

HAZARDOUS SOLUTION

NHS.02

Product Information

NHS.02 is a hazardous LED lighting solution used for extreme indoor and outdoor applications. Minimum T6 temperature rating

Applications: Petrochemical Facilities, Lubrication Pits, Oil Drilling Rigs, Paint Manufacturing Plants, Processing Plants, Water Treatment Plants, Marine Loading docks and a variety of other extreme outdoor environments.

Performance Ratings and Certifications

Class I, Divisions 2, Groups A, B, C, D,

Class II, Divisions 2, Groups F, G

Class I Zone 2 Groups IIC

Class II Zone 2 Groups IIIB

Class III and Zone 22

Conforms to UL Std. 1598, 844

Certified to CSA C22.2 #137, CSA C22.2 #213

Performance Summary

Lumens: 4,862 – 19,448 lm
 Lumens Per Watt (Typical): 140 LPW
 Power Consumption: 35 – 139 W
 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: Die-cast aluminum
 Color: Grey. Optional custom color.
 Finish: Superior dual coat finish. Chemical resistant epoxy primer and/or Marine Grade coating optional.
 Lens: Tempered glass lens.
 Mounting: Handle Yoke
 Length: 11.75"
 Width: 11.75"
 Height: 6.75"
 Weight: 19.9 lbs
 Shipping Weight: 21.1 lbs

Electrical System Characteristics / Data

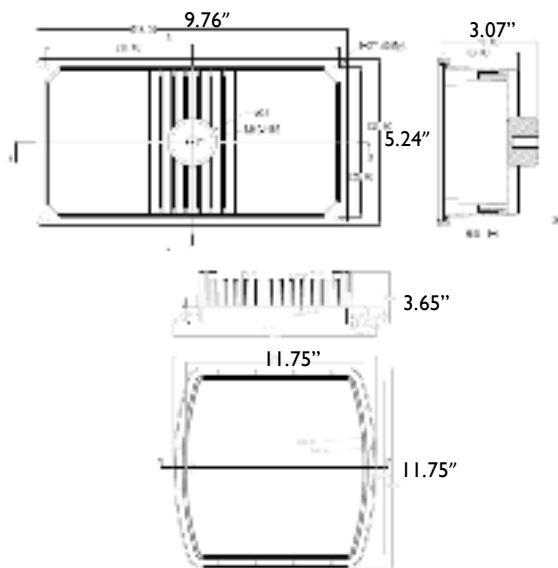
AC Input: 120/277 VAC (standard), 480 VAC (upgrade)
 FCC: Title 47, Part 2, Part 15, Class A
 EM: Compliance to EN55015, EN55022 (CISPR22) Class B, EN61000-3-2 Class C (60% load); EN61000-3-3
 Compliance to EN61000-4-2,3,4,5,6,8,11, EN61547, EN55024, light industry level (surge 4KV), criteria A
 EM Immunity:
 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 Batt. Backup: Optional upgrades available.

Optional Controls:

Dimming: 0-10V, step, line voltage or bi-level.

Warranty

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



HAZARDOUS SOLUTION

Electrical System Specifications

Electrical Load				
Light Engine	Drive Current (Amps@120VAC)	Drive Current (Amps@277VAC)	Drive Current (Amps@480VAC)	System Power (Watts)*
HEX-021-B-CW-MT	0.29	0.13	0.07	34.70
HEX-042-B-CW-MT	0.58	0.25	0.14	69.50
HEX-063-B-CW-MT	0.87	0.38	0.22	104.20
HEX-084-B-CW-MT	1.16	0.50	0.29	138.90
				* ideal wattage

Operating Characteristics (Typical @5700K CCT)				
Light Engine	Lumens (Medium Dist)	Input Power (Watts)	Lumens per Watt	Replaces
HEX-021-B-CW-MT	4,862	34.70	140.12	75-175W
HEX-042-B-CW-MT	9,724	69.50	139.91	125-300W
HEX-063-B-CW-MT	14,586	104.20	139.98	200-400W
HEX-084-B-CW-MT	19,448	138.90	140.01	300-525W

Fixture Specifications

Construction

Die-case aluminum.

Optional Finishes

Bronze with a clear coat standard. Custom colors available (specify RAL code). Epoxy finish and marine-grade coating available. Marine grade coating is green.

