UNAMI

MENTORED BY LUMENFOCUS

Project: _____

Location: _____

Cat. #: _____

Type: _____

Quantity: _____

LED

# VTN 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 VTN 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

## Predicted L70 Lifetime:

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

## 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

## 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

## Warranty:

- 5 year limited system warranty - see www.UnamiLighting.com for complete warranty terms and conditions

DLC QPL LISTED | c UL us | NSF

MADE IN USA
USING DOMESTIC AND FOREIGN COMPONENTS

Powered by:

Universal Lighting Technologies

EVERLINE LED Technology

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Unami, LLC
880 Facet Rd.
Henderson, NC 27537

# VTN 4 LED Vaportight

UNAMI

## Ordering Guide:

example: VTN 4 HI UV FDA 840 SM

| Series | Length | Output | Voltage | Shielding | CRI/CCT | Hanging | Controls | Options |
|---|---|---|---|---|---|---|---|---|
| VTN | 4 | | | | | | | |
| **VTN** | **4**<br>4' | **LW**<br>Low<br>**MD**<br>Medium<br>**HI**<br>High<br>**VH**<br>Very High<br>**SH**<br>Super High | **UV**<br>120-277<br>**34**<br>347V | **CRP**<br>Clear Ribbed Polycarbonate<br>**FRP**<br>Frosted Ribbed Polycarbonate<br>**CSP**<br>Clear Shallow Polycarbonate<br>**FSP**<br>Frosted Shallow Polycarbonate<br>**CRA**<br>Clear Ribbed Acrylic<br>**FRA**<br>Frosted Ribbed Acrylic<br>**CSA**<br>Clear Shallow Acrylic<br>**FSA**<br>Frosted Shallow Acrylic<br>**CDA**<br>Clear Deep Acrylic<br>**FDA**<br>Frosted Deep Acrylic | **835**<br>80 CRI/3500K<br>**840**<br>80 CRI/4000K<br>**850**<br>80 CRI/5000K | **Blank**<br>Surface Mounting Bracket (Comes Standard)<br>**SMBB**<br>Mounting Bracket Bail (For Chain Or Cable Mounting)<br>**SMBBQC**<br>Bracket Bail with 10' Quick Hang Cable Kit<br>**SMBBQC20**<br>Bracket Bail with 20' Quick Hang Cable Kit<br>**SM45**<br>45° mounting bracket | **Blank**<br>No Controls<br>**ZOS**<br>Occupancy Sensor (On/Off)<br>**Z221BL_**<br>Wattstopper Programmable Photo/Motion Multi-Voltage Sensor (high/low/off)[1]<br>**Z321BL_**<br>Wattstopper Bluetooth-enabled Programmable Photo/Motion Multi-Voltage Sensor (high/low/off)[1]<br>**ZOSMD**<br>0-10V Dimming Microwave Occupancy Sensor<br>**ZPC**<br>Photocell<br>**ZIFC**<br>Douglas IFC Controller With Network Capabilities[2]<br>**ZFMS**<br>Douglas FMS Sensor with Dimming/Occupancy/Daylight Harvesting with Newtork Capabilities[3]<br>**ZENLO**<br>Enlighted Ruggedized Sensor with Dimming/Occupancy/ Daylight Harvesting and Enlighted One System[4]<br>**ZENLC**<br>Enlighted Ruggedized Sensor with Dimming/Occupancy/ Daylight Harvesting and Enlighted Connected System[4]<br>**ZENLI**<br>Enlighted Ruggedized Sensor with Dimming/Occupancy/ Daylight Harvesting and Enlighted IoT System[4] | **Blank**<br>No Options<br>**C6**<br>6' Single Circuit Cord<br>**C6(LVL)**<br>C6 With Integrated Dimming Leads<br>**C10**<br>10' Single Circuit Cord<br>**C10(LVL)**<br>C10 With Integrated Dimming Leads<br>**D6**<br>6' Dual Circuit Cord<br>**D10**<br>10' Dual Circuit Cord<br>**P(NEMA)**<br>Plug (Specify NEMA configuration)<br>**EM1**<br>Emergency Pack - Up To 8W[5]<br>**EM1C**<br>Emergency Pack - Up To 14W[6]<br>**EM2**<br>Emergency Pack - Up To 16W[7]<br>**SSL**<br>Stainless Steel Latches<br>**SC**<br>Safety Cable<br>**F**<br>Fuse<br>**SDT(480V)**<br>480V To 277V Step Down Transformer<br>**LVL**<br>0-10V Dimming Leads for Easy Field Access<br>**BAA**<br>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) |

