



Project: _____
 Location: _____
 Cat. #: _____
 Type: _____
 Quantity: _____

LED

NVL 4 | LED Vaportight

Features:

- High performance LED technology
- 0-10V dimming drivers standard
- Field replaceable LED boards and drivers
- Multiple hanging options, including surface, chain, and aircraft cable, for easy installation
- Durable materials and craftsmanship allows the NVL to withstand some of the harshest environments

Applications:

Most industrial, retail, and recreational low bay and high bay applications

- Warehouse
- Manufacturing Facility
- Food Processing
- Freezer
- Gymnasium
- Car Wash

Ambient Operating Temp.:

- -30°C to 30°C for SH output
- -30°C to 35°C for VH output
- -30°C to 40°C for LW, MD, HI output

Predicted L70 Lifetime:

- >72,000 hrs (reported)
- ≥74% lumen maint. @ 72,000 hrs (based on LM-80, TM-21 and in-situ laboratory testing)

Construction:

- UL 5VA fiberglass housing (will not melt or burn)
- Impact resistant acrylic and UV stabilized polycarbonate lenses
- Pre-painted cold rolled steel board trays
- Acetal copolymer secure locking plastic latches (stainless steel latches optional)
- Stainless steel mounting hardware

Certifications:

- UL 1598, suitable for wet locations
- DesignLights Consortium qualified on specific configurations (refer to DLC qualified products list for exact model numbers) <http://designlights.org/>
- IP65
- IP66
- IP67
- NEMA 4X
- NSF
- PSI 1500
- RoHS



Ordering Guide:

example: NVL 4 HI UV FDA 840 SM

Series	Length	Output	Voltage	Shielding	CRI/CCT	Hanging	Controls	Options
NVL	4							
NVL	4 4'	LW Low	UV 120-277	CRP Clear Ribbed Polycarbonate	835 80 CRI/3500K	Blank Surface Mounting Bracket (Comes Standard)	Blank No Controls	Blank No Options
		MD Medium	34 347V	FRP Frosted Ribbed Polycarbonate	840 80 CRI/4000K	SMBB Mounting Bracket Bail (For Chain Or Cable Mounting)	ZOS Occupancy Sensor (On/Off)	C6 6' Single Circuit Cord
		HI High		CSP Clear Shallow Polycarbonate	850 80 CRI/5000K	SMBBQC Bracket Bail with 10' Quick Hang Cable Kit	Z221BL Wattstopper Programmable Photo/Motion Multi-Voltage Sensor (high/low/off) ⁽¹⁾	C6(LVL) C6 With Integrated Dimming Leads
		VH Very High		FSP Frosted Shallow Polycarbonate		SMBBQC20 Bracket Bail with 20' Quick Hang Cable Kit	Z321BL Wattstopper Bluetooth-enabled Programmable Photo/Motion Multi-Voltage Sensor (high/low/off) ⁽¹⁾	C10 10' Single Circuit Cord
		SH Super High		CRA Clear Ribbed Acrylic		SM45 45° mounting bracket	ZOSMD 0-10V Dimming Microwave Occupancy Sensor	C10(LVL) C10 With Integrated Dimming Leads
				FRA Frosted Ribbed Acrylic			ZPC Photocell	D6 6' Dual Circuit Cord
				CSA Clear Shallow Acrylic			ZIFC Douglas IFC Controller With Network Capabilities ⁽²⁾	D10 10' Dual Circuit Cord
				FSA Frosted Shallow Acrylic			ZFMS Douglas FMS Sensor with Dimming/Occupancy/Daylight Harvesting with Newtork Capabilities ⁽³⁾	P(NEMA) Plug (Specify NEMA configuration)
				CDA Clear Deep Acrylic			ZENLO Enlighted Ruggedized Sensor with Dimming/Occupancy/ Daylight Harvesting and Enlighted One System ⁽⁴⁾	EM1 Emergency Pack - Up To 8W ⁽⁵⁾
				FDA Frosted Deep Acrylic			ZENLC Enlighted Ruggedized Sensor with Dimming/Occupancy/ Daylight Harvesting and Enlighted Connected System ⁽⁴⁾	EM1C Emergency Pack - Up To 14W ⁽⁶⁾
							ZENLI Enlighted Ruggedized Sensor with Dimming/Occupancy/ Daylight Harvesting and Enlighted IoT System ⁽⁴⁾	EM2 Emergency Pack - Up To 16W ⁽⁷⁾
								SSL Stainless Steel Latches
								SC Safety Cable
								F Fuse
								SDT(480V) 480V To 277V Step Down Transformer
								LVL 0-10V Dimming Leads for Easy Field Access
								BAA Buy American Act Compliant

Notes

- ⁽¹⁾ " _ " = lens type. See Page 5 for lens descriptions.
⁽²⁾ IFC controller - see Page 5 for more details.
⁽³⁾ Max ceiling height for Douglas FMS sensor: 40 feet.
See Page 6 for more details on advanced controls.
⁽⁴⁾ Max ceiling height for Enlighted Ruggedized sensor 50 feet. See
Page 6 for more details on advanced controls.
⁽⁵⁾ EM1 - 120-277V / 10°C-50°C ambient.
⁽⁶⁾ EM1C - 120-277V / -20°C-50°C ambient. Adds 30W to system wattage.
⁽⁷⁾ EM2 - 120-277V / 0°C-50°C ambient.

Controls Accessories (order separately)



For Douglas Controls

- BT-DMSW-U-A Bluetooth 1 Zone Dimmer
BT-4BTSW-U-A Bluetooth 4-Button Wall Station
BT-8BTSW-U-A Bluetooth 8-Button Wall Station



For Enlighted Controls

- WS-2-00 Enlighted Remote Control Wall Switch
(for Enlighted Connected & IoT)
WS-2-00-IL Enlighted Remote Control Wall Switch
(for Enlighted One)



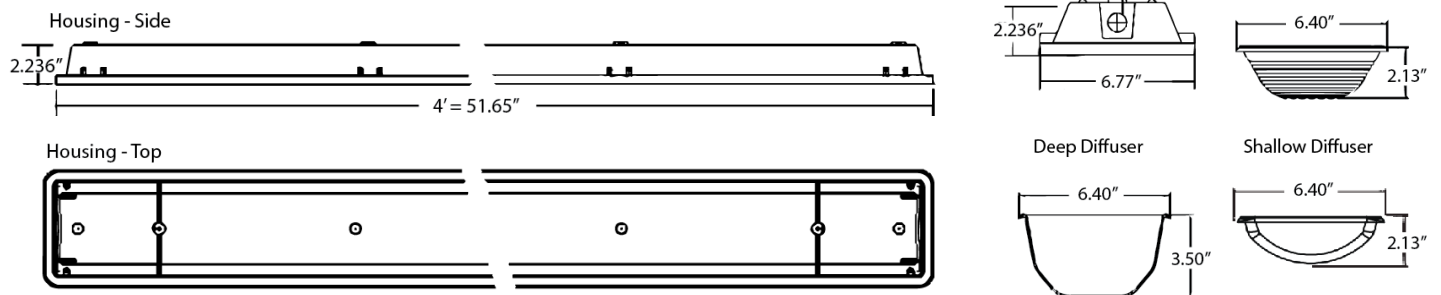
Performance Chart:

Catalog #	Lumens	Watts	LPW	Catalog #	Lumens	Watts	LPW	Catalog #	Lumens	Watts	LPW
NVL 4 LW UV FRA 835	2297	18	125.9	NVL 4 LW UV FRA 840	2373	18	130.1	NVL 4 LW UV FRA 850	2444	18	134.0
NVL 4 MD UV FRA 835	4403	34	129.5	NVL 4 MD UV FRA 840	4549	34	133.8	NVL 4 MD UV FRA 850	4685	34	137.8
NVL 4 HI UV FRA 835	7078	55	128.7	NVL 4 HI UV FRA 840	7312	55	132.9	NVL 4 HI UV FRA 850	7531	55	136.9
NVL 4 VH UV FRA 835	8429	66	127.7	NVL 4 VH UV FRA 840	8707	66	131.9	NVL 4 VH UV FRA 850	8969	66	135.9
NVL 4 SH UV FRA 835	10478	87	120.0	NVL 4 SH UV FRA 840	10824	87	124.0	NVL 4 SH UV FRA 850	11149	87	127.7

Lumen Adjustment Factors:

FDA: 1.045 FSA: 1.039 CDA: 1.053 CRA: 1.051 CSA: 1.058

Schematic:



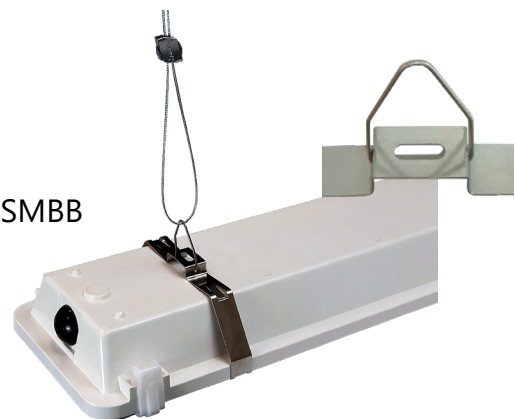
The NVL features field replaceable boards and drivers. This allows you to upgrade to more efficient technology in the future. Or, in the rare event of a failure, you can rapidly replace defective components. Re-boardABILITY helps to ensure you won't get stuck with an obsolete light fixture. [Learn more about Re-boardABILITY here.](#)

Mounting:

SM



SMBB



Photometric Data:

NVL 4 SH UV FRA 835

Test No.: LLIA000743-004

Luminaire Lumens: 10,478 lm

Luminaire Watts: 87.3W

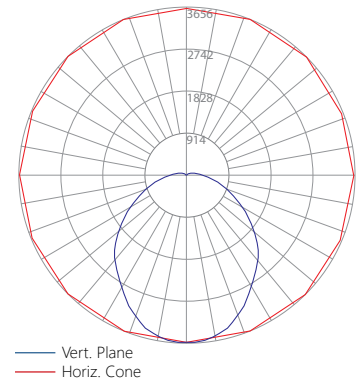
Efficacy: 120.0 LPW

Spacing Criterion (0-180): 1.24

Spacing Criterion (90-270): 1.16

Luminance Data (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	15261	12828	12502
55	13127	11084	11313
65	10561	9418	10276
75	8012	8072	9333
85	5207	7011	8098



Coefficients Of Utilization - Zonal Cavity Method Effective Floor Cavity Reflectance 0.20

RC	80	70	50	30
RW	70	50	30	10
0	118	118	118	118
1	107	101	97	93
2	97	88	81	75
3	88	77	69	62
4	81	68	60	53
5	74	61	52	45
6	69	55	46	40
7	64	50	41	35
8	59	46	37	31
9	55	42	34	28
10	52	39	31	26

Tested in accordance with IES standards utilizing absolute photometry per LM-79-08

Zonal Lumen Summary

Zone	Lumens	%Fixt
0-20	1301.50	12.40
0-30	2705.36	25.80
0-40	4367.30	41.70
0-60	7548.88	72.00
0-80	9507.98	90.70
0-90	9955.81	95.00
90-120	477.05	4.60
90-130	508.71	4.90
90-150	519.22	5.00
90-180	522.02	5.00
0-180	10477.83	100.00

NVL 4 SH UV FDA 835

Test No.: LLIA000743-006

Luminaire Lumens: 10,948 lm

Luminaire Watts: 87.3W

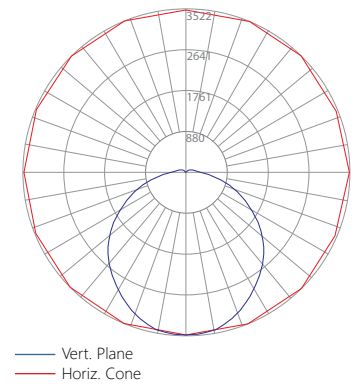
Efficacy: 125.4 LPW

Spacing Criterion (0-180): 1.26

Spacing Criterion (90-270): 1.28

Luminance Data (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	15309	12208	11873
55	13635	10721	10510
65	11555	8889	8880
75	8967	6798	6371
85	5622	4413	3613



Coefficients Of Utilization - Zonal Cavity Method Effective Floor Cavity Reflectance 0.20

RC	80	70	50	30
RW	70	50	30	10
0	118	118	118	118
1	107	102	97	93
2	97	88	81	75
3	88	77	69	62
4	80	68	59	52
5	74	61	52	45
6	68	55	46	40
7	63	49	41	35
8	59	45	36	31
9	55	41	33	27
10	51	38	30	25

Tested in accordance with IES standards utilizing absolute photometry per LM-79-08

Zonal Lumen Summary

Zone	Lumens	%Fixt
0-20	1275.09	11.60
0-30	2699.96	24.70
0-40	4432.30	40.50
0-60	7916.61	72.30
0-80	10083.03	92.10
0-90	10487.86	95.80
90-120	393.90	3.60
90-130	431.74	3.90
90-150	457.16	4.20
90-180	460.46	4.20
0-180	10948.32	100.00



Photometric Data:

NVL 4 SH UV FSA 835

Test No.: LLIA000743-008A

Luminaire Lumens: 10,884 lm

Luminaire Watts: 87.3W

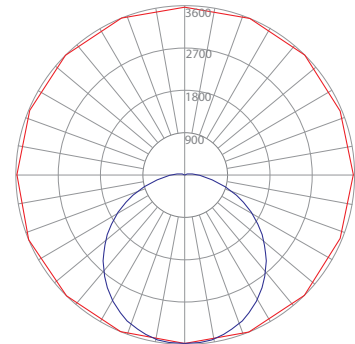
Efficacy: 124.7 LPW

Spacing Criterion (0-180): 1.26

Spacing Criterion (90-270): 1.30

Luminance Data (cd/sq.m)

Angle In Degrees	Average 0-Deg	Average 45-Deg	Average 90-Deg
45	15775	14292	14132
55	14127	12912	12831
65	12156	11033	10795
75	9796	8625	8056
85	5906	6270	5336



— Vert. Plane
— Horiz. Cone

Coefficients Of Utilization - Zonal Cavity Method Effective Floor Cavity Reflectance 0.20

RC		80				70				50			30	
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10
0	119	119	119	119	115	115	115	115	110	110	110	105	105	105
1	107	102	98	94	104	100	96	92	95	92	89	91	88	85
2	97	89	82	76	95	87	80	75	83	77	73	79	75	71
3	89	78	69	63	86	76	68	62	73	66	61	70	64	59
4	81	69	60	53	79	67	59	52	65	57	51	62	56	51
5	75	61	52	46	72	60	52	45	58	50	44	56	49	44
6	69	55	46	40	67	54	46	39	52	44	39	50	43	38
7	64	50	41	35	62	49	41	35	47	40	34	46	39	34
8	59	46	37	31	58	45	37	31	43	36	31	42	35	30
9	55	42	34	28	54	41	33	28	40	33	28	39	32	27
10	52	39	31	25	51	38	30	25	37	30	25	36	29	25

Tested in accordance with IES standards utilizing absolute photometry per LM-79-08

Zonal Lumen Summary

Zone	Lumens	%Fixt
0-20	1313.02	12.10
0-30	2794.41	25.70
0-40	4587.12	42.10
0-60	8144.17	74.80
0-80	10261.17	94.30
0-90	10638.61	97.70
90-120	224.35	2.10
90-130	234.36	2.20
90-150	242.18	2.20
90-180	245.09	2.30
0-180	10883.70	100.00

Dimming Sensors (Z221B/Z321B)

- The Wattstopper FSP sensor provides multi-level control based on motion and/or daylight contribution
- Rated for cold locations
- Parameters for Bluetooth-enabled Z321B adjustable via phone app - iOS or Android
- Parameters for Z221B adjustable via wireless configuration tool (FSIR-100 - sold separately)
- Three lenses available, tailored for the ideal detection area and mounting height:
 - L2: 360° lens, maximum coverage 48', diameter from 8' height
 - L3: 360° lens, maximum coverage 40', diameter from 20' height
 - L7: 360° lens, maximum coverage 100', diameter from 40' height



1) The Wattstopper FSP sensor. 2) The phone app interface for the Z321B. 3) The FSIR-100 wireless configuration tool.

Douglas Lighting Controls, Inc.: Intelligent Fixture Controller (IFC)

The NVL can be equipped with the Douglas Bluetooth Intelligent Fixture Controller (IFC).

- 0-10V dimming with dim-to-off
- Bluetooth beacon for digital ceiling, IoT and location service strategies
- 150-foot clear line of sight, 50 feet through standard walls
- May be used with dual-channel, tunable white LED drivers providing auxiliary power and dim-to-off capability
- Commissioning through Douglas Lighting Controls, Inc. app from Apple app store
- Listed for emergency control when used on dedicated emergency power bus



Controls Accessories (order separately)

For Douglas Controls

BT-DMSW-U-A	Bluetooth 1 Zone Dimmer
BT-4BTSW-U-A	Bluetooth 4-Button Wall Station
BT-8BTSW-U-A	Bluetooth 8-Button Wall Station



For Enlighted Controls

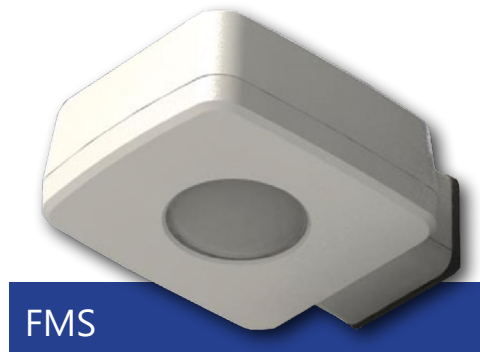
WS-2-00	Enlighted Remote Control Wall Switch
WS-2-00-IL	Enlighted Remote Control Wall Switch (for Enlighted One)



Douglas Lighting Controls, Inc.: High bay sensors

The NVL can be equipped with the Douglas FMS sensor, which is designed for high bay applications.

With a max sensor height up to 40 feet, the FMS is ideal for applications like warehouses and manufacturing facilities. It can be installed for on/off control or bi-level light functionality. The daylight sensor provides additional savings by dimming the lights to work with the amount of natural available daylight.



- Configuration from the floor via smartphone app
- Bluetooth mesh network is created between devices for control over a group of Douglas sensors
- Occupancy and daylight sensing
- IP65-rated
- 0-10V dimming
- 150 feet clear line of site, 50 feet through standard walls (distances may vary based on location and environment)

CheckLight® Energy Management System

Douglas controls can be integrated with the CheckLight® Energy Management system. This system can help you uncover energy conversion opportunities, create conservation strategies, analyze lighting load inefficiencies, and make configuration changes from anywhere with Douglas' user-friendly interface. You can get measurements, reports, and control your system from a web-based application.

CheckLight® has the capability to look at different facilities within a portfolio and use data benchmarks to compare building performances.

- Find energy conservation opportunities
- Create energy saving strategies
- Analyze load inefficiencies
- Optimize energy management

Enlighted: All-in-one sensors, upgradeable systems

Enlighted's IP65-rated Ruggedized Sensor is an all-in-one unit: task tuning, high-end trimming, daylight harvesting, and occupancy/vacancy detection. Max installation height is 50 feet.

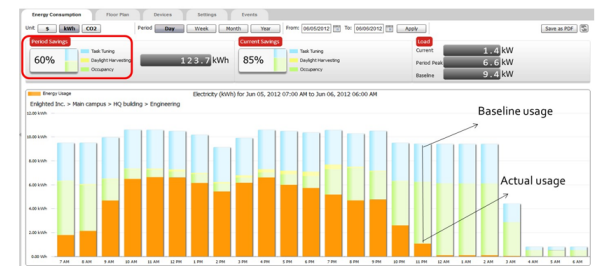
Enlighted sensors come standard with the Enlighted One system (the "ZENLO" option). Enlighted Connected ("ZENLC") offers even more options. The Enlighted IoT ("ZENLI") option allows the full implementation of Enlighted's services. Each system can be fully upgraded to the next tier in the future. So if you start with Enlighted One but want to add energy reporting or building management systems integration in the future, you can.



Real-time data analytics

Enlighted's control units compile data in real-time, which can be viewed via the Energy Manager. The Energy Manager is part of the Enlighted Connected and Enlighted IoT configurations.

- Real-time measurements and verification of energy savings
- Space analytics - data can be compiled into motion trails and heat maps
- Analyze traffic density and congestion in a space



Enlighted Capabilities*	Enlighted One (ZENLO)	Enlighted Connected (ZENLC)	Enlighted IoT (ZENLI)
Motion and Switch Groups	✓	✓	✓
Daylight Harvesting	✓	✓	✓
Schedule Lighting		✓	✓
Energy Reporting & Optimization		✓	✓
Environment Data & Lighting Controls API		✓	✓
Building Management System Integration		✓	✓
Where & Space Applications			✓
Location & Occupancy APIs & Beacons			✓
Future App & API Ready			✓

Note: Additional equipment required for ZENLC and ZENLI

Learn more about our available advanced controls options here:

www.lumenfocus.com/controls-overview

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