

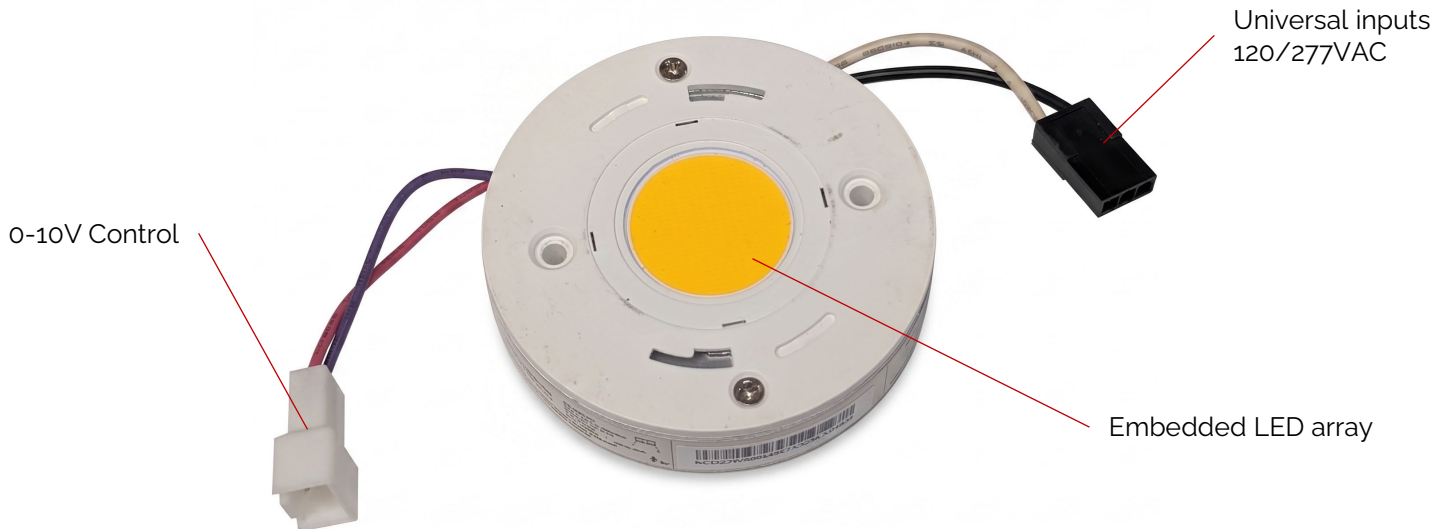


Bridgelux® DriveLux (DX1-A HE) Static White 22mm Engine (0-10V Dimming) AC Input Light Engine

