



Gardco PowerForm LED area luminaires provide up to 1,000W HID replacement while significantly reducing energy and maintenance costs. PowerForm features an architecturally styled, modular housing design available in five different sizes for a range of commercial, retail, industrial, and other large area outdoor applications. PowerForm is available with multiple lumen packages delivering approximately 20,000 to 95,000 lumens.

Project: _____
 Location: _____
 Cat.No: _____
 Type: _____
 Lamps: _____ Qty: _____
 Notes: _____

Ordering guide

example: PFAS-184L-1A-NW-G1-AR-5W-120-PCB-F1-BZ

Prefix	Number of LEDs	Drive Current	LED Color - Generation	Mounting	Distribution	Voltage	Options					
							Controls	Electrical	Luminaire	Finish		
PFAS												
PFAS PowerForm Area Site	92L 92 LEDs (2 modules) 138L 138 LEDs (3 modules) 184L 184 LEDs (4 modules) 230L 230 LEDs (5 modules) 276L 276 LEDs (6 modules)	700 700mA 1A 1Amp	NW-G1 Neutral White 4000K, 70CRI Generation 1 NW90-G1 Neutral White 4000K, 90CRI Generation 1 WW-G1 Warm White 3000K, 70CRI Generation 2	AR Arm Mount SF Slip Fitter Mount (fits to 2 3/8" O.D. tenon) ²	2 Type 2 3 Type 3 4 Type 4 5W Type 5W AFR Auto Front Row AFR-90 Auto Front Row, Rotated 90° AFR-270 Auto Front Row, Rotated 270°	120 120V 208 208V 240 240V 277 277V 347 347V 480 480V UNV 120-277V (50/60Hz) HVU 347-480V (50/60Hz)	DD 0-10V Dimming (controls by others) ² DCC Dual Circuit Control ¹ DynaDimmer: Automatic Profile Dimming CS50 Safety 50% Dimming, 7 hours ^{1,2,3} CM50 Median 50% Dimming, 8 hours ^{1,2,3} CE50 Economy 50% Dimming, 9 hours ^{1,2,3} DA50 All Night 50% Dimming ^{1,2,3} Photoelectric/Receptacle systems (Twist Lock Receptacle) PCB Photocontrol Button ^{2,4,6,11} TLRD5 Twist Lock Receptacle 5 Pin ^{2,4,5} TLRD7 Twist Lock Receptacle 7 Pin ^{2,4,5} TLRPC Twist Lock Receptacle w/Photocell ^{2,4,6} Programmable Motion Response systems IMRI3 Integral with #3 lens ^{1,2,3,7} IMRI4 Integral with #4 lens ^{1,2,3,7} IMRI7 Integral with #7 lens ^{1,2,3,7} Dynamdimmer system with pole mounted Infrared Motion Response override CS50-IMRO with Safety 50% Dimming ^{1,2,7,8} CM50-IMRO with Median 50% Dimming ^{1,2,7,8} CE50-IMRO with Economy 50% Dimming ^{1,2,7,8} DA50-IMRO with All Night 50% Dimming ^{1,2,7,8} Wireless system LLC3 Integral module with #3 lens ^{1,2,3,9} LLC4 Integral module with #4 lens ^{1,2,3,9}	TB Terminal Block ¹⁰ Fusing F1 Single (120, 277, 347VAC) ¹¹ F2 Double (208, 240, 480VAC) ¹¹ F3 Canadian Double Pull (208, 240, 480VAC) ¹¹ Pole Mount Fusing FP1 Single (120, 277, 347VAC) ¹¹ FP2 Double (208, 240, 480VAC) ¹¹ FP3 Canadian Double Pull (208, 240, 480VAC) ¹¹ Surge Protection SP2 20KV 10KA 120-277VAC SP2HV 20KV 10KA 347-480VAC Network system (SiteWise) SW SW Integral module ^{12,13} SW-IMRO Pole mounted motion response option	SPA Square Pole Adapter ¹⁰ HIS Internal Housing Side Shield ¹² Customer specified RAL Specify optional color or RAL (ex: OC-LGP or OC-RAL7024) CC Custom color (Must supply color chip for required factory quote)	Textured BK Black WH White BZ Bronze DGY Dark Gray MGY Medium Gray		