Mounting Options

Handle Yoke mount available.

Lens Options

Clear tempered glass standard.

Light Distribution Patterns

T5 standard. 80 degree and 40degree option available.

HAZARDOUS SOLUTION

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). Optional Emergency Battery Backup: Nickel-Cadmium Batteries, 5V, 600 Lumens for 90 minutes. Optional Cold Emergency Battery Backup: 23V, 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).

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.

All hazardous location luminaires complies with and exceeds standards set forth by UL 844 and CSA C22.2#213 and CSA C22.2#137

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 luminaires 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).



HAZARDOUS SOLUTION

Optics Specifications

White LED Optics

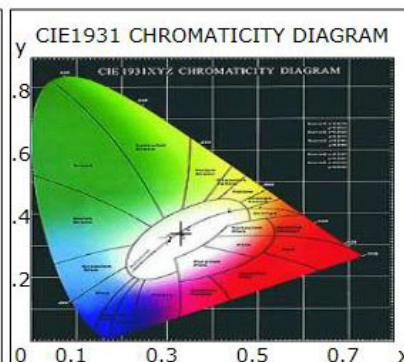
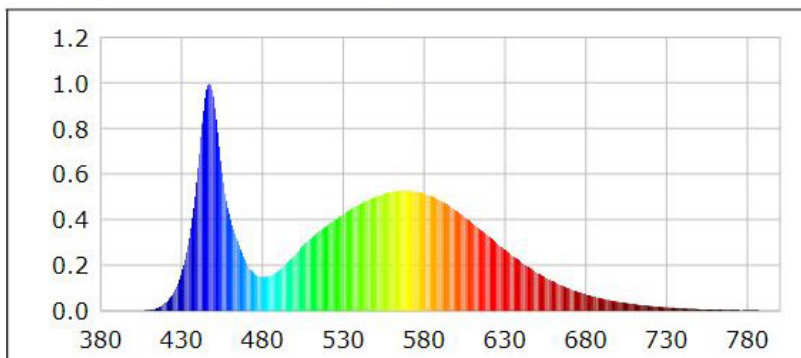
High brightness, high efficiency LEDs. Standard color temperature is Cool White (5700K typical). Neutral White (4000K typical) and Warm White (3000K typical) also available. All with minimum 70 CRI. Tight bins ($\pm 50\text{degK}$ variability) also available – recommended for WW installations as the 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 anyhue 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

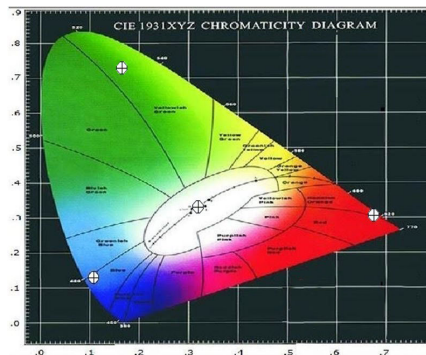


Chromaticity coordinates: $x=0.3305$ $y=0.3424$ $u(u')=0.2050$ $v=0.3186$ $v'=0.4779$
 CCT: $T_c=5700\text{K}$ ($duv=0.00156$) Color Ratio: $R=0.133$ $G=0.827$ $B=0.040$
 Peak Wavelength: 447.2nm Half Bandwidth: 19.1nm
 Dominant Wavelength: 535.2nm Color Purity: 0.020
 Color Render Index: $R_a=75.0$,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