Product Data Sheet DS3014

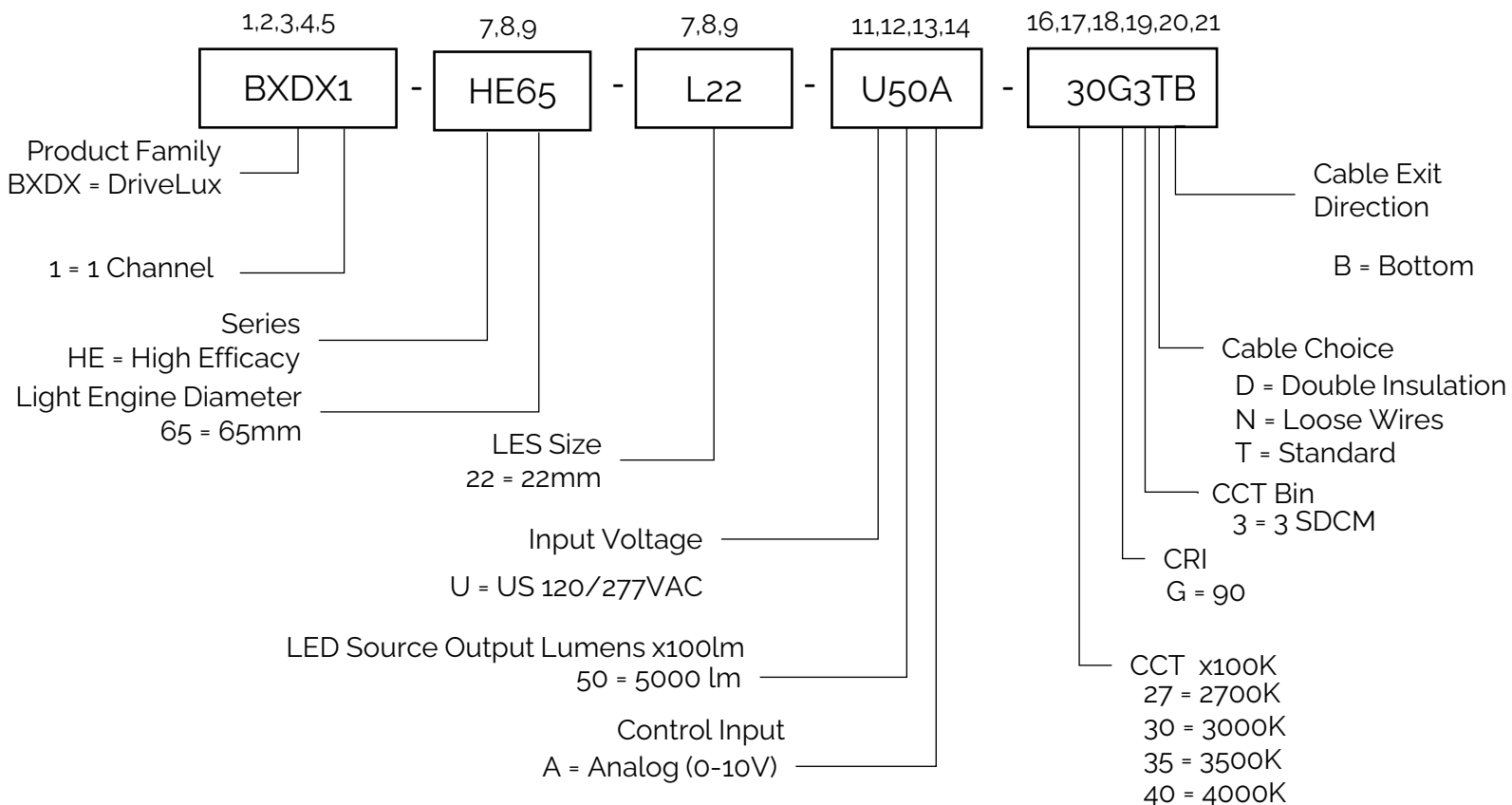
Product Feature Map

Bridgelux's DriveLux (DX1-A) 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-A) 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-A) Light Engine is explained as follows:



Product Selection Guide

Table 1: Product Selection Guide (examples)

Part Number	Configuration
BXDX1-HE65-L22-U50A-27G3T ¹ B ²	120/277VAC, 22mm, 5000lm, 2700K, CRI90, 3 SDCM, 0-10V Dimming
BXDX1-HE65-L22-U50A-30G3T ¹ B ²	120/277VAC, 22mm, 5000lm, 3000K, CRI90, 3 SDCM, 0-10V Dimming
BXDX1-HE65-L22-U50A-35G3T ¹ B ²	120/277VAC, 22mm, 5000lm, 3500K, CRI90, 3 SDCM, 0-10V Dimming
BXDX1-HE65-L22-U50A-40G3T ¹ B ²	120/277VAC, 22mm, 5000lm, 4000K, CRI90, 3 SDCM, 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	< 0.23 A
Input Power (Typ.)	W	27.5 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) < 1000mW (@ 277Vac)
Dimming Control		0-10V
Flicker		Compliance with IEEE 1789-2015
Start-up Time	s	< 0.5 s

Table 5: Photometric Characteristics

Part Number	CCT [K]	Rel. %	Lumens [lm]	CRI min.	Rg min.	Lm/W	Remarks
BXDX1-L13-U19M-27G3TX	2700K	97.71%	4763	90	60	167	
BXDX1-L13-U19M-30G3TX	3000K	100.00%	4875	90	60	168	
BXDX1-L13-U19M-35G3TX	3500K	99.37%	4844	90	60	167	
BXDX1-L13-U19M-40G3TX	4000K	100.18%	4884	90	60	168	