- Not available with Dimming Driver (DD) option.
- Not available with Dual Circuit Control (DCC) option.
- Available in 120-277V or UNV only.
- Choose PCB or one of the TLRD Twist Lock Receptacle options or one of the LLC Wireless options. Not available with DCC, TLRD5/7 option not available with LLC, PCB, TLRPC or DCC.
Max. aiming angle 45°. Works with 3 or 5 pin NEMA photocell/dimming. Dimming will not be connected to NEMA receptacle if ordering with DD, CS/CM/CE/DA, IMRI and IMRO.
- Not available with 480V.
- IMRI option not available with 230L-1A or 276L-1A in 120V (wattage restrictions). Must specify voltage. Not available with DD, LLC or DCC.
- IMRO option available in 120 or 277V only. Must specify voltage. Not available with DD, LLC or DCC.
- LLC not available with 230L-1A or 276L-1A in 120, 208 and 240V. Not available with TLRPC, PCB, IMRI, CS/CM/CE/DA or LLCR accessory.
- Terminal Block (TB) and Square Pole Adaptor (SPA) options available with arm mount only (AR).
- Must specify specific input voltage.
- HIS option not available with 5W, AFR-90 and AFR-270 (see AFRES accessory).
- SW option is not available with any other control options with the exception of IMRI3, IMRI4, IMR7, SW-IMRO motion response options.
- Available only on 120V and 277V



PFAS PowerForm

Site & Area

PowerForm Accessories¹ (ordered separately, field installed)

Controls Accessories

Pole mount motion sensor

MS-A-120V	120V Input ²
MS-A-277V	277V Input ²

Wireless system remote mount module

LLCR2-(F)	#2 lens ⁴
LLCR3-(F)	#3 lens ⁴
LLCR4-(F)	#4 lens ⁴

Central remote motion response

(used connected to SiteWise main panel)

MS2-A-FVR-3
MS2-A-FVR-7

Shielding Accessories

Internal house side shield

HIS-PFAS-92	92 LEDs (2 modules)
HIS-PFAS-138	138 LEDs (3 modules)
HIS-PFAS-184	184 LEDs (4 modules)
HIS-PFAS-230	230 LEDs (5 modules)
HIS-PFAS-276	276 LEDs (6 modules)

External shield auto front row 90° or 270°³

AFRES-PFAS-92	92 LEDs (2 modules)
AFRES-PFAS-138	138 LEDs (3 modules)
AFRES-PFAS-184	184 LEDs (4 modules)
AFRES-PFAS-230	230 LEDs (5 modules)
AFRES-PFAS-276	276 LEDs (6 modules)

Mounting Accessories

PowerForm PTF2 (pole top fitter fits 2 3/8"-2 1/2" OD x 4" depth tenon)

PTF2-PFAS-1-90-(F)	1 luminaire at 90°
PTF2-PFAS-2-90-(F)	2 luminaires at 90°
PTF2-PFAS-2-180-(F)	2 luminaires at 180°
PTF2-PFAS-3-90-(F)	3 luminaires at 90°
PTF2-PFAS-4-90-(F)	4 luminaires at 90°
PTF2-PFAS-3-120-(F)	3 luminaires at 120°

PowerForm PTF3 (pole top fitter fits 3-3 1/2" OD x 6" depth tenon)

PTF3-PFAS-1-90-(F)	1 luminaire at 90°
PTF3-PFAS-2-90-(F)	2 luminaires at 90°
PTF3-PFAS-2-180-(F)	2 luminaires at 180°
PTF3-PFAS-3-90-(F)	3 luminaires at 90°
PTF3-PFAS-4-90-(F)	4 luminaires at 90°
PTF3-PFAS-3-120-(F)	3 luminaires at 120°

PowerForm PTF4 (pole top fitter fits 3 1/2"-4" OD x 6" depth tenon)

PTF4-PFAS-1-90-(F)	1 luminaire at 90°
PTF4-PFAS-2-90-(F)	2 luminaires at 90°
PTF4-PFAS-2-180-(F)	2 luminaires at 180°
PTF4-PFAS-3-90-(F)	3 luminaires at 90°
PTF4-PFAS-4-90-(F)	4 luminaires at 90°
PTF4-PFAS-3-120-(F)	3 luminaires at 120°

- Accessories must be ordered separately; requires field installation. For additional information, see accessories information on following pages.
- MS-A-120 or 277V for use with IMRO option (note pole requirements on page 5/6).
- AFRES for use only with AFR-90 and AFR-270 (use HIS for AFR non-rotated optics).
- Luminaire configuration must include Dimming Driver 'DD' option when Wireless system is specified.