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	

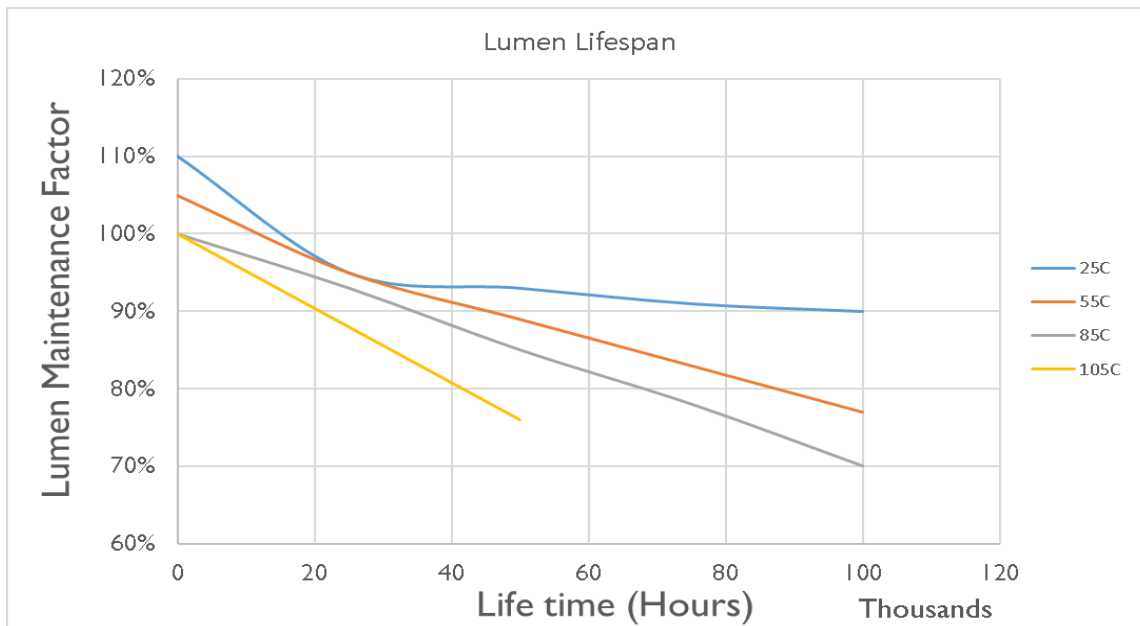
Photometric Data for RGBW LED Light Engine

Chromaticity coordinates:
 White $x=0.3264$ $y=0.3427$
 Red $x=0.6977$ $y=0.3014$
 Green $x=0.1897$ $y=0.7174$
 Blue $x=0.1104$ $y=0.1298$



HAZARDOUS SOLUTION

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

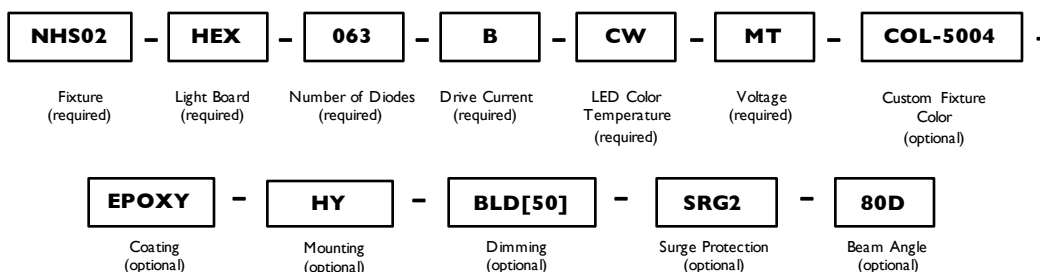
Each temperature has an independent initial value. In accordance with IESNA TM021011, Projected Values represent interpolated value based on time durations that are within six times (6X) the IESNA LM-80-08 total test duration (in hours) for the device under testing (DUT) i.e. the packaged LED chip).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

HAZARDOUS SOLUTION

How to Order

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



Numbering Order	Specification	Required or Optional	Allowed Values	Description
1	Fixture	Required	NHS02	For Hazardous Solution.02
2	Light Board	Required	HEX	For Hazardous Solution.02
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
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]
			TB2 [Specific degree Kelvin]	Tight Bin LED Color [Specific degree Kelvin]
6	Voltage	Required	MT	Standard AC input: 120VAC - 277VAC
			HV	High Voltage (347V - 480V)
7	Custom Fixture Color	Optional	COL-[RAL]	Custom Fixture Color (RAL code)
8	Coating	Optional	COAT	Marine Grade Coating
			EPOXY	Epoxy Coating
9	Mounting	Optional	HY	Handle Yoke
10	Dimming	Optional	010V	0 - 10V dimming
			STEP	Step dimming
			LVDIM	Line voltage dimming
			BLD[%]	Bi-level dimming
11	Surge Protection	Optional	SRG1	Enhanced surge protection for 120-277VAC
			SRG2	Enhanced surge protection for 480VAC
12	Beam Angle	Optional	40D	40degree Beam Angle Optics
			80D	80degree Beam Angle Optics