Photometric Characteristics

Figure 1: Typical Color Spectrum

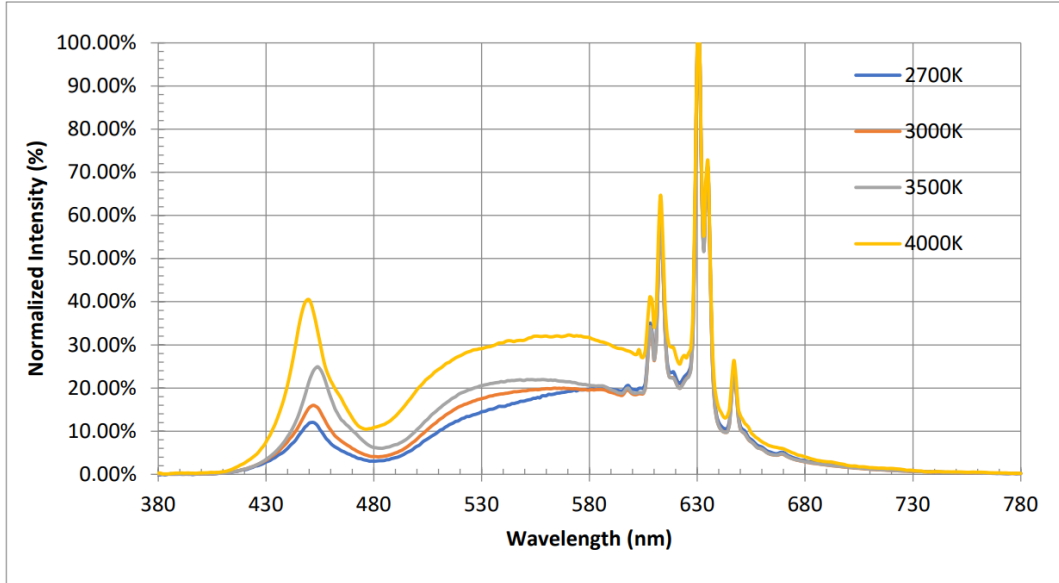


Figure 2: White Test Bins in xy Color Space

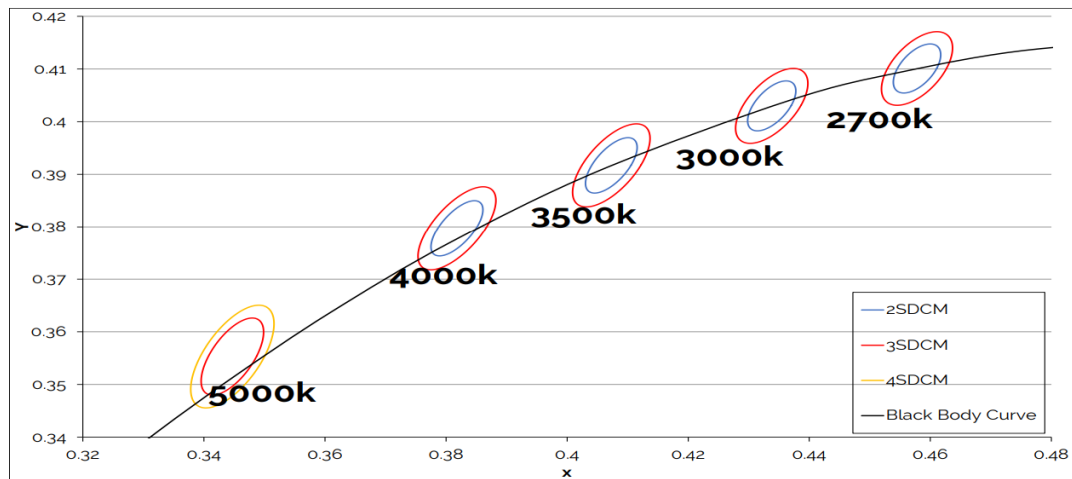


Table 6: White Bin Coordinates and Associated Typical CCT

CCT Bin	2700K	3000K	3500K	4000K
ANSI Bin (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 7: 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 μ A
Dimming Range		1% - 100%
Dimming Voltage for Full Bright	V	> 9.0V
Dimming Voltage for Min	V	< 1.0V