LED Wattage and Lumen Values

Ordering Code	Total LEDs	Module Qty	LED Current (mA)	Color Temp. ³	Average System Watts ¹	Type 2			Type 3			Type 4			Type 5W		
						Lumen Output ^{1,2}	BUG Rating	Efficacy (LPW)	Lumen Output ^{1,2}	BUG Rating	Efficacy (LPW)	Lumen Output ^{1,2}	BUG Rating	Efficacy (LPW)	Lumen Output ^{1,2}	BUG Rating	Efficacy (LPW)
PFAS-92L-700-NW-G1	92	2	700	4000K	230	22547	B3-U0-G3	98	21635	B3-U0-G3	94	20665	B3-U0-G3	90	22015	B5-U0-G3	96
PFAS-92L-1A-NW-G1	92	2	1050	4000K	337	31977	B3-U0-G4	95	30684	B3-U0-G4	91	29308	B3-U0-G4	87	31223	B5-U0-G4	93
PFAS-138L-700-NW-G1	138	3	700	4000K	324	36698	B4-U0-G4	113	35217	B3-U0-G4	109	33637	B3-U0-G5	104	35831	B5-U0-G4	111
PFAS-138L-1A-NW-G1	138	3	1050	4000K	485	47622	B4-U0-G4	98	45700	B4-U0-G5	94	43650	B4-U0-G5	90	46498	B5-U0-G5	96
PFAS-184L-700-NW-G1	184	4	700	4000K	418	49163	B4-U0-G4	118	47180	B4-U0-G5	113	45064	B4-U0-G5	108	48003	B5-U0-G5	115
PFAS-184L-1A-NW-G1	184	4	1050	4000K	638	63457	B5-U0-G5	99	60906	B4-U0-G5	95	58171	B4-U0-G5	91	61964	B5-U0-G5	97
PFAS-230L-700-NW-G1	230	5	700	4000K	518	61322	B5-U0-G5	118	58851	B4-U0-G5	114	56211	B4-U0-G5	109	59875	B5-U0-G5	116
PFAS-230L-1A-NW-G1	230	5	1050	4000K	787	79427	B5-U0-G5	101	76223	B5-U0-G5	97	72805	B4-U0-G5	92	77552	B5-U0-G5	99
PFAS-276L-700-NW-G1	276	6	700	4000K	618	73673	B5-U0-G5	119	70701	B4-U0-G5	114	67531	B4-U0-G5	109	71934	B5-U0-G5	116
PFAS-276L-1A-NW-G1	276	6	1050	4000K	942	95741	B5-U0-G5	102	91878	B5-U0-G5	98	87758	B5-U0-G5	93	93482	B5-U0-G5	99

Ordering Code	Total LEDs	Module Qty	LED Current (mA)	Color Temp. ³	Average System Watts ¹	Type AFR			Type AFR-90			Type AFR-270		
						Lumen Output ^{1,2}	BUG Rating	Efficacy (LPW)	Lumen Output ^{1,2}	BUG Rating	Efficacy (LPW)	Lumen Output ^{1,2}	BUG Rating	Efficacy (LPW)
PFAS-92L-700-NW-G1	92	2	700	4000K	230	22547	B3-U0-G3	98	21872	B3-U0-G2	95	21872	B3-U0-G2	95
PFAS-92L-1A-NW-G1	92	2	1050	4000K	337	31977	B3-U0-G4	95	31020	B3-U0-G3	92	31020	B3-U0-G3	92
PFAS-138L-700-NW-G1	138	3	700	4000K	324	36698	B4-U0-G4	113	35598	B3-U0-G3	110	35598	B3-U0-G3	110
PFAS-138L-1A-NW-G1	138	3	1050	4000K	485	47622	B4-U0-G4	98	46195	B4-U0-G3	95	46195	B4-U0-G3	95
PFAS-184L-700-NW-G1	184	4	700	4000K	418	49163	B4-U0-G4	118	47690	B4-U0-G3	114	47690	B4-U0-G3	114
PFAS-184L-1A-NW-G1	184	4	1050	4000K	638	63457	B5-U0-G5	99	61561	B4-U0-G4	97	61561	B4-U0-G4	97
PFAS-230L-700-NW-G1	230	5	700	4000K	518	61322	B5-U0-G5	118	59485	B4-U0-G4	115	59485	B4-U0-G4	115
PFAS-230L-1A-NW-G1	230	5	1050	4000K	787	79427	B5-U0-G5	101	77048	B5-U0-G4	98	77048	B5-U0-G4	98
PFAS-276L-700-NW-G1	276	6	700	4000K	618	73673	B5-U0-G5	119	71466	B4-U0-G4	116	71466	B4-U0-G4	116
PFAS-276L-1A-NW-G1	276	6	1050	4000K	942	95741	B5-U0-G5	102	92873	B5-U0-G5	99	92873	B5-U0-G5	99