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## Performance Chart:

| Catalog # | QPL/UL Reference # | Lumens | Watts | LPW |
|---|---|---|---|---|
| VTN 4 LW UV FRA 835 | NVL 4 LW UV FRA 835 | 2297 | 18 | 125.9 |
| VTN 4 MD UV FRA 835 | NVL 4 MD UV FRA 835 | 4403 | 34 | 129.5 |
| VTN 4 HI UV FRA 835 | NVL 4 HI UV FRA 835 | 7078 | 55 | 128.7 |
| VTN 4 VH UV FRA 835 | NVL 4 VH UV FRA 835 | 8429 | 66 | 127.7 |
| VTN 4 SH UV FRA 835 | NVL 4 SH UV FRA 835 | 10478 | 87 | 120.0 |

| Catalog # | QPL/UL Reference # | Lumens | Watts | LPW |
|---|---|---|---|---|
| VTN 4 LW UV FRA 840 | NVL 4 LW UV FRA 840 | 2373 | 18 | 130.1 |
| VTN 4 MD UV FRA 840 | NVL 4 MD UV FRA 840 | 4549 | 34 | 133.8 |
| VTN 4 HI UV FRA 840 | NVL 4 HI UV FRA 840 | 7312 | 55 | 132.9 |
| VTN 4 VH UV FRA 840 | NVL 4 VH UV FRA 840 | 8707 | 66 | 131.9 |
| VTN 4 SH UV FRA 840 | NVL 4 SH UV FRA 840 | 10824 | 87 | 124.0 |

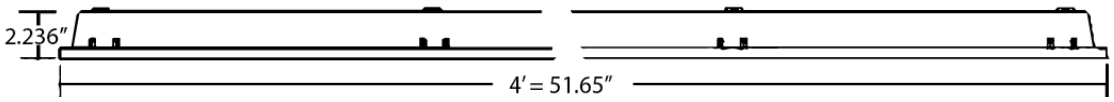
| Catalog # | QPL/UL Reference # | Lumens | Watts | LPW |
|---|---|---|---|---|
| VTN 4 LW UV FRA 850 | NVL 4 LW UV FRA 850 | 2444 | 18 | 134.0 |
| VTN 4 MD UV FRA 850 | NVL 4 MD UV FRA 850 | 4685 | 34 | 137.8 |
| VTN 4 HI UV FRA 850 | NVL 4 HI UV FRA 850 | 7531 | 55 | 136.9 |
| VTN 4 VH UV FRA 850 | NVL 4 VH UV FRA 850 | 8969 | 66 | 135.9 |
| VTN 4 SH UV FRA 850 | NVL 4 SH UV FRA 850 | 11149 | 87 | 127.7 |

Lumen Adjustment Factors:

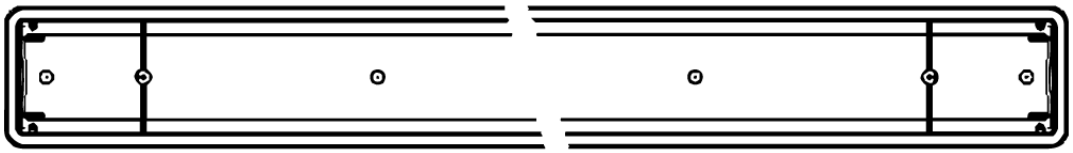
FDA: 1.045 FSA: 1.039 CDA: 1.053 CRA: 1.051 CSA: 1.058