Figure 3: 0 - 10V Dimming Curve

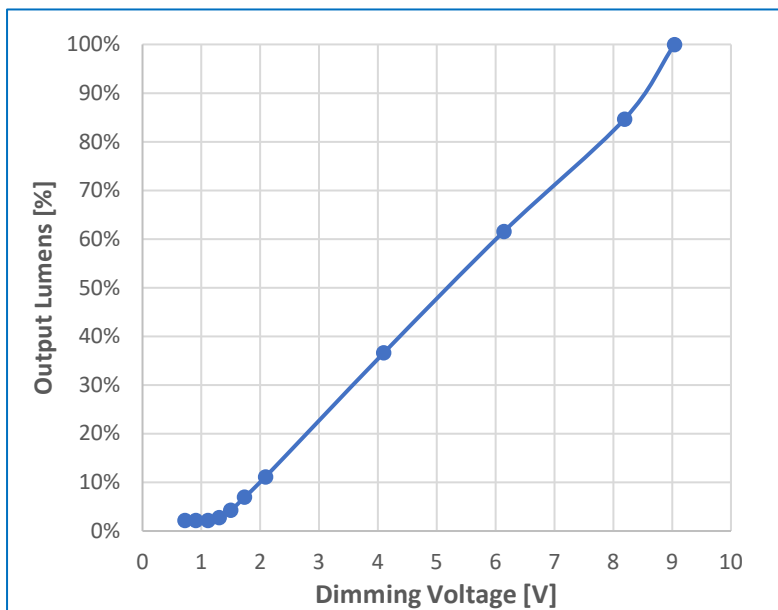


Table 7: Compatible 0-10V Dimmer

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

Electrical Characteristics

Figure 4: Efficacy vs Output

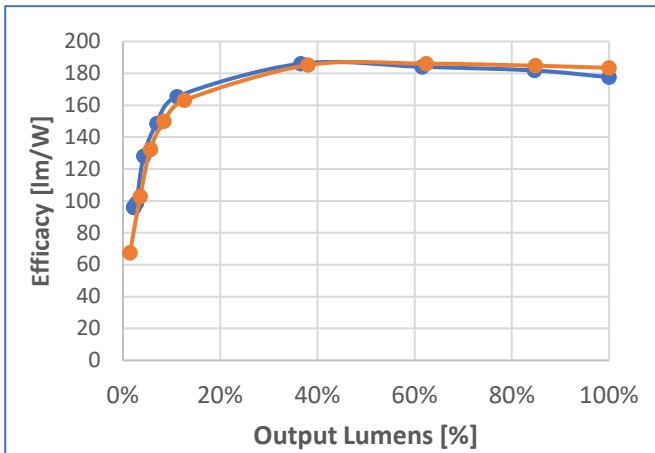


Figure 5: Output Lumen vs Input Power

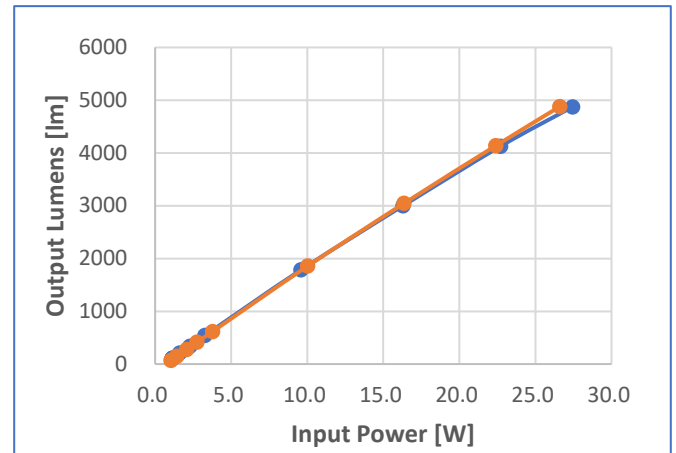


Figure 6: Power Factor vs Output

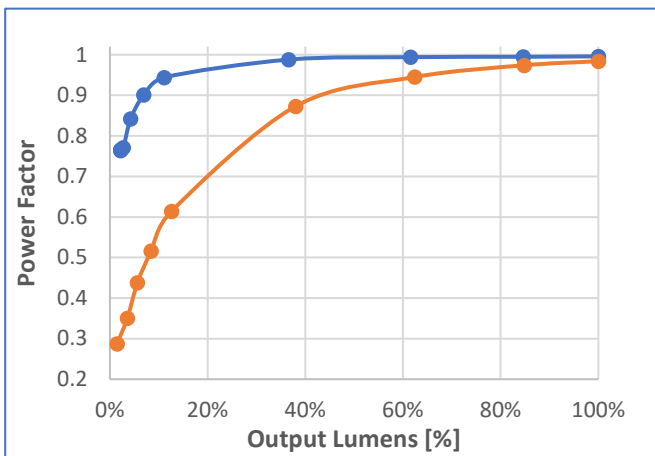
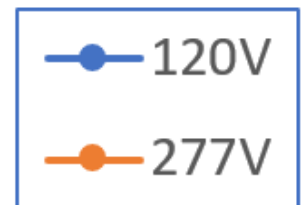
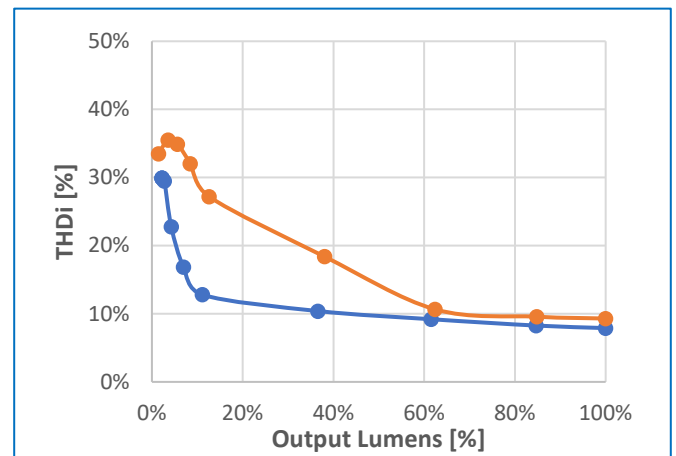