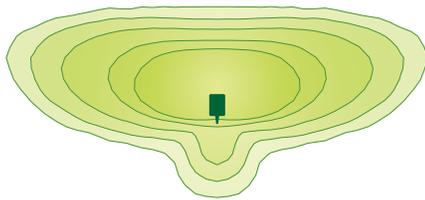
- Wattage and lumen output may vary by +/- 8% due to LED manufacturer forward volt specification and ambient temperature. Wattage shown is average for 120V through 277V input. Actual wattage may vary by an additional +/- 10% due to actual input voltage.
- Lumen values based on photometric tests performed in compliance with IESNA LM-79.
- Neutral White with 90 CRI ("NW90-G1") color temperature will result in decreased lumen output. Contact outdoorlighting.applications@signify.com for details or additional information.

PFAS PowerForm

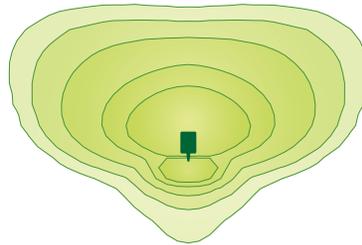
Site & Area

Distributions

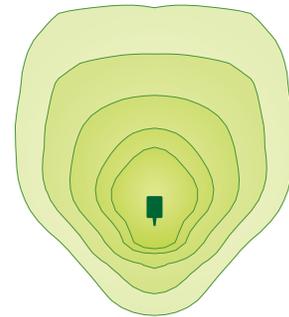
Type 2



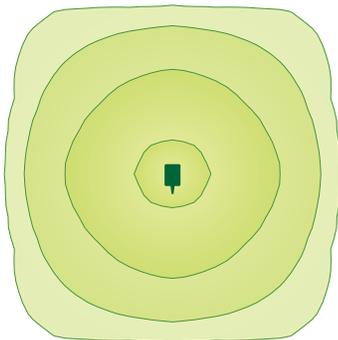
Type 3



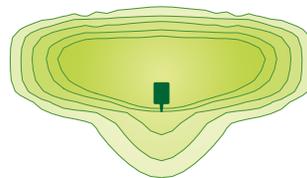
Type 4



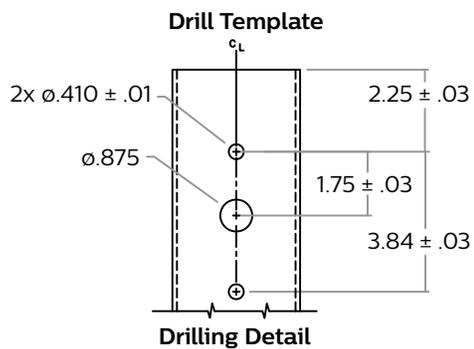
Type 5W



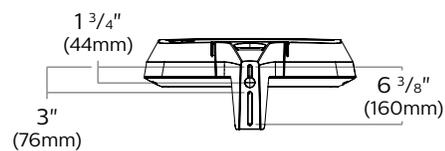
Type AFR



Drill Template



Arm Mount Details



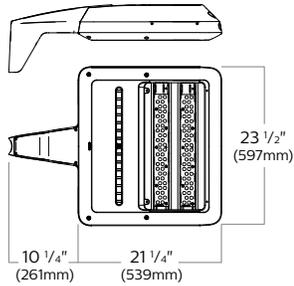
PowerForm standard Arm features an elongated bolt mounting pattern with key slot feature to aid in ease of mounting. Designed to fit a large number of existing pole drillings.

