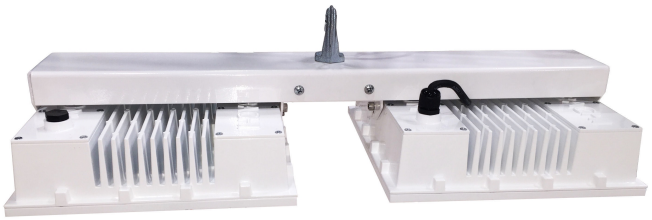
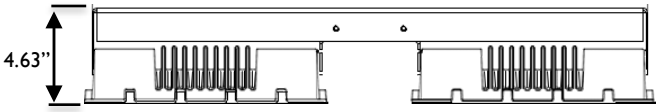
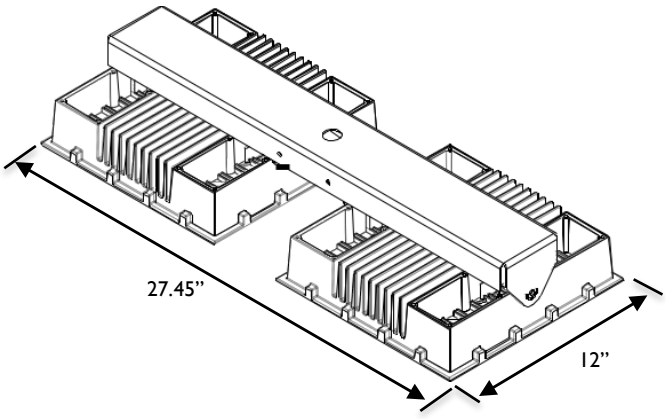
HIGHBAY.S.N 2X

NORIBACHI







Product Information

The Highbay.S.N 2X is a Noribachi proprietary LED lighting solution that utilizes two heavy duty, durable, economical fixtures to deliver superior illumination in commercial and industrial spaces.

This fixture features precision die-cast aluminum housing, a superior dual coat finish and clear polycarbonate lens.

The Highbay.S.N 2X is the perfect LED lighting solution Storage Facilities, Warehouses and a variety of other indoor and outdoor lighting applications.

Performance Ratings and Certifications

UL 1598
UL 8750
CSA C22.2#250.0
CSA C22.2#250.13
Wet Rating: Optional

Performance Summary

Total Lumens:	9,724 – 56,955 lm
Lumens Per Watt (typ.):	140 LPW
Total Power Consumption:	69 - 407W
Light Engine:	L70 Rated Lifetime of 100,000+ hours.
CRI:	Minimum 70 CRI. Optional custom CRI.
CCT (Typical):	3000K, 4000K, 5700K, optional tight bins.
Light Dist. Pattern:	Multiple distribution patterns available.

Manufactured in the U.S. with parts from U.S. and imported.

Fixture Information

Housing:	Precision die-cast aluminum.
Color:	White. Custom color also available.
Finish:	Superior dual coat finish. Chemical resistant epoxy primer and/or Marine Grade coating optional.
Lens:	Clear polycarbonate lens. Frosted lens optional.
Diffusion:	None. Frosted optional.
Optional Wire Guard:	Steel wire with chromized coating.
Mounting:	Malleable hook with ¾” NPS threads
Length:	27.45”
Width:	12”
Height:	4.63”
Weight:	40.4 lbs.
Shipping Weight:	44.4 lbs.

Electrical System Characteristics / Data

AC Input:	120/277 VAC (standard), 480 VAC (upgrade)
FCC:	Title 47, Part 2, Part 15, Class A
EM:	Compliance to EN55015, EN55022 (CISPR22) Class B, EN61000-3-2 Class C (60% load); EN61000-3-3
EM Immunity:	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, EN55024, light industry level (surge 4KV), criteria A
Withstand Voltage:	I/P-O/P:3.75KVAC I/P-FG:2KVAC O/P-FG:1.5KVAC
Isolation Resistance:	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25 / 70% RH
Power Factor:	PF > 0.98/115VAC, PF > 0.92/277VAC
Total Harmonic Distortion:	THD < 20%
Standard Surge Protection:	All-Around Protection: OVP, SCP, OLP.
Enhanced Surge Protection:	Protects against surges according to IEEE C62.41.2 C and ANSI C136.2
Emergency Battery Backup:	Optional upgrades available.