Figure 7: THDi vs Output



Mechanical Characteristics

Table 8: Driver Mechanical Characteristics

Characteristics	Specification
Dimensions	Ø65 x 14.7 mm
Lighting Emitting Surface (LES)	23.3 mm
Weight	TBC

Figure 8a: Mechanical Drawing (Standard)

INPUT

WIRE-TO-WIRE CONNECTOR, MICRO-FIT PLUG HOUSING
3.0 PITCH, 3 CIRCUITS(1-VOID)
MPN: MOLEX 436400301 / LHE MX3.0-1X3AF
WIRE,18AWG, 300V,105°C RATED, STRANDED

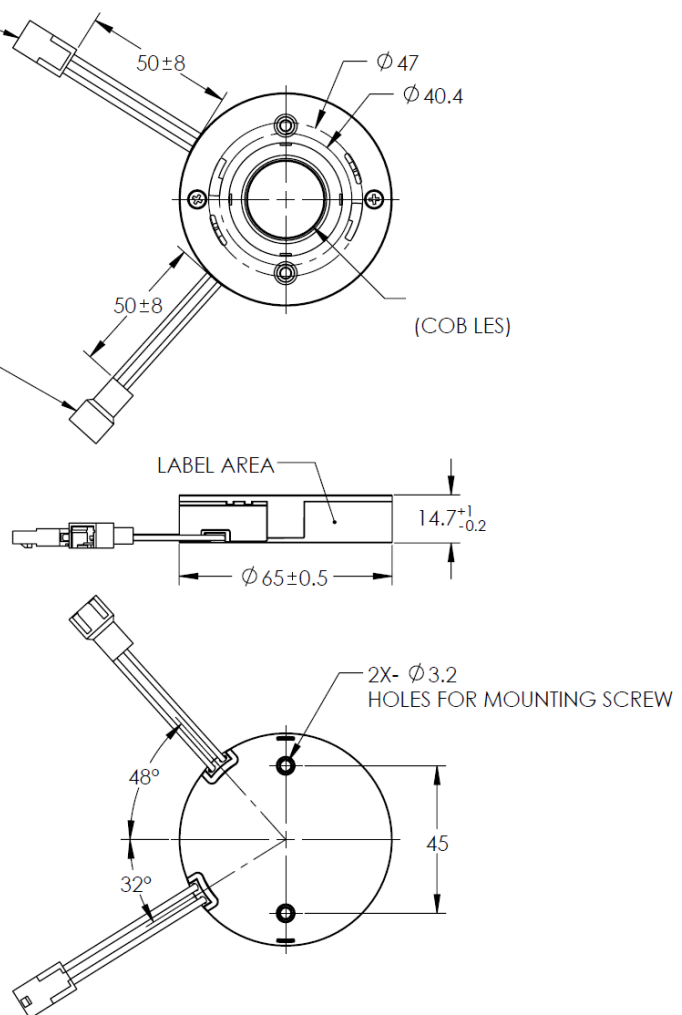
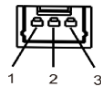
N: (1) WHITE
L: (2) BLACK