PFAS PowerForm

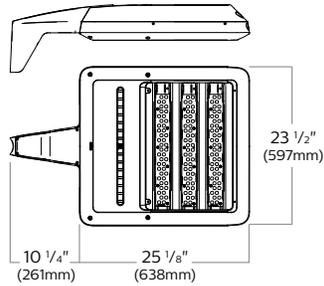
Site & Area

Dimensions – Standard Arm (AR)

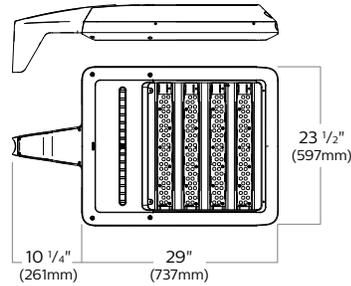
2 Module (92L)



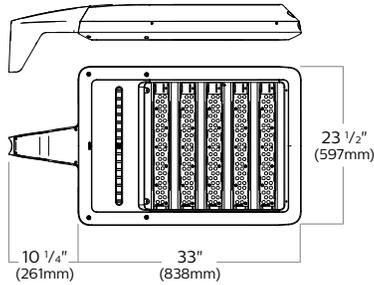
3 Module (138L)



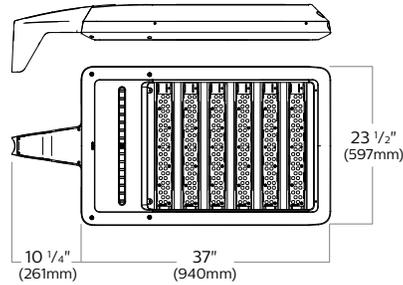
4 Module (184L)



5 Module (230L)



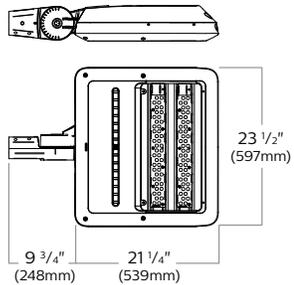
6 Module (276L)



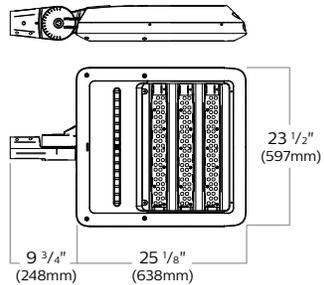
No. of Modules	Effective Projected Area (EPA-ft ²) ¹			Weight of single luminaire
	Single	Twin@180	3 or 4	
2	0.560	1.120	1.457	48 lbs (21.8 kg)
3	0.647	1.294	1.631	59 lbs (26.8 kg)
4	0.739	1.478	1.816	68 lbs (30.8 kg)
5	0.836	1.672	2.009	78 lbs (35.4 kg)
6	0.938	1.876	2.214	86 lbs (39.0 kg)

Dimensions – Slip Fitter Mount (SF)

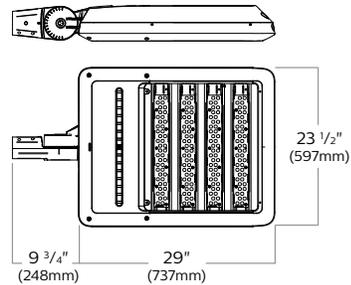
2 Module (92L)



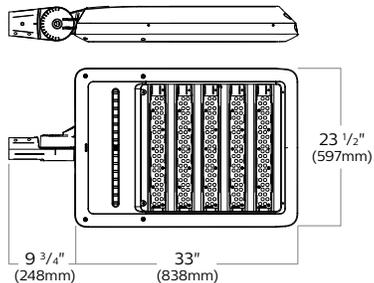
3 Module (138L)



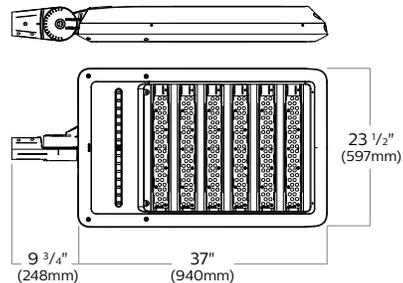
4 Module (184L)