Optional Controls:

Wireless Controls:	Optional via Pulse Wireless Mesh Network.
Dimming:	0-10V, step, line voltage and bi-level available.
Daylight Harvesting Sensor:	Optional.
Occupancy Sensor:	Optional.

Warranty

Five-Year Limited Warranty. Optional 10-Year Manufacturer’s Warranty Available. Full Warranty Terms Available At www.noribachi.com/products/warranty

V1.0

HIGHBAY.S.N 2X

Performance Specifications

Electrical Load				
Light Engine	Drive Current (Amps@120VAC)	Drive Current (Amps@277VAC)	Drive Current (Amps@480VAC)	System Power (Watts)*
(2) HEX-021	0.58	0.25	0.14	69.46
(2) HEX-042	1.16	0.50	0.29	138.92
(2) HEX-063	1.74	0.75	0.43	208.37
(2) HEX-084	2.26	0.98	0.57	271.22
(2) HEX-105	2.83	1.22	0.71	339.02
(2) HEX-126	3.39	1.47	0.85	406.82
				* ideal wattage

Operating Characteristics (Typical @5700K CCT)				
Light Engine	Lumens* (Medium Dist)	Input Power (Watts)	Lumens per Watt	Replaces
(2) HEX-021	9,724	69.46	140.00	125-300W
(2) HEX-042	19,448	138.92	140.00	300-525W
(2) HEX-063	29,172	208.37	140.00	550-800W
(2) HEX-084	37,970	271.22	140.00	725-1200W
(2) HEX-105	47,463	339.02	140.00	1000-1450W
(2) HEX-126	56,955	406.82	140.00	1500W+
				*Total Lumen Output

Fixture Specifications

Construction
Precision die-cast aluminum housing.

Optional Finishes
Custom colors available (specify RAL code). Epoxy finish and marine-grade coating available. Marine grade coating is green.

Mounting Options
Bracket yoke mounting available. Malleable hook with ¾" NPS Threads

Lens Options
Tempered glass comes standard. Frosted lens optional upgrade.

Light Distribution Patterns
T5 standard. 80degree option available. T3, T4, Right Slanted, Left Slanted distribution available.

Electrical System Specifications

Electrical System
Standard AC input of 120 – 277VAC. Optional upgrade to 480VAC. Driver meets maximum harmonic distortion (THD) of 20% and is ROHS compliant. Power Factor = > 0.9. Standard Surge protection according to IEC/EN 61000-4-5 EMC test standard and can protect against up to 4KV transient surge. Optional, enhanced Surge Protection protects Line-Ground, Line-Neutral, and Neutral-Ground. Protects against surges according to IEEE C62.41.2 C(10kA and 10kV) and ANSI C136.2.

Controls
Optional controls include: 0-10V (010V), Step, line voltage and Bi-Level Dimming functionality (not guaranteed to work with all dimming systems). Occupancy and Daylight Harvest Sensors available. Optional Emergency Battery Backup: Nickel-Cadmium Batteries, 5W, 600 Lumens for 90 minutes. Optional Cold Emergency Battery Backup: 23W, 2000 Lumens for 90 minutes. The battery has a 7-10 year lifespan.

Driver
All LED drivers provide constant current to give flicker free lighting. Two different drive currents are provided; A (350 mA) and B (525 mA). Highly reliable. Suitable for dry, damp and wet locations. Compliant to worldwide safety regulations for lighting.

Ambient Temperature
We provide fixtures that can sustain ambient temperature ranging from -40F to 140F (-40C to 60C).

Wireless Control Options
Optional wireless networking using the Noribachi Pulse Wireless controller. Pulse is an Arduino-based hardware platform that provides communication between fixtures and a base station using Digi's XBEE based mesh network. Pulse controls up to 16 independent LED lighting fixtures using an FCC approved 900 MHz frequency with up to 200 Kbps data transmission speed. Transmit power output 50 mW. Data transmission rate is 156.25 kbps. 128 bit AES Encryption.