0-10V DIMMING

WIRE-TO-WIRE CONNECTOR
MINI-LATCH PLUG HOUSING
2.50 PITCH, 3 CIRCUITS
MPN: MOLEX 029110033 / LHE 5240-3A
WIRE,22AWG, 300V,105°C RATED, STRANDED

VOID: (1)
DIM+: (2) PURPLE
DIM-: (3) PINK

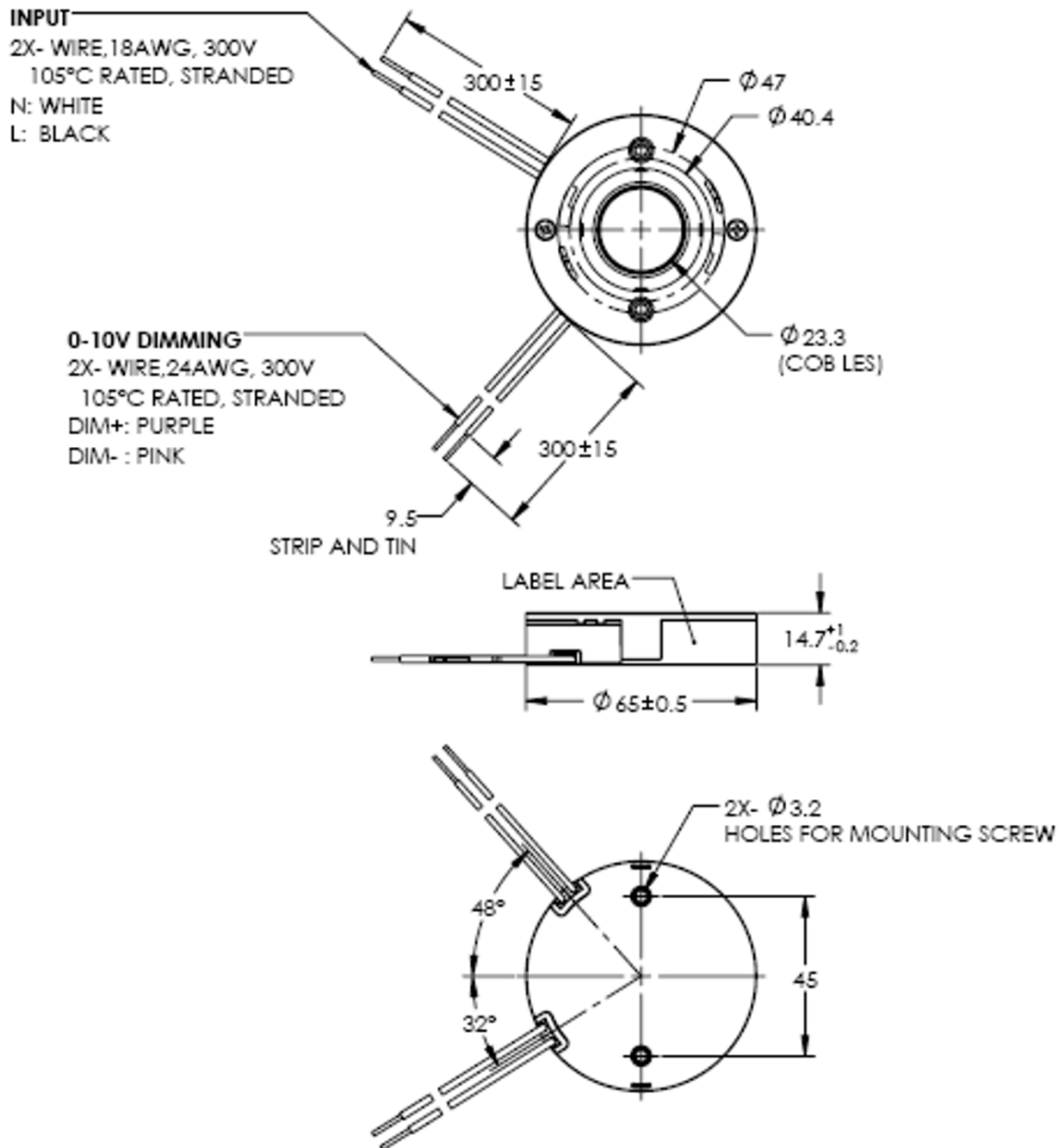