5 Module (230L)



6 Module (276L)



No. of Modules	Effective Projected Area (EPA-ft ²) ¹			EPA table with Slipfitter mounted on horizontal tenon			Weight of single luminaire
	Single	Twin@180	3 or 4	0° Aim	45° Aim	90° Aim	
2	0.560	1.120	1.457	0.560	1.913	2.706	58 lbs (26.3 kg)
3	0.647	1.294	1.631	0.647	2.311	3.269	68 lbs (30.8 kg)
4	0.739	1.478	1.816	0.739	2.681	3.792	78 lbs (35.4 kg)
5	0.836	1.672	2.009	0.836	3.021	4.273	88 lbs (39.9 kg)
6	0.938	1.876	2.214	0.938	3.337	4.720	98 lbs (44.5 kg)

1. Applies to values as shown for quantity of single, twin at 180, three or four luminaires; all with 0 deg aiming at horizontal.
2. Applies to single PFAS luminaire with (SF) slipfitter mount at following angles when mounted on a horizontal tenon. 0° is horizontal to ground when mounted on a horizontal tenon. 90° is vertical to ground when mounted on a horizontal tenon.

PFAS PowerForm

Site & Area

Luminaire options

DD: 0-10V dimming driver with leads supplied through back of luminaire (for secondary dimming controls by others).

Dynadimmer Automatic Profile Dimming: Automatic dimming profiles (CS50/CM50/CE50) offer safety, median, or economy settings, for shorter or longer duration. Dimming profiles provide flexibility towards energy savings goals while optimizing light levels during specific dark hours. 50% dimming is standard. DA50 offers 50% instantaneous dimming all night (during all dark hours). 75% and 25% dimming is also available if different light levels are required (contact Technical Support for details).

Profile	Dimming		
	Schedule	Duration	Level
Economy	9 PM - 6 AM	9 hours	50%
Median	10 PM - 6 AM	8 hours	50%
Safety	11 PM - 6 AM	7 hours	50%
Reactive 50	all night	dynamic	50%

TLRD5: Twist Lock Receptacle with 5 pins enabling dimming, can be used with a twistlock photoelectric cell or a shorting cap. Can also be used with Philips or third party control system. Receptacle located on top of luminaire housing.

TLRD7: Twist Lock Receptacle with 7 pins enabling dimming and additional functionality (by others), can be used with twistlock photoelectric cell or a shorting cap. Can also be used with Philips or third party control system. Receptacle located on top of luminaire housing.

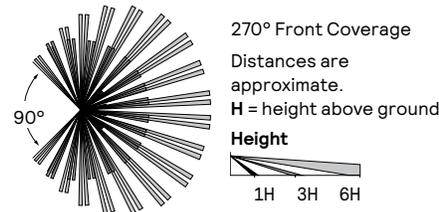
TLRDP: Receptacle with twistlock photoelectric cell (must specify voltage). Receptacle located on top of luminaire housing.

IMRI3, IMRI4, IMRI7: Infrared Motion Response Integral. IMRI module is mounted integral on driver door and is available with three different sensor lens types to accommodate various mounting heights and occupancy detection ranges (see charts for approximate detection patterns on page 7). Motion response used in combination of Dynadimmer and SiteWise are not programmable and used to override controllers schedule when motion is detected. When used not combined with any controller, IMRI is set/operates in the following fashion: The motion sensor is set to a constant 50%. When motion is detected by the PIR sensor, the luminaire returns to full power/light output. Dimming on low is factory set to 50% with 5 minute default in "full power" prior to dimming back to low. When no motion is detected for 5 minutes, the motion response system reduces the wattage by 50%, to 50% of the normal constant wattage reducing the light level. IMRI can also be specified with automatic profile dimming for the added benefit of a combined dimming profile with sensor detection, where the PIR sensor will override the

dimming profile when occupancy is detected. Passive infrared (PIR) motion sensor, WattStopper FSP-211, equipped with lens choice specified. Available from 120V to 277V input only. Motion sensor off state power is 0.0 watts. The FSP-211 can also be reprogrammed with WattStopper's FS1R-100 remote programming tool accessory.

IMRO: Infrared Motion Response Outboard pole mounted sensor, must be specified with an available automatic profile dimming option. Combines the benefits of both automatic profile dimming and motion response using the Dynadimmer technology. PIR sensor features a pole mounted Wattstopper EW-200-120-W or the EW-200-277-W. One motion sensor per pole is required (order MS-A-120 or MS-A-277 separately). Available in 120 or 277V only, IMRO sensors require single voltage 120V or 277V input (see chart for approximate detection patterns). If motion is detected during the time that the luminaire is operating at profile dimming mode specified, