



Project: _____
 Location: _____
 Cat.No: _____
 Type: _____
 Lamps: _____ Qty: _____
 Notes: _____

The Hadco Baltimore LED post top consists of a traditional stately form that has created an industry standard. It offers the style of traditional lanterns with today's cutting edge LEDgine technology. For historic areas and new street-scapes Baltimore is available in sizes that are in proportion to most applications including residential streets, city streets, campuses and parking lots.

Ordering guide

Example: VX651-48-A-C-2-N-W-A-3-N-N-N-N-SP1-N

Series	LED count	Gen	Finish	Panels	Optics	Photo Control	Color Temp	Voltage	Drive Current	Integral Controls ²	Options			Surge Protect	House Side Shield
											#1 ²	#2 ²	#3 ²		
VX651	32 ^{1,3} 32 LEDs 48 48 LEDs 64 64 LEDs	G2 Gen 2	A Black B White G Verde H Bronze J Green	C Clear F Frosted V Vertical Ribbed	2 Type 2 3 Type 3 3W Type 3 Wide 4 Type 4 5 Type 5	E 120 VAC button eye H 208/240/277 VAC button eye R 3-Pin Twist Lock Receptacle N None	N Neutral 4000K W Warm 3000K	A 120-277 B ^{2,3} 347-480	3 350mA 5 530mA 7 ¹ 700mA	<u>Dynadimmer</u> DA 4 Hrs, 25% reduction DB 4 Hrs, 50% reduction DC 4 Hrs, 75% reduction DD 6 Hrs, 25% reduction DE 6 Hrs, 50% reduction DF 6 Hrs, 75% reduction DG 8 Hrs, 25% reduction DH 8 Hrs, 50% reduction DJ 8 Hrs, 75% reduction DL DALI N None	AST Adjustable Start Up Time N None	CLO Constant Light Output N None	OTL Over The Life N None	SP1 10kV/10kA Surge Protector SP2 20kV/20kA Surge Protector	H House Side Shield N None

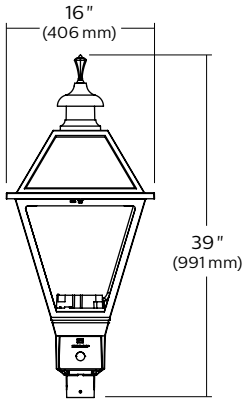
1. The 700mA (7) current is only compatible for 32 LEDs (32) configurations.
 2. Configurations with 347-480VAC (B) voltage are not compatible with optional dimming or optional programming.
 3. Configurations with 32 LEDs (32) at 350mA (3) and 530mA (5) currents are not compatible with 347-480 VAC (B) voltage.



VX651 Baltimore

Post top

Dimensions



VX651
 Height: 39" (99cm)
 Width: 16" (41cm)
 Max. EPA: 1.65 sq. ft.
 Max. Weight 28 lbs.

