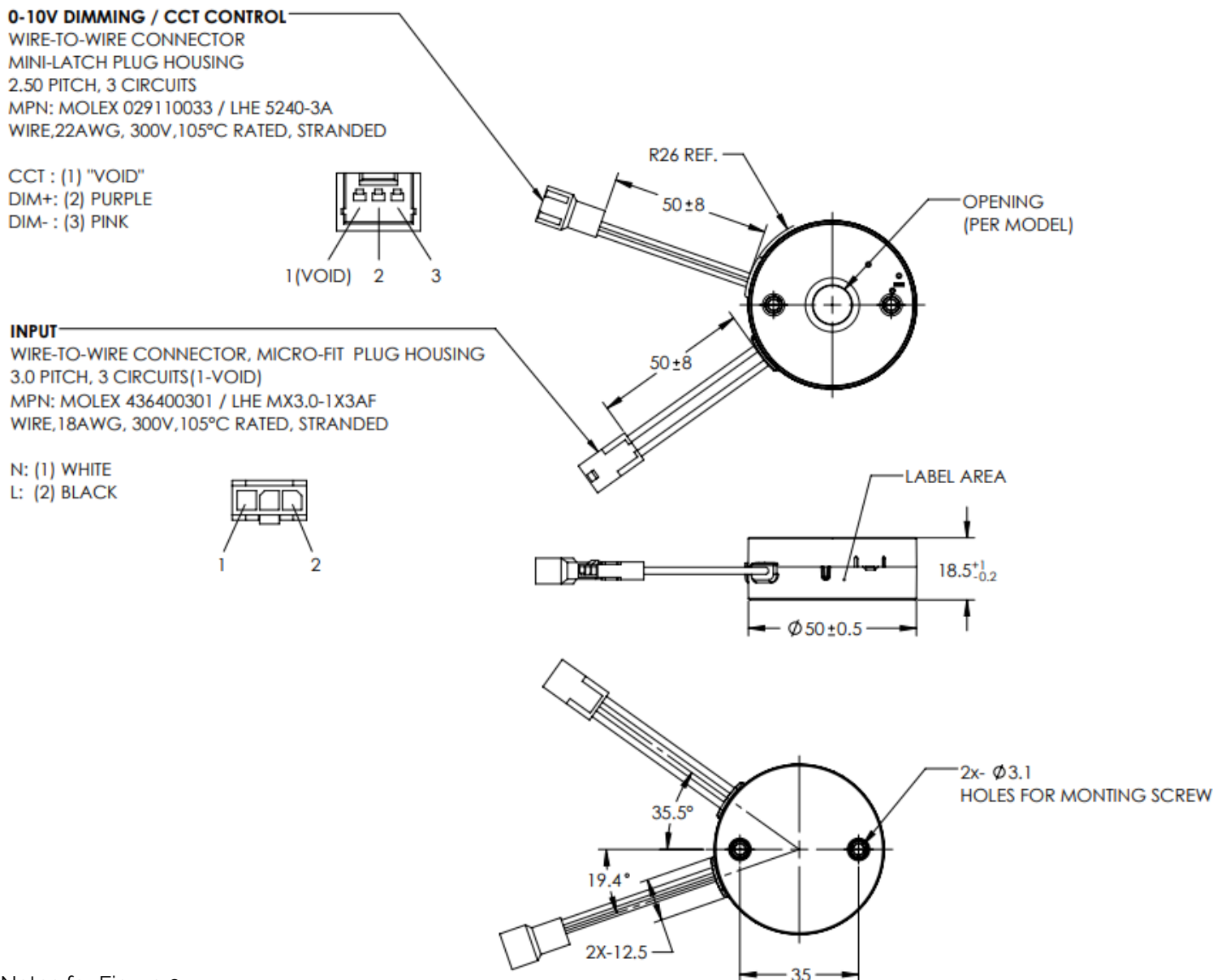
Note: The  $T_c$  is measured at the base of the engine.