Notes for Figure 8a:

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

Mechanical Characteristics

Figure 8b: Mechanical Drawing (Loose wires)

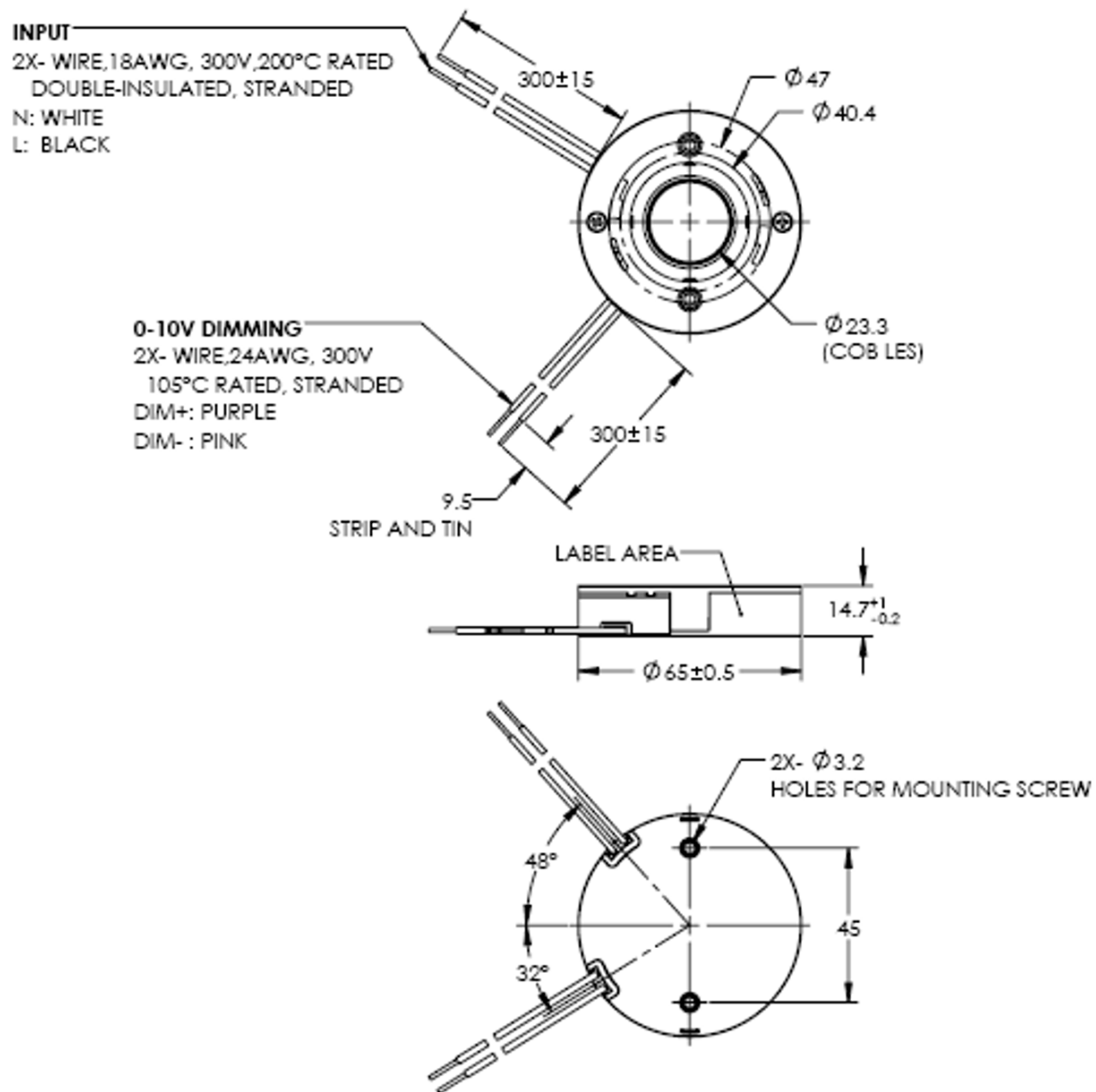


Notes for Figure 8b:

