Project: _____

Location: _____

Cat. #: _____

Type: _____

Quantity: _____

90+ CRI **LED**

FFL G2 24 | LED Lay-In

Features:
- High performance LED technology
- 90+ CRI standard
- 0-10V dimming drivers standard
- Field replaceable LED boards and drivers
- Frosted diffuser optimized to balance efficiency and aesthetics
- Available in a wide variety of lumen outputs for maximum flexibility
- Low profile and lightweight housing allows for easy installation
- Advanced controls available
- Buy American Act compliant *(All base luminaires are BAA compliant. Addition of options may change eligibility. Contact factory for details.)*

Applications:
Suitable for most commercial and institutional applications
- Office
- Retail
- Classrooms
- Healthcare Facilities

Predicted Lifetime:
- L70: 129,000 hrs (calculated)
- L80: 81,000 hrs (calculated)
- L90: 39,000 hrs (reported)
- 85% lumen maintenance @ 60,000 hrs
(based on LM80 and insitu laboratory testing)

Construction:
- Die-formed heavy-gauge cold rolled steel ballast housing with precision brake formed aluminum LED tray
- Frosted Acrylic Diffuser
- White enamel finish

Certifications:
- UL 1598 listed for US and Canada, suitable for damp locations
- DesignLights Consortium qualified on specific configurations (refer to DLC qualified products list for exact model numbers) http://designlights.org/

Warranty:
- 5 year limited system warranty - see www.LumenFocus.com for complete warranty terms and conditions
- 10 year warranty option available on specific models
  (Not available on all models. Certain conditions apply. Consult factory or sales representative for details.)

MADE in USA
USING DOMESTIC AND FOREIGN COMPONENTS

BAA · BUY AMERICAN ACT COMPLIANT ·

10 YEAR EXTENDED WARRANTY
AVAILABLE ON CERTAIN MODELS

DLC LISTED c **UL** us

FORMFOCUS

Ordering Guide:

example: FFL G2 24 MD UV FA 935 EM10

Series	Size	Output	Voltage	Shielding	CRI/CCT	Mounting	Controls	Options
FFL G2	24			FA				

Series	Size	Output	Voltage	Shielding	CRI/CCT	Mounting	Controls	Options
FFL G2 FFL Gen 2	**24** 2' x 4'	**SL** Super Low	**UV** 120-277	**FA** Frosted Acrylic	**930** 90 CRI/3000K	**Blank** None	**Blank** No Controls	**Blank** No Options
		VL Very Low	**34** 347V		**935** 90 CRI/3500K	**SMK** Surface Mount Kit	**ZSOL** Leviton Programmable PIR Occupancy/Daylight Harvesting Sensor [1]	**EXT10** 10-Year Extended Warranty [4]
		LW Low			**940** 90 CRI/4000K	**FIK** Frame-in Kit	**ZSLFC2** Keystone SmartLoop Wireless Bluetooth Mesh Occupancy/Daylight Harvesting Smart Sensor [1]	**SD** Step Dimming
		ML Medium Low			**950** 90 CRI/5000K		**ZESMC** Philips EasySense Occupancy/Daylight Harvesting sensor with advanced grouping [2]	**W6** 6' Whip
		MD Medium					**ZLDS** Leviton Intellect DALI Sensor with Dimming/Occupancy/Daylight Harvesting with Newtork Capabilities [3]	**W10** 10' Whip
		HI High					**ZL7S** Leviton Intellect 0-10V Sensor with Dimming/Occupancy/Daylight Harvesting with Newtork Capabilities [3]	**EM6** 6.5W Emergency Pack [5]
		VH Very High					**ZLDC** Leviton Intellect DALI Fixture Controller with Newtork Capabilities [3]	**EM10** 10W Emergency Pack [5]
		SH Super High					**ZL7C** Leviton Intellect 0-10V Fixture Controller with Newtork Capabilities [3]	**EM14** 14W Emergency Pack [5]
							ZENLC Enlighted Connected Micro Sensor with Dimming/Occupancy/Daylight Harvesting [3]	**F** Fuse
							ZENLI Enlighted IoT Micro Sensor with Dimming/Occupancy/Daylight Harvesting [3]	**GC** Grid Clip
								SDT(347V) 347V to 277V Step Down Transformer
								AR Plenum Ceiling Air Return
								LVL 0-10V Dimming Leads for Easy Field Access
								BAA Buy American Act Compliant

Controls Accessories *(order separately)*

For Leviton Programmable Sensor
ZLS0R-RA1   IR Programming Remote

For Keystone SmartLoop Controls
KTSL-WS1-B-SG/G2   5-Button Bluetooth Wireless Wall Switch
KTSL-TK1-USB   USB Time Keeper

For Philips EasySense Controls
ZBT-S1AWH   Illumra Single Rocker Self-Powered Zigbee Wall Switch
ZBT-S2AWH   Illumra Double Rocker Self-Powered Zigbee Wall Switch
SWS200   Philips Zigbee Green Power 4-Button Wall Switch

For Leviton Intellect Controls
DRKDN-U1W   1-Button Wireless Wall Controller
DRKDN-U2W   2-Button Wireless Wall Controller
DRKDN-U2W   4-Button Wireless Wall Controller
DRKDN-U8W   8-Button Wireless Wall Controller

For Enlighted Controls
WS-2-00   Enlighted Remote Control Wall Switch
                        (for Enlighted Connected & IoT)

Notes

[1] See page 4 for more details.
[2] 120-277V only. See page 5 for more details.
[3] See page 6 for more details.
[4] Not available on all models. Certain conditions apply. Consult factory or sales representative for details.
[5] 120-277V / 0°C-55°C ambient. To estimate lumen output in emergency mode, multiply EM wattage by the Lumens per Watt of the luminaire it is installed in.
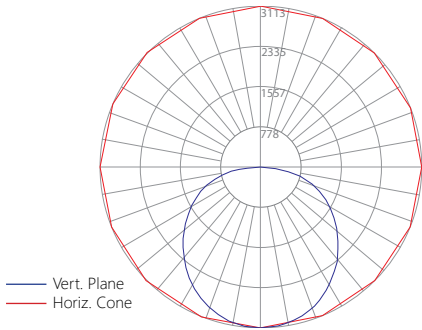ex. FFL G2 24 MD UV FA 940 EM10 → 143.0 LPW x 10W = 1,430 lm

LUMENFOCUS

Performance Chart:

Catalog #	Watts	Lumens (930)	LPW (930)	Lumens (935)	LPW (935)	Lumens (940)	LPW (940)	Lumens (950)	LPW (950)
FFL G2 24 SL UV FA xxx	20.5	2848.4	138.9	2860.4	139.5	2928.3	142.8	2928.3	142.8
FFL G2 24 VL UV FA xxx	25.8	3652.8	141.6	3668.2	142.2	3755.4	145.6	3755.4	145.6
FFL G2 24 LW UV FA xxx	29.4	4158.3	141.6	4175.9	142.2	4275.0	145.6	4275.0	145.6
FFL G2 24 ML UV FA xxx	33.7	4797.3	142.3	4817.5	142.9	4931.9	146.3	4931.9	146.3
FFL G2 24 MD UV FA xxx	41.4	5757.6	139.1	5781.8	139.7	5919.2	143.0	5919.2	143.0
FFL G2 24 HI UV FA xxx	49.3	6725.6	136.6	6753.9	137.1	6914.4	140.4	6914.4	140.4
FFL G2 24 VH UV FA xxx	54.1	7632.6	141.1	7664.8	141.7	7846.8	145.1	7846.8	145.1
FFL G2 24 SH UV FA xxx	62.7	8675.3	138.3	8711.9	138.9	8918.8	142.2	8918.8	142.2

Photometric Data:

FFL G2 24 SH UV FA 950

Test No.: LLIA001588-020A
Luminaire Lumens: 8,918.9 lm
Luminaire Watts: 62.7W
Efficacy: 142.2 LPW
Spacing Criterion (0-180): 1.22
Spacing Criterion (90-270): 1.26
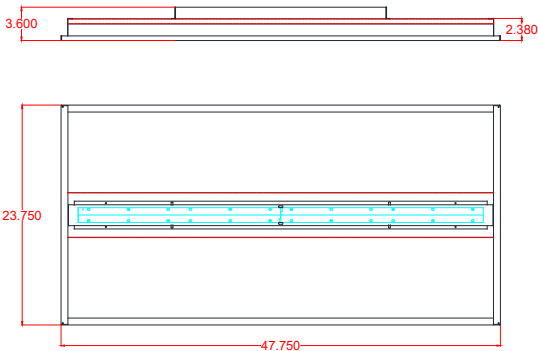
— Vert. Plane
— Horiz. Cone

LUMENFOCUS Re-board ABILITY

The FFL 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.

Click here for a video demonstration of the re-boarding process on a FFL.
Note: Exact time varies depending on the model.

Schematic:

3.600   2.380

23.750

47.750

Controls Summary:

Control Code	Type	Capabilities	Communication
ZSOL	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim	Wired 0-10V, Programmable via IR remote (sold separately) or via dip switches on sensor
ZSLFC2	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, Scheduling, LLLC (Keystone Tech.-SmartLoop)	Wireless Bluetooth Mesh, Programmable via Keystone SmartLoop App for iOS or Android
ZESMC	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, Room Level Energy Monitoring, LLLC (Philips Master Connect)	Wireless Zigbee 2.4 GHz, Programmable via Philips MasterConnect App for iOS or Android
ZLxS	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, Scheduling, Demand Response*, BMS Integration*, LLLC (GreenMAX DRC)	Wireless Zigbee 2.4 GHz Mesh, Programmable via GreenMAX DRC app. for iOS or Android along with DRKDN-UxW Wall Controller (sold separately)
ZLxC	Controller, No Sensors	High/Low/Off, High-End Trim, Grouping, Scheduling, Demand Response*, BMS Integration*, LLLC (GreenMAX DRC)	Wireless Zigbee 2.4 GHz Mesh, Programmable via GreenMAX DRC app. for iOS or Android along with DRKDN-UxW Wall Controller (sold separately)
ZENLC	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, Scheduling*, Energy Monitoring*, BMS Integration*, Upgradable to IoT (ZENLI), LLLC (Enlighted IoT)	Wireless Bluetooth Low Energy Mesh, Programmable via Enlighted IoT Software
ZENLI	Motion (PIR), Daylight Harvesting	High/Low/Off, High-End Trim, Grouping, Scheduling*, Energy Monitoring*, BMS Integration*, LLLC (Enlighted IoT)*, Space - Building Utilization*, Where - Real Time Location Services*	Wireless Bluetooth Low Energy Mesh, Programmable via Enlighted IoT Software

LLLC = Luminaire Level Lighting Control
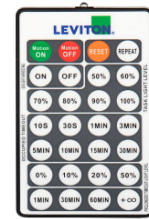* Additional equipment required. Contact LumenFocus representative for details

ZSOL option: **Leviton Intellect Solo Sensor**

The FFL can be equipped with an integrated Leviton Intellect Solo Sensor ("ZSOL" option). This is a 0-10V dimming Passive Infrared (PIR) occupancy and daylight harvesting sensor.

Other features:
- Partial-on
- Partial-off
- **8' to 10' mounting height**
- IP20 rated
- Detection angle: 120 degrees

• IR remote available for programming sensor from the floor (sold separately)
• Can be used to comply with IECC, ASHRAE 90.1 and 2019 Title 24, Part 6 dimming, occupancy/vacancy sensing and daylight harvesting requirements.

Keystone SmartLoop Wireless Control System

The SmartLoop wireless lighting control system by Keystone is a Bluetooth mesh lighting control system that allows you to set up and manage your lighting ecosystem quickly and easily. It's powerful enough to run a space with multiple lighting zones, but simple enough to program in minutes with your smartphone – perfect for warehouses, offices, schools, and auditoriums, whether new construction or retrofit.

- Wireless Bluetooth 2.4 GHz mesh network
- Supports up to 100 devices on a single region, with unlimited regions
- Independent per-fixture control: Occupancy, Daylight Harvesting, Task Tuning, Grouping, Scene Setting, Scheduling
- Commissioned via SmartLoop mobile app for iPhone and Android

ZSLFC2

- Low voltage individual fixture controller for SmartLoop system
- Integrated daylight and PIR motion sensors
- **Up to 16' mounting height.** 16' radius at 16' height.
- Works with 0-10V dim-to-off drivers with 12V aux. power

SmartLoop Accessories

- Bluetooth Wireless Wall Switch: **KTSL-WS1-B-SG/G2**
  ○ Battery Powered: 2x CR2032
  ○ 5 Button: Power Toggle, Dimming, Automatic Sensor/Preset Level Operation, Scene Activation

- USB Time Keeper: **KTSL-TK1-USB**
  ○ Relays time to system components after a power loss
  ○ Powered by standard USB charging port
  ○ Internal CR1220 battery backup

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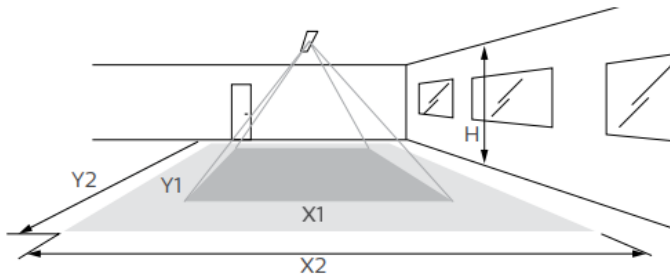## FormFocus available with **Philips EasySense Sensors**

EasySense MC Sensors are the ideal solution for per-luminaire control of new LED luminaires. It combines occupancy and daylight sensing in one package. The result is a cost-effective and easy-to-install solution ideal for energy savings. Commissioning and configuration during and after installation is quick and easy using the Philips MasterConnect app. This app works via Bluetooth Low Energy (BLE) technology and is available for free in the App Store and the Google Play Store.

ZESMC

- Occupancy sensing, daylight harvesting, and task tuning in one device
- **8' to 10' mounting height**
- Groups/networks up to 120 lights
- Enables auto-off/manual-on and auto-off/partial-on application
- Independent per-fixture control: Occupancy, Daylight Harvesting, Task Tuning
- Occupancy Sharing
- Scene Setting
- Advanced grouping to select Zigbee wireless wall switches
- Simple room level energy reporting with CSV file saved on the phone
- ZigBee 2.4 GHz Wireless Mesh Network
- 120-277V only, works with Philips Xitanium SR drivers

Detection Area:

Height	Minor Movement		Major Movement	
H	X1	Y1	X2	Y2
8'	6'	10'	9'	14'
10'	8'	12'	12'	18'

Longer dimension of detection area (Y1, Y2) is parallel to longer dimension of EasySense
- Minor movement (movement of a person sitting at an office desk reaching for a telephone, turning the pages in a book, opening a file folder, picking up a coffee cup, etc.)
- Major movement (movement of a person walking into or through an area.)

Room Controllers

- Illumra ZBT-S1AWH (Single Rocker) or ZBT-S2AWH (Dual Rocker) wireless Zigbee wall switch
  - Self-Powered
  - Up to 120 sensors can be grouped to a single switch
  - Functions: On/Off, Dim-Up/Dim-Down, Scene 1, Scene 2 (Scenes: Dual Rocker Only)
  - Range: 30-100' (typical)

- Philips SWS200 Zigbee Green Power 4-button Wall Switch
  - Battery Powered
  - Up to 120 sensors can be grouped to a single switch
  - Functions: On/Off, Dim-Up/Dim-Down, Scene 1, Scene 2
  - Range: 33' (typical)

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GreenMAX DRC Wireless Networked Control System
with Leviton Intellect Sensors & Controllers

The GreenMAX DRC Wireless Keypad Room Controllers are used as the brain of the system, managing the fixture integrated Leviton Intellect sensors & controllers. Wirelessly commission, configure, control, monitor and provision the GreenMAX DRC system using the GreenMAX DRC App and an Android or iOS smart device.

- Occupancy/Vacancy Sensing
- Multi-Level Lighting, Partial-On, Partial-Off
- Daylight Harvesting
- Task Tuning
- Scheduling
- Grouping
- Demand Response
- BMS Integration
- ZigBee 2.4 GHz Wireless Mesh Network
- Up to 75' between devices

* DRKDN-UxW room controller required for full functionality and programming of Intellect sensors & controllers
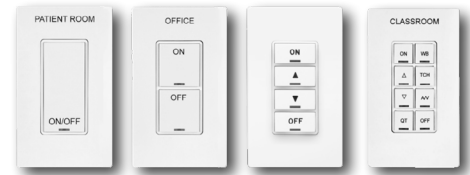
ZLxS

- PIR Occupancy Sensor
- Daylight Sensor
- 0-10V or DALI
- **Up to 20' mounting height**

ZLxC

- Wireless fixture controller, no sensor
- 0-10V or DALI

DRKDN-UxW Room Controllers

- 1-, 2-, 4-, and 8-button configurations
- Line voltage powered: 120-277V
- Max capacity: 60 devices
- Programmable: On/Off/Raise/Lower/ Toggle/Scene
- Use any Android or iOS device for configuration using the GreenMAX DRC App

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Enlighted: All-in-one sensors, upgradeable systems

Enlighted's SMART Micro Sensor is an all-in-one unit: task tuning, high-end trimming, daylight harvesting, and occupancy/vacancy detection. **Max installation height is 15 feet.**
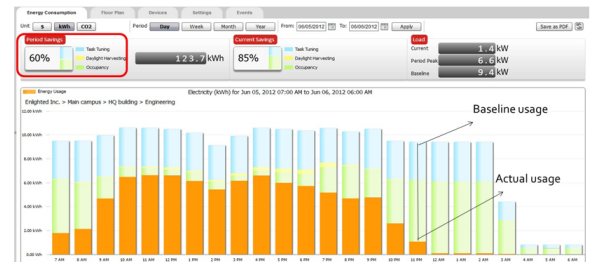
Enlighted Connected ("ZENLC") offers many features, including motion and switch groups, daylight harvesting, energy reporting, and more. The Enlighted IoT ("ZENLI") option allows the full implementation of Enlighted's services. Enlighted Connected can be fully upgraded to the next tier in the future. So if you start with ZENLC but want to add the functionality of the ZENLI option, you can.

Enlighted Capabilities*	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		✔

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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