LED Wattage and Lumen Values for 3000K fixtures

Ordering Code: (3000K)	Total LEDs	System current (mA)	Average System Watts ¹ (W)	Type 2			Type 3			Type 3W			Type 4			Type 5		
				Lumen Output ²	Efficacy (LPW)	BUG Rating	Lumen Output ²	Efficacy (LPW)	BUG Rating	Lumen Output ²	Efficacy (LPW)	BUG Rating	Lumen Output ²	Efficacy (LPW)	BUG Rating	Lumen Output ²	Efficacy (LPW)	BUG Rating
Clear Panel VX651 3000K																		
32-G2-C-x-W3	32	350	38	2953	78	B1-U2-G1	2929	77	B1-U2-G1	3008	79	B1-U3-G1	2934	77	B1-U2-G1	3069	81	B3-U3-G1
32-G2-C-x-W5	32	530	53	4236	80	B1-U2-G1	4201	79	B1-U3-G1	4315	81	B1-U3-G1	4208	79	B1-U3-G1	4402	83	B3-U3-G1
32-G2-C-x-W7	32	700	71	5342	75	B1-U3-G1	5299	75	B1-U3-G1	5442	77	B1-U3-G2	5308	75	B1-U3-G1	5552	78	B3-U3-G1
48-G2-C-x-W3	48	350	51	4430	87	B1-U3-G1	4394	86	B1-U3-G1	4512	88	B1-U3-G1	4401	86	B1-U3-G1	4604	90	B3-U3-G1
48-G2-C-x-W5	48	530	79	6354	80	B1-U3-G1	6302	80	B1-U3-G1	6472	82	B1-U3-G2	6313	80	B1-U3-G2	6603	84	B3-U3-G2
64-G2-C-x-W3	64	350	68	5821	86	B1-U3-G1	5823	86	B1-U3-G1	6086	90	B1-U3-G2	5873	86	B1-U3-G2	6249	92	B3-U3-G1
64-G2-C-x-W5	64	530	104	8350	80	B2-U3-G2	8352	80	B2-U3-G2	8730	84	B2-U3-G2	8424	81	B2-U3-G2	8963	86	B3-U3-G2
Frosted Panel VX651 3000K																		
32-G2-F-x-W3	32	350	38	2708	71	B1-U3-G2	2714	71	B1-U3-G2	2778	73	B1-U3-G2	2727	72	B1-U3-G2	2850	75	B2-U3-G3
32-G2-F-x-W5	32	530	53	3884	73	B1-U3-G2	3893	73	B1-U3-G3	3985	75	B1-U3-G3	3912	74	B1-U3-G3	4088	77	B2-U3-G3
32-G2-F-x-W7	32	700	71	4899	69	B1-U3-G3	4910	69	B1-U3-G3	5025	71	B1-U3-G3	4933	69	B1-U3-G3	5156	73	B2-U3-G3
48-G2-F-x-W3	48	350	51	4062	80	B1-U3-G2	4071	80	B1-U3-G3	4167	82	B1-U3-G3	4091	80	B1-U3-G3	4275	84	B3-U3-G3
48-G2-F-x-W5	48	530	79	5826	74	B2-U3-G3	5839	74	B2-U3-G3	5977	76	B2-U3-G3	5867	74	B1-U3-G3	6132	78	B3-U3-G3
64-G2-F-x-W3	64	350	68	5389	79	B1-U3-G3	5415	80	B1-U3-G3	5623	83	B1-U3-G3	5457	80	B1-U3-G3	5834	86	B3-U4-G3
64-G2-F-x-W5	64	530	104	7730	74	B2-U3-G3	7767	75	B2-U3-G3	8065	78	B2-U4-G4	7828	75	B2-U3-G4	8368	80	B3-U4-G3
Vetrical Ribbed Panel VX651 3000K																		
32-G2-V-x-W3	32	350	38	2880	76	B1-U2-G1	2885	76	B1-U2-G1	2946	78	B1-U2-G1	2867	75	B1-U2-G1	2988	79	B2-U3-G1
32-G2-V-x-W5	32	530	53	4131	78	B1-U2-G1	4138	78	B1-U3-G1	4226	80	B1-U3-G1	4112	78	B1-U3-G1	4286	81	B3-U3-G1
32-G2-V-x-W7	32	700	71	5210	73	B1-U3-G1	5219	74	B1-U3-G1	5329	75	B1-U3-G2	5186	73	B1-U3-G1	5405	76	B3-U3-G2
48-G2-V-x-W3	48	350	51	4320	85	B1-U3-G1	4328	85	B1-U3-G1	4419	87	B1-U3-G1	4301	84	B1-U3-G1	4482	88	B3-U3-G1
48-G2-V-x-W5	48	530	79	6197	78	B1-U3-G1	6207	79	B1-U3-G1	6339	80	B1-U3-G2	6169	78	B1-U3-G2	6429	81	B3-U3-G2
64-G2-V-x-W3	64	350	68	5730	84	B1-U3-G1	5734	84	B1-U3-G1	5927	87	B1-U3-G2	5765	85	B1-U3-G2	6125	90	B3-U3-G2
64-G2-V-x-W5	64	530	104	8219	79	B2-U3-G2	8224	79	B2-U3-G2	8501	82	B2-U3-G2	8269	80	B2-U3-G2	8785	84	B3-U3-G2

Actual performance may vary due to installation variables including optics, mounting/ceiling height, dirt depreciation, light loss factor, etc.; highly recommend-
 ed to confirm performance with a layout - contact Applications at outdoorlighting.applications@philips.com.

Note: Some data may be scaled based on tests of similar. But not identical luminaires.

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LED Wattage and Lumen Values for 4000K fixtures

Ordering Code: (4000K)	Total LEDs	System current (mA)	Average System Watts ¹ (W)	Type 2			Type 3			Type 3W			Type 4			Type 5		
				Lumen Output ²	Efficacy (LPW)	BUG Rating	Lumen Output ²	Efficacy (LPW)	BUG Rating	Lumen Output ²	Efficacy (LPW)	BUG Rating	Lumen Output ²	Efficacy (LPW)	BUG Rating	Lumen Output ²	Efficacy (LPW)	BUG Rating
Clear Panel VX651 4000K																		
32-G2-C-x-N3	32	350	38	3351	88	B1-U2-G1	3324	87	B1-U2-G1	3414	90	B1-U3-G1	3330	88	B1-U2-G1	3483	92	B2-U3-G1
32-G2-C-x-N5	32	530	53	4807	91	B1-U3-G1	4768	90	B1-U3-G1	4897	92	B1-U3-G1	4776	90	B1-U3-G1	4996	94	B3-U3-G1
32-G2-C-x-N7	32	700	71	6063	85	B1-U3-G1	6014	85	B1-U3-G1	6176	87	B1-U3-G2	6024	85	B1-U3-G2	6301	89	B3-U3-G2
48-G2-C-x-N3	48	350	51	5027	99	B1-U3-G1	4986	98	B1-U3-G1	5121	100	B1-U3-G2	4995	98	B1-U3-G1	5225	102	B3-U3-G1
48-G2-C-x-N5	48	530	79	7211	91	B2-U3-G2	7152	91	B1-U3-G2	7345	93	B2-U3-G2	7164	91	B1-U3-G2	7494	95	B3-U3-G2
64-G2-C-x-N3	64	350	68	6607	97	B1-U3-G1	6608	97	B1-U3-G2	6907	102	B2-U3-G2	6665	98	B1-U3-G2	7092	104	B3-U3-G2
64-G2-C-x-N5	64	530	104	9477	91	B2-U3-G2	9479	91	B2-U3-G2	9908	95	B2-U3-G2	9561	92	B2-U3-G2	10172	98	B4-U3-G2
Frosted Panel VX651 4000K																		
32-G2-F-x-N3	32	350	38	3073	81	B1-U3-G2	3080	81	B1-U3-G2	3153	83	B1-U3-G2	3095	81	B1-U3-G2	3235	85	B2-U3-G2
32-G2-F-x-N5	32	530	53	4408	83	B1-U3-G3	4418	83	B1-U3-G3	4522	85	B1-U3-G3	4439	84	B1-U3-G3	4640	88	B2-U3-G3
32-G2-F-x-N7	32	700	71	5560	78	B2-U3-G3	5572	78	B1-U3-G3	5704	80	B2-U3-G3	5599	79	B1-U3-G3	5851	82	B3-U3-G3
48-G2-F-x-N3	48	350	51	4610	90	B1-U3-G3	4620	91	B1-U3-G3	4729	93	B1-U3-G3	4642	91	B1-U3-G3	4852	95	B2-U3-G3
48-G2-F-x-N5	48	530	79	6613	84	B2-U3-G3	6627	84	B2-U3-G3	6784	86	B2-U3-G3	6659	84	B2-U3-G3	6959	88	B3-U3-G3
64-G2-F-x-N3	64	350	68	6116	90	B2-U3-G3	6146	90	B2-U3-G3	6381	94	B2-U3-G3	6194	91	B1-U3-G3	6621	97	B3-U3-G3
64-G2-F-x-N5	64	530	104	8773	84	B2-U4-G3	8815	85	B2-U4-G4	9153	88	B2-U4-G4	8884	85	B2-U4-G4	9497	91	B3-U4-G4
Vertical Ribbed Panel VX651 4000K																		
32-G2-V-x-N3	32	350	38	3269	86	B1-U2-G1	3274	86	B1-U2-G1	3343	88	B1-U3-G1	3254	86	B1-U2-G1	3391	89	B2-U3-G1
32-G2-V-x-N5	32	530	53	4688	88	B1-U3-G1	4697	89	B1-U3-G1	4796	90	B1-U3-G1	4667	88	B1-U3-G1	4864	92	B3-U3-G1
32-G2-V-x-N7	32	700	71	5913	83	B1-U3-G1	5923	83	B1-U3-G1	6048	85	B1-U3-G2	5886	83	B1-U3-G2	6135	86	B3-U3-G2
48-G2-V-x-N3	48	350	51	4903	96	B1-U3-G1	4911	96	B1-U3-G1	5015	98	B1-U3-G1	4881	96	B1-U3-G1	5087	100	B3-U3-G1
48-G2-V-x-N5	48	530	79	7033	89	B2-U3-G2	7045	89	B1-U3-G2	7194	91	B2-U3-G2	7001	89	B1-U3-G2	7296	92	B3-U3-G2
64-G2-V-x-N3	64	350	68	6503	96	B1-U3-G1	6507	96	B1-U3-G2	6726	99	B1-U3-G2	6543	96	B1-U3-G2	6951	102	B3-U3-G2
64-G2-V-x-N5	64	530	104	9328	90	B2-U3-G2	9334	90	B2-U3-G2	9648	93	B2-U3-G2	9385	90	B2-U3-G2	9970	96	B4-U3-G2