Occupancy Sensor and Daylight Harvesting
Sensor provides 60' diameter coverage from a 40' height. Time can be set from 30 seconds to 30 minutes.

RGBW Controls
Optional RGBW controls with communication to fixture via DMX512 or DMX256 and four channel controls. Four channel control uses red, green, blue and white (to control intensity). DMX controller optional, either software DMX master (via CD and USB adapter) or a physical DMX master. 2.4 GHz wireless DMX networking optional. Other frequencies available upon request.

Testing Compliance
Noribachi complies with and exceeds standards set forth by UL and CSA. All luminaires comply with UL 1598 (CSA C22.2#250.13), and UL 8750 (CSA C22.2#250.0) standards for safety. Performance testing is done in accordance with LM-79 color measurements and LM-79 distribution measurements, and LM-80 lumen maintenance testing.

Manufacturing
Manufactured in beautiful Harbor City, CA. ARRA Compliant. NAFTA Compliant. Test and burn-in of 100% of all luminaries before shipment. No less than 8-years experience in manufacturing LED-based products.

Warranty
Standard limited 5-year warranty, first year includes labor. Optional 10-year warranty available. See details at www.Noribachi.com.

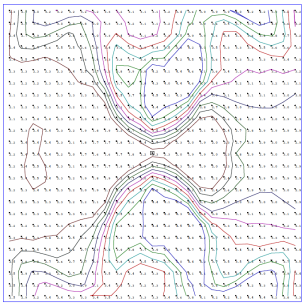
Note
All safety tests and performance data is done in ambient (STP) conditions. Specifications subject to change without notice. Actual performance may differ as a result of end-user environment application. Actual wattage may differ by +/- 8%. Lumen values may vary within compliance with ANSI C78-377 (unless specifying tight color bins).

Distribution Types

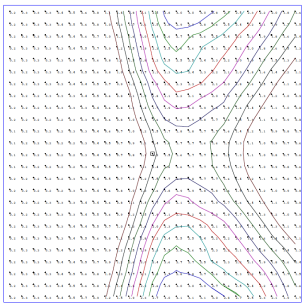
Power and Lumens by Light Engine							
Distribution							
Light Engine	Drive	CCT	T1	T2	T3	T4	T5
(2) HEX-021	B	5700	9,530	8,265	9,238	8,752	9,724
(2) HEX-042	B	5700	19,059	16,531	18,476	17,503	19,448
(2) HEX-063	B	5700	28,589	24,796	27,713	26,255	29,172
(2) HEX-084	B	5700	37,211	32,275	36,072	34,173	37,970
(2) HEX-105	B	5700	46,514	40,344	45,090	42,717	47,463
(2) HEX-126	B	5700	56,796	49,262	55,057	52,160	57,955
Distribution types may not be applicable to all fixture configurations							

Type Distribution
HEX-126

T-1



T-2



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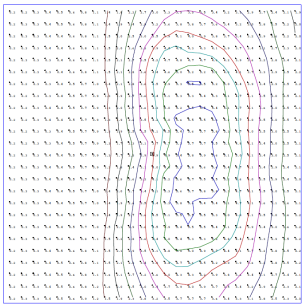

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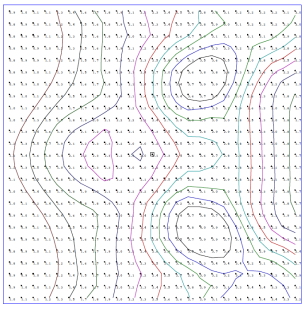
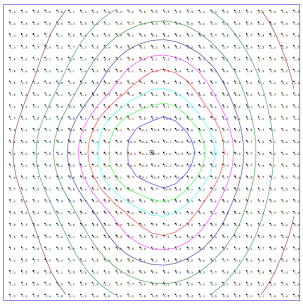


T-5



Distribution
120° Standard Beam Spread. 80° Optional Beam Spread available for certain light engines. 40° Optional Beam Spread available for certain light engines. Other Light Engine Type Distribution available upon request.