## Schematic:

Housing - Side

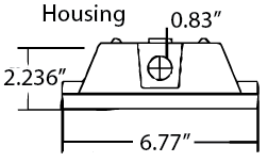



Housing - Top

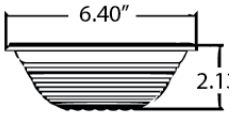


End View

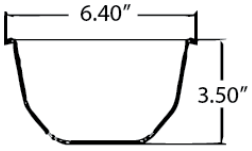
Housing



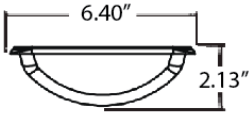

4′ & 8′ Ribbed Diffuser




Deep Diffuser



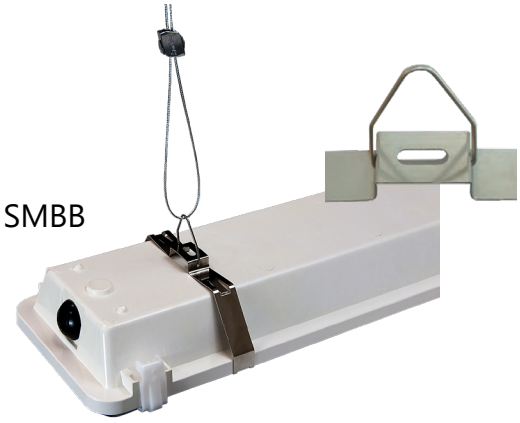

Shallow Diffuser




## Mounting:

SM

SMBB



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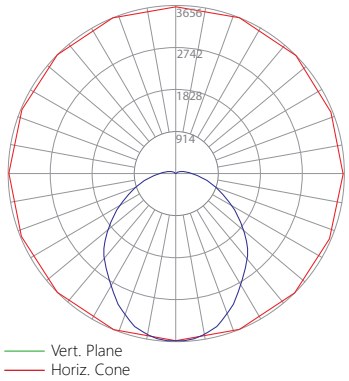
## Photometric Data:

### VTN 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 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| 0 | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 108 | 108 | 108 | 103 | 103 | 103 |
| 1 | 107 | 101 | 97 | 93 | 103 | 99 | 94 | 91 | 93 | 90 | 87 | 89 | 86 | 83 |
| 2 | 97 | 88 | 81 | 75 | 94 | 86 | 79 | 74 | 81 | 76 | 71 | 77 | 73 | 69 |
| 3 | 88 | 77 | 69 | 62 | 85 | 75 | 68 | 61 | 72 | 65 | 60 | 68 | 63 | 58 |
| 4 | 81 | 68 | 60 | 53 | 78 | 67 | 58 | 52 | 64 | 56 | 51 | 61 | 55 | 50 |
| 5 | 74 | 61 | 52 | 45 | 72 | 60 | 51 | 45 | 57 | 50 | 44 | 55 | 48 | 43 |
| 6 | 69 | 55 | 46 | 40 | 66 | 54 | 45 | 39 | 52 | 44 | 39 | 49 | 43 | 38 |
| 7 | 64 | 50 | 41 | 35 | 62 | 49 | 41 | 35 | 47 | 40 | 34 | 45 | 39 | 34 |
| 8 | 59 | 46 | 37 | 31 | 57 | 45 | 37 | 31 | 43 | 36 | 31 | 41 | 35 | 30 |
| 9 | 55 | 42 | 34 | 28 | 54 | 41 | 33 | 28 | 40 | 33 | 28 | 38 | 32 | 27 |
| 10 | 52 | 39 | 31 | 26 | 50 | 38 | 30 | 25 | 37 | 30 | 25 | 35 | 29 | 25 |

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

**Zonal Lumen Summary**

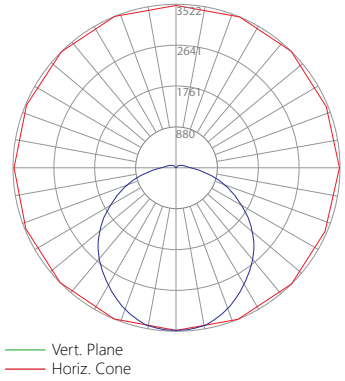
| Zone | Lumens | %Fixt |
|---|---|---|
| 0-20 | 1301.50 | 12.40 |
| 0-30 | 2705.36 | 25.80 |
| 0-40 | 4367.30 | 41.70 |
| 0-60 | 7548.88 | 72.00 |
| 0-80 | 9507.98 | 90.70 |
| 0-90 | 9955.81 | 95.00 |
| 90-120 | 477.05 | 4.60 |
| 90-130 | 508.71 | 4.90 |
| 90-150 | 519.22 | 5.00 |
| 90-180 | 522.02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