# Mechanical Characteristics

Table 7: Driver Mechanical Characteristics

| Characteristics                 | Specification |
|---------------------------------|---------------|
| Dimensions                      | Ø50 x 18.5 mm |
| Lighting Emitting Surface (LES) | 14.8 mm       |
| Weight                          | 45 g          |

Figure 5: Mechanical Drawing (Side Cable Models)



Notes for Figure 9:

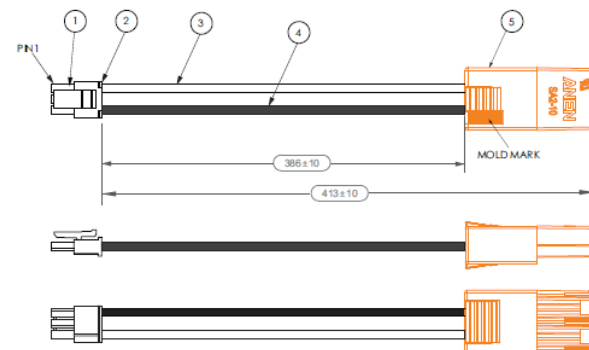
1. Drawing dimensions are in millimeters
2. Unless otherwise specified, all linear tolerances are  $\pm 1.0$  mm

## Cable Assemblies (AC Input Power Cable)

Table 9: AC Input Cables 2

| Part Number      | Configuration                                                                             |
|------------------|-------------------------------------------------------------------------------------------|
| BXDX-AC-NA413-QD | 2-wire AC Input Power Cable, Black/White, 413mm, for North America, with quick disconnect |

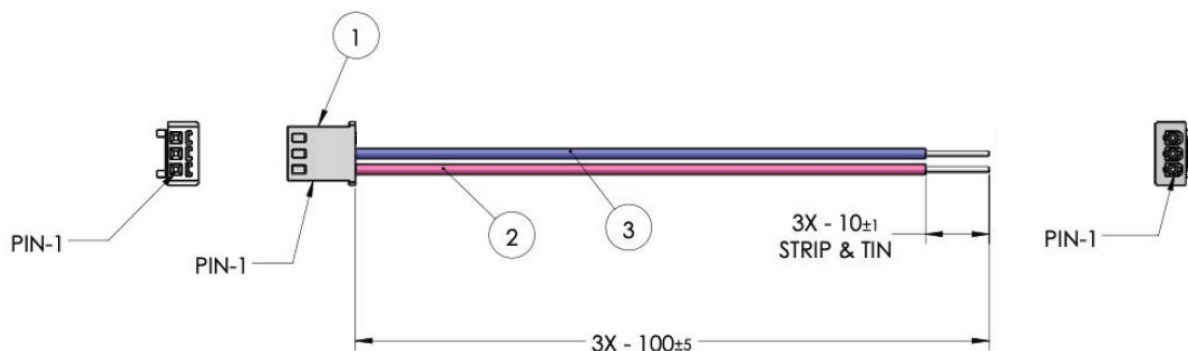
| Item No. | Part No. (UL)   | Wire Description                    | Wire Color | Input   |
|----------|-----------------|-------------------------------------|------------|---------|
| 3        | UL 1430         | Wire Stranded Tinned 18 AWG (Pin-1) | White      | Neutral |
| 4        | UL 1430         | Wire Stranded Tinned 18 AWG (Pin-3) | Black      | Line    |
| 5        | SA-2-10, Single | NBC ELECTRONIC 2-Pin Connector      | Orange     | N/A     |



| Item No. | Part No. (UL) | Manufacturer | Description     | QTY |
|----------|---------------|--------------|-----------------|-----|
| 1        | 3016H-1*03    | ECI          | Connector 3-Pin | 1   |
| 2        | 3016P-L       | ECI          | Connector Crimp | 2   |

Table 10: DC Control Cables

| Part Number     | Configuration                                                  |
|-----------------|----------------------------------------------------------------|
| BXDX-DC2W-NA100 | 2-wire DC Control Cable, Violet/Pink, 100mm, for North America |



| Item No. | Part No. (UL) | Manufacturer | Description                                 | Input   |
|----------|---------------|--------------|---------------------------------------------|---------|
| 1        | 5102-3Y       | LHE or Equiv | 2.50 mm Pitch Mini-Latch Receptacle Housing | N/A     |
| 2        | UL 1430       | Any          | Wire Stranded Tinned 18 AWG Pink (Pin 1)    | Dim (-) |
| 3        | UL 1430       | Any          | Wire Stranded Tinned 18 AWG Pink (Pin 1)    | Dim (+) |

# Optical Accessories of the DriveLux

The DriveLux (DX1-M) can order with the optical TIR lens holder. This holder can easily install various optics lens best for smooth color mixing.