Distribution types may not be applicable for all fixture configurations.

•IES Type Distributions are generated in an open space.
•Light Distribution images are mounted at 10 feet.

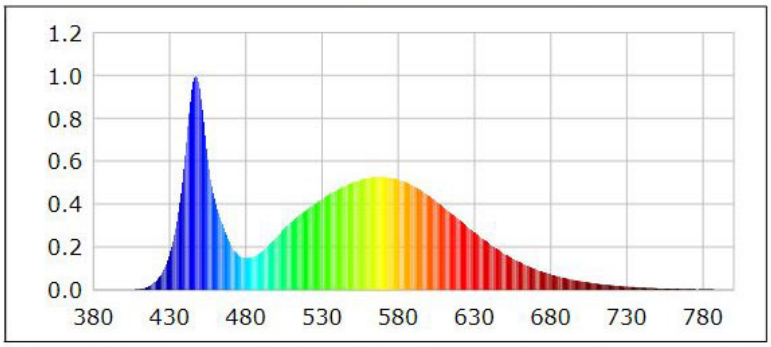
Optics Specifications

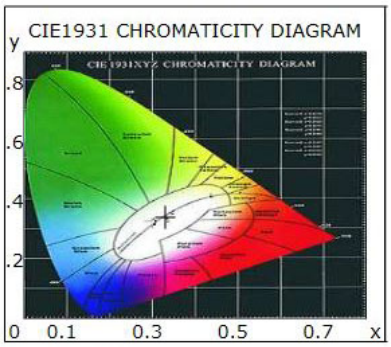
White LED Optics
High brightness, high efficiency LEDs. Standard color temperature is Cool White (5700K typical). Neutral White (4000K typical) and Warm White (3000K typical) also available. All with minimum 70 CRI. Tight bins (<+/- 50degK variability) also available – recommended for WW installations as the eye is sensitive to variations in this color range. 40deg and 80deg beam angle optional (n/a for RGBW).

RGBW Light Engine Optics
RGBW light engine also available, compatible with DMX controller. RGBW colors, to allow changing from pure white light to any hue available. Multiple channels of LEDS produce a full spectrum of light anywhere from deepest red to farthest violet. CRI greater than 75 in the 2700K – 4000K range.

Single color light engines also available. Red=630 nanometers, Green=525 nanometers. Blue=475 nanometers.

Photometric Data for White LED Light Engine



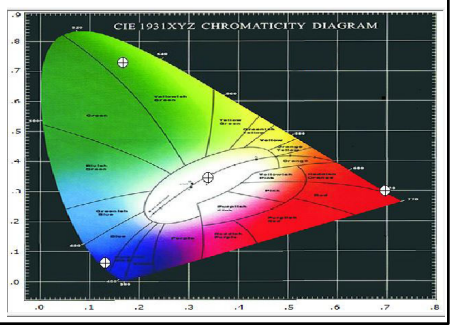


Chromaticity coordinates: x=0.3305 y=0.3424 u(u')=0.2050 v=0.3186 v'=0.4779
CCT: Tc=5700K (duv=0.00156) Color Ratio: R=0.133 G=0.827 B=0.040
Peak Wavelength: 447.2nm Half Bandwidth: 19.1nm
Dominant Wavelength: 535.2nm Color Purity: 0.020
Color Render Index: Ra= 75.0, avgR(1~14)= 65.6, avgR(1~15)= 65.9