1. Drawing dimensions are in millimeters
2. Unless otherwise specified, all linear tolerances are +/-1.0mm

Mechanical Characteristics

Figure 8c: Mechanical Drawing (Double Insulation)



Notes for Figure 8c:

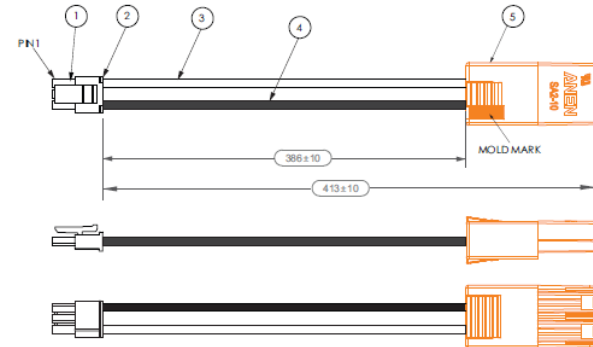
1. Drawing dimensions are in millimeters
2. Unless otherwise specified, all linear tolerances are +/-1.0mm

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

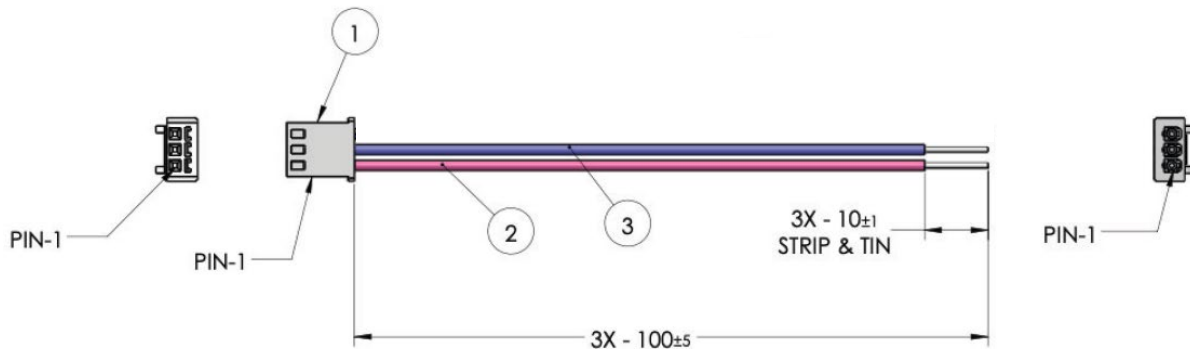
Item No.	Part No. (UL)	Wire Description	Wire Color	Input
3	UL 1430	Wire Stranded Tinned 18 AWG (Pin-1)	White	Neutral
4	UL 1430	Wire Stranded Tinned 18 AWG (Pin-3)	Black	Line
5	SA-2-10, Single	NBC ELECTRONIC 2-Pin Connector	Orange	N/A



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-A) 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

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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 <i>Light Engine can operate with Ta > 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 Test des.: IEC 61000-4-2	6 kV contact discharge, 8 kV air discharge, level 3
Electrical Fast Transient	IEC 61547 Section 5.5 Test des.: IEC 61000-4-4	± 2kV on AC power port for 1minute, ± 1kV on signal/control lines
Surge Protection	IEC 61547 Section 5.7 Test des.: IEC 61000-4-5 or ANSI/IEEE C62.41-2002	± 2kV line to line / ± 2kV line to earth on AC 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-A) Light Engine. For a list of available resources, visit www.bridgelux.com.

Precautions

CAUTION: PRODUCT HANDLING

Handle the DriveLux (DX1-A) 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.

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