### VTN 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 | 70 | 50 | 30 | 10 | 50 | 30 | 10 | 50 | 30 | 10 |
| 0 | 118 | 118 | 118 | 118 | 115 | 115 | 115 | 115 | 109 | 109 | 109 | 103 | 103 | 103 |
| 1 | 107 | 102 | 97 | 93 | 104 | 99 | 95 | 91 | 94 | 90 | 87 | 89 | 86 | 84 |
| 2 | 97 | 88 | 81 | 75 | 94 | 86 | 79 | 74 | 82 | 76 | 71 | 78 | 73 | 69 |
| 3 | 88 | 77 | 69 | 62 | 85 | 75 | 67 | 61 | 72 | 65 | 59 | 68 | 63 | 58 |
| 4 | 80 | 68 | 59 | 52 | 78 | 66 | 58 | 52 | 63 | 56 | 50 | 61 | 54 | 49 |
| 5 | 74 | 61 | 52 | 45 | 71 | 59 | 51 | 44 | 57 | 49 | 43 | 54 | 48 | 43 |
| 6 | 68 | 55 | 45 | 39 | 66 | 53 | 45 | 39 | 51 | 44 | 38 | 49 | 42 | 37 |
| 7 | 63 | 49 | 41 | 34 | 61 | 48 | 40 | 34 | 46 | 39 | 33 | 45 | 38 | 33 |
| 8 | 59 | 45 | 36 | 31 | 57 | 44 | 36 | 30 | 42 | 35 | 30 | 41 | 34 | 29 |
| 9 | 55 | 41 | 33 | 27 | 53 | 41 | 33 | 27 | 39 | 32 | 27 | 38 | 31 | 26 |
| 10 | 51 | 38 | 30 | 25 | 50 | 37 | 30 | 25 | 36 | 29 | 24 | 35 | 29 | 24 |

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 |

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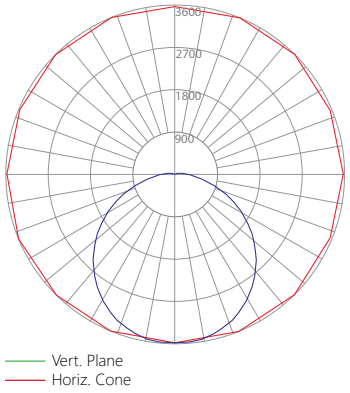
## Photometric Data:

### VTN 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 |




**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)

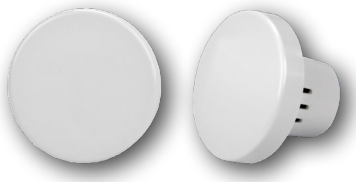
- The Wattstopper FSP sensor provides multi-level control based on motion and/or daylight contribution
- Rated for cold locations
- Parameters for Bluetooth-enabled Z321B adjustable via phone app - iOS or Android
- Parameters for Z221B adjustable via wireless configuration tool (FSIR-100 - sold separately)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

**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)* |

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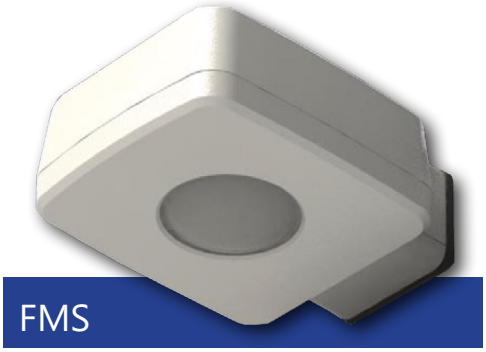
## **Douglas Lighting Controls, Inc.**: Cloud-based controls

The VTN 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.

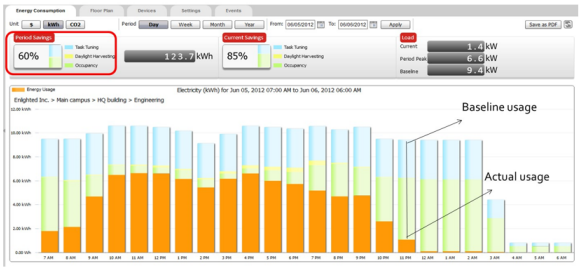
| Enlighted Capabilities* | Enlighted One (ZENLO) | Enlighted Connected (ZENLC) | Enlighted IoT (ZENLI) |
|---|---|---|---|
| Motion and Switch Groups | ✓ | ✓ | ✓ |
| Daylight Harvesting | ✓ | ✓ | ✓ |
| Schedule Lighting | | ✓ | ✓ |
| Energy Reporting & Optimization | | ✓ | ✓ |
| Environment Data & Lighting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

**Note:** Additional equipment required for ZENLC and ZENLI

## 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

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