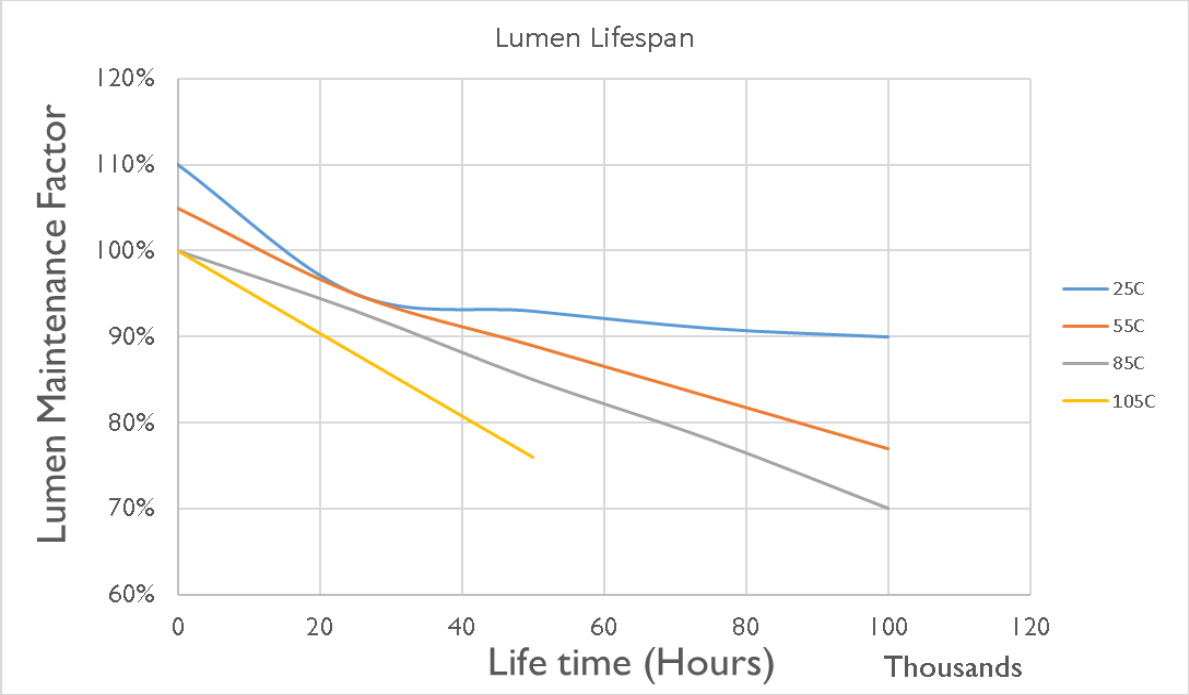
R1 =74	R2 =76	R3 =76	R4 =81	R5 =75	R6 =66	R7 =84	R8 =67
R9 =0	R10=41	R11=78	R12=40	R13=73	R14=86	R15=71	

Photometric Data for RGBW LED Light Engine

Chromaticity coordinates:
White x = 0.3405, y = 0.3459
Green x = 0.1687, y = 0.7296
Red x = 0.6968, y = 0.3024
Blue x = 0.1316, y = 0.0636



Lumen Performance



Lumen Maintenance Factors (B Drive)					
T_j (Junction Temp)	INITIAL LMF	25K HR PROJECTED LMF	50K HR PROJECTED LMF	75K HR PROJECTED LMF	100K HR PROJECTED LMF
25°c	1.10	0.95	0.93	0.91	0.90
55°c	1.05	0.95	0.89	0.83	0.77
85°c	1.00	0.93	0.85	0.78	0.70
105°c	1.00	0.88	0.76	N/A	N/A

Each temperature has an independent initial value. In accordance with IESNA TM021011, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip). In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip)

Lumen Multiplier	
AMBIENT TEMPERATURE	LUMEN MULTIPLIER
10°C	1.032
15°C	1.021
25°C	1.000
40°C	0.968
50°C	0.946

HIGHBAY.S.N 2X

How to Order

Sample Order Code: Only include the optional upgrades you need.