Detail lens offering, can be referred to Bridgelux Website.



Thrive™ F90™ RGBW Component & Module ▾ Drivers ▾ Holders & Optics ▾ Power Devices ▾

Home » OPTICS

## OPTICS

We've taken in your feedback and are thrilled to unveil the Bridgelux Integrated Solution. This solution includes Non-soldering Holders, Kirin Optics, and Drives, all designed to work together in harmony. The Optics, which are an essential part of this solution, come with a variety of beam angles, namely 15°, 24°, 36°, and 50°. Plus, they're available in different diameters, namely 35mm, 45mm, 55mm, up to 65mm. This variety ensures you find the perfect fit for your needs. What makes Bridgelux Optics even more special is their compatibility with our solder-free COB array holders, providing a smooth user experience. Our turn & lock design is a game-changer, it simplifies the adoption of our integrated lighting solution. In a nutshell, this design is a boon for manufacturers, lighting designers, and more, making the installation process easier than ever before. Additionally, we offer the opportunity for customization. We understand that needs can vary, so we're open to creating personalized solutions as per your specific requests. Customized solutions are available per customer request.



| Product Family | Product             | Data sheet | Doc Number | Diameter (mm) | Beam angle     | Max LES (mm) | Material |
|----------------|---------------------|------------|------------|---------------|----------------|--------------|----------|
| BXHK           | BXHK-MN-5024-xx-D09 |            | DS1346     | ø50, 24H      | 14, 24, 36, 50 | 9            | PC       |
| BXHK           | BXHK-MN-5525-xx-D09 |            | DS1347     | ø55, 25H      | 14, 24, 36, 50 | 9            | PC       |
| BXHK           | BXHK-MN-6230-xx-D09 |            | DS1348     | ø62, 30H      | 14, 24, 36, 50 | 9            | PC       |
| BXHK           | BXHK-MN-6832-xx-D09 |            | DS1349     | ø68, 32H      | 14, 24, 36, 50 | 9            | PC       |
| BXHK           | BXHK-DK-5024-xx-D09 |            | DS1342     | ø50, 24H      | 14, 24, 36, 50 | 9            | PC       |
| BXHK           | BXHK-DK-5525-xx-D09 |            | DS1343     | ø55, 25H      | 14, 24, 36, 50 | 9            | PC       |
| BXHK           | BXHK-DK-6230-xx-D09 |            | DS1344     | ø62, 30H      | 14, 24, 36, 50 | 9            | PC       |
| BXHK           | BXHK-DK-6832-xx-D09 |            | DS1345     | ø68, 32H      | 14, 24, 36, 50 | 9            | PC       |

# Environmental and Regulatory Standards

Table 11: Environmental Conditions

| Parameter                     | Specification                                                                                                                            |
|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Ambient Operating Temperature | -20°C to +40°C<br><i>Light Engine can operate with Ta &gt; 40°C by linearly de-rating the output lumen by 2.5%/°C (from 40°C – 60°C)</i> |
| Max. Case Temperature Tc      | +90°C (max)                                                                                                                              |
| Humidity Rating               | Maximum 95% Relative Humidity, non condensing                                                                                            |
| Storage Temperature           | -40°C to + 85°C                                                                                                                          |
| Acoustic Noise                | < 24 dBA (measured from 1M w/o/dimmer)                                                                                                   |
| Expected Lifetime             | 50,000 hours (Tc < 80°C)                                                                                                                 |
| Working Locations             | Suitable for dry and damp locations                                                                                                      |
| Warranty                      | 5 Years (Tc < 80°C)                                                                                                                      |
| MTBF                          | > 200,000 hours at Tc = 90°C                                                                                                             |