Actual performance may vary due to installation variables including optics, mounting/ceiling height, dirt depreciation, light loss factor, etc.; highly recommend to confirm performance with a layout - contact Applications at outdoorlighting.applications@philips.com.

Note: Some data may be scaled based on tests of similar. But not identical luminaires.

Specifications

Housing

Roof: Hinged roof with stainless steel thumb screw. 360 low-copper die-cast aluminum alloy.

Panels: Three panel options. Clear panels are made of an U.V Stabilized sheet material and include a frosted decorative glass chimney. Vertical Rib panels are U.V. stabilized, injection molded with internal vertical ribs. Frosted Panels are U.V. Stabilized sheet material. All panels have tool-less removal for ease of cleaning.

Fitter: Slip Fitter Dimensions: 3" I.D. x 3" deep. Tool-less hinge door to access photocontrol components.

Light Engine

LEDgine is composed of five main components: Heat Sink, Lens, LED lamp, Optical System, and Driver. Electrical components are RoHS compliant.

LED Module

Composed of high-performance white LEDs. Color temperature as per ANSI/NEMA bin - Neutral White, 4000 Kelvin nominal (3985K +/- 275K or 3710K to 4260K) or Warm White, 3000 Kelvin nominal (3045K +/- 175K or 2870K to 3220K), CRI 70 Min. 75 Typical.

Heat Sink

Made of cast aluminum optimizing the LEDs efficiency and life. Product does not use any cooling device with moving parts (only passive cooling device).

Owical System

Type 2, 3, 3W, 4 and Type 5 composed of high performance optical grade PMMA acrylic refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. Optical system is rated IP66. Performance shall be tested per LM 63, LM 79 and TM 15 (IESNA) certifying its photometric performance. Street side indicated.

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Specifications (continued)

Driver

Driver comes standard with 0-10V dimming capability. High power factor of 95%. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max. Maximum ambient operating temperature from 40°F (4°C) to 130°F (55°C). Certified in compliance to UL1310 cULus requirement (dry and damp location). Assembled on a unitized removable tray with Tyco quick disconnect plug resisting to 221°F (105°C). The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

Driver Options

AST: Pre-set driver for progressive start-up of the LED module(s) to optimize energy management and enhance visual comfort at start-up.

CLO: Pre-set driver to manage the lumen depreciation by adjusting the power given to the LEDs offering the same lighting intensity during the entire lifespan of the LED module.

OTL: Pre-set driver to signal end of life of the LED module(s) for better fixture management.

Dimming Options

- DA:** 4 Hrs 25% reduction
- DB:** 4 Hrs 50% reduction
- DC:** 4 Hrs 75% reduction
- DD:** 6 Hrs 25% reduction
- DE:** 6 Hrs 50% reduction
- DF:** 6 Hrs 75% reduction
- DG:** 8 Hrs 25% reduction
- DH:** 8 Hrs 50% reduction
- DJ:** 8 Hrs 75% reduction

LED Performance

Predicted lumen depreciation data ¹				
Ambient Temperature (°C)	Driver mA	Calculated L ₇₀ hours ^{1,2}	L ₇₀ per TM-21 ^{2,3}	Lumen Maintenance % @ 60,000 hours
25°C	up to 700 mA	>100,000	>60,000	90%

1. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. L₇₀ is the predicted time when LED performance depreciates to 70% of initial lumen output.
3. Calculated per IESNA TM21-11. Published L₇₀ hours limited to 6 times actual LED test hours.

Surge Protection

Surge protector tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line Ground, Line Neutral and Neutral Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid State Street Lighting Consortium) model specification for LED roadway luminaires electrical immunity requirements for High Test Level 10kV / 10kA. Option for SP2 20kV/20kA.

Luminaire Useful Life

Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, using LM-80 data from LED manufacturers and engineering prediction methods, the luminaire useful life is expected to reach 100,000+ hours with >L70 lumen maintenance @ 25°C (48 LED and 64LED at 530mA is 68,000). Luminaire useful life accounts for LED lumen maintenance and additional factors, including LED life, driver life, PCB substrate, solder joints on/off cycles and burning hours for nominal applications.

Hardware

All non-ferrous fasteners prevent corrosion and ensure longer life.

Wiring

18 AWG wire, 6" (152mm) minimum exceeding from luminaire.

Options



HS
House
side shield

SP2
20kV/20kA
integral surge
protector
(optional)

Finish

Color in accordance with the AAMA 2603 standard. Application of polyester powder coat paint (4 mils/100 microns) with ± 1 mils / 24 microns of tolerance. The Thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard. The surface treatment achieves a minimum of 2000 hours for salt spray resistant finish in accordance with testing performed and per ASTM B117 standard.

LED products manufacturing standard

electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with IEC61340 5 1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

Quality Control

The manufacturer must provide a written confirmation of its ISO 9001 2008 and ISO 14001 2004 International Quality Standards Certification.

Meets the ANSI C136.31 2010, American national Standard for Roadway Luminaire Vibration specifications for Normal Applications.

Certifications and Compliance

cETL listed to Canadian safety standards for wet locations. Manufactured to ISO 9001:2008 Standards. UL8750 and UL1598 compliant. ETL listed to U.S. safety standards for wet locations. cETL listed to Canadian safety standards for wet locations. LM80 & LM79 tested. Listed on the DesignLights™ Consortium (DLC) Qualified Products List (QPL).

IP Rating

The LED optics chamber is IP66 rated.

Warranty

5 year extended warranty.