HBS.N 2X	HEX	084	B	CW	MT	COL-5004	EPOXY
Fixture (required)	Light Board (required)	Number of Diodes (required)	Drive Current (required)	LED Color Temperature (required)	Voltage (required)	Custom Fixture Color (optional)	Coating (optional)

L615+6' CORD	CORD 6'	IP67	FR	WG	H3/4	BLD [50]
Twist Lock Plug (optional)	Cord (optional)	IP Rating (optional)	Frosted Lens (optional)	Wire Guard (optional)	Mounting (optional)	Dimming (optional)

EMC	OS	PC2	DHS	SGI	PUL	T3	80D
Emergency Battery Backup (optional)	Occupancy Sensor (optional)	Photocell (optional)	Daylight Harvesting Sensor (optional)	Surge Protector (optional)	Controller (optional)	Distribution (optional)	Beam Angle (optional)

Figure Shown HBS.N 2X- HEX-084

How to Order (cont.)

Numbering Order	Specification	Required or Optional	Allowed Values	Description
1	Fixture	Required	HBS.N 2X	For HBS.N 2X
2	Light Board	Required	HEX	For HBS.N 2X
3	Number of Diodes	Required	021	For HEX-021 models
			042	For HEX-042 models
			063	For HEX-063 models
			084	For HEX-084 models
			105	For HEX-105 models
			126	For HEX-126 models
4	Drive Current	Required	B	B (525mA) drive current
5	LED Color Temperature	Required	CW	Standard Cool white LEDs (5700K)
			NW	Neutral White LEDs (4000K)
			WW	Warm White LEDs (3000K)
			[Specific degree Kelvin]	Specific color temp LEDs [Specific degree Kelvin]
			TB1 [Specific degree Kelvin]	Tight Bin LED Color [Specific degree Kelvin] for < 150W
			TB2 [Specific degree Kelvin]	Tight Bin LED Color [Specific degree Kelvin] for > 150W
			RGBW	Red/Green/Blue/White light engine
			COL	Single color light engine
6	Voltage	Required	MT	Standard AC input: 120VAC - 277VAC
			HV1	High Voltage (480VAC)
			HV2	High Voltage (480VAC)
7	Custom Fixture Color	Optional	COL-[RAL]	Custom Fixture Color (RAL code)
8	Coating	Optional	COAT	Marine Grade Coating
			EPOXY	Epoxy Coating
9	Twist Lock Plugs	Optional	L515 + 6' CORD	L515P 125V Twist lock plug with 6' cord
			L615 + 6' CORD	L615P 125V Twist lock plug with 6' cord
			L715 + 6' CORD	L715P 125V Twist lock plug with 6' cord
			L720 + 6' CORD	L720P 125V Twist lock plug with 6'cord
			L820 + 6' CORD	L820P 125V Twist lock plug with 6' cord
			L830 + 6' CORD	L830 125V Twist lock plug with 6' cord
10	Cord	Optional	CORD6	6' 16/3 600V STW cord
11	IP Rating	Optional	IP67	IP Rating Upgrade (WET Rating)
12	Lens	Optional	FR	Frosted Lens
13	Wire Guard	Optional	WG	Wire Guard
14	Mounting	Optional	H 3/4	Malleable hook with ¾" NPS threads
15	Dimming	Optional	010V	0 - 10V dimming
			STEP	Step dimming (Up to 100W)
			STEP100	Step dimming (100-299W)
			STEP300	Step dimming (>300W)
			BLD [%]	Bi-level dimming
			LVDIM	Line voltage dimming
16	Emergency Battery Backup	Optional	EM	Emergency Battery Backup
			EMC	Emergency Battery Backup - Cold
17	Occupancy Sensor	Optional	OS	Occupancy Sensor
			OOS	Outdoor Occupancy Sensor
18	Photocell	Optional	PC1	120V Button Photocell
			PC2	240-277 Button Photocell
19	Daylight Harvesting Sensor	Optional	DHS	Daylight Harvesting Sensor
20	Surge Protection	Optional	SRG1	Enhanced surge protection for 120-277VAC
			SRG2	Enhanced surge protection for 480VAC
21	Controller	Optional	PUL	Pulse Wireless Controller
22	Beam Distribution	Optional	T3	Type 3 Distribution
			T4	Type 4 Distribution
			TRS	Optional Right Slant
			TLS	Optional Left Slant
23	Beam Angle	Optional	80D	80degree Beam Angle Optics
			40D	40degree Beam Angle Optics