Table 12: Regulatory Approvals and Compliance

| Specification                                                                                                             | Reference Standard                                                            | Condition                                                            |
|---------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Conducted and Radiated EMI                                                                                                | FCC Title 47 Part 15B                                                         | Class B at 120VAC, Class A at 277VAC                                 |
| Voltage Fluctuations & Flicker                                                                                            | IEC 61000-3-3                                                                 |                                                                      |
| ESD (Electrostatic Discharge)                                                                                             | IEC 61547:2009 Section 5.2<br>Test des.: IEC 61000-4-2                        | 6 kV contact discharge,<br>8 kV air discharge, level 3               |
| Electrical Fast Transient                                                                                                 | IEC 61547 Section 5.5<br>Test des.: IEC 61000-4-4                             | ± 2kV on AC power port for 1minute,<br>± 1kV on signal/control lines |
| Surge Protection                                                                                                          | IEC 61547 Section 5.7<br>Test des.: IEC 61000-4-5 or<br>ANSI/IEEE C62.41-2002 | ± 2kV line to line / ± 2kV line to earth on AC<br>power ports.       |
|                                                                                                                           | ANSI/IEEE C62.41.1-2002                                                       | 2.5kV Ring Wave                                                      |
| High Pot or Dielectric Voltage Withstand                                                                                  | 2200Vdc                                                                       | Test between 0-10V leads and AC input                                |
| Mechanical Shock Protection                                                                                               | EN60068-2-27                                                                  |                                                                      |
| Vibration Protection                                                                                                      | EN60068-2-6 & EN60068-2-64                                                    |                                                                      |
| Note: Unless otherwise specified, all the above parameters are measured at ambient temperature of 25°C and rated voltage. |                                                                               |                                                                      |

## Regulatory Standards (continued)

Table 13: Safety Agency Approvals

| Specification | Reference Standard               | Condition              |
|---------------|----------------------------------|------------------------|
| UL / cUL      | UL8750, CAN/CSA-C22.2 No. 250.13 | UL Recognized, Class 2 |

Table 14: Protection

| Specification                     | Reference Standard | Condition                                                                        |
|-----------------------------------|--------------------|----------------------------------------------------------------------------------|
| Over Temperature Protection (OTP) | YES                | Gradually reduce output power when $T_c < 85^{\circ}\text{C}$ Automatic recovery |



# Design Resources

## Application Notes

Please contact your Bridgelux sales representative for assistance on obtaining application support when designing with the Bridgelux DriveLux (DX1-M) Light Engine. For a list of available resources, visit [www.bridgelux.com](http://www.bridgelux.com).

# Precautions

## CAUTION: PRODUCT HANDLING

Handle the DriveLux (DX1-M) Light Engine with care to prevent any damage from mechanical shock. It is recommended to handle this driver in a static-free environment. Do not open or disassemble the product. To maintain product warranty, the installer is responsible for ensuring that the driver's operating conditions do not exceed the maximum conditions stated within this data sheet.

## CAUTION: ELECTRIC SHOCK

Be aware of the possibility of an electric shock hazard which can result in serious injury or death. Disconnect power before servicing or installing this device.

# Disclaimers

## MINOR PRODUCT CHANGE POLICY

The rigorous qualification testing on products offered by Bridgelux provides performance assurance. Slight cosmetic changes that do not affect form, fit, or function may occur as Bridgelux continues product optimization.

## About Bridgelux: Bridging Light and Life™

At Bridgelux, we help companies, industries and people experience the power and possibility of light. Since 2002, we've designed LED solutions that are high performing, energy efficient, cost effective and easy to integrate. Our focus is on light's impact on human behavior, delivering products that create better environments, experiences and returns—both experiential and financial. And our patented technology drives new platforms for commercial and industrial luminaires.

For more information about the company, please visit

[bridgelux.com](http://bridgelux.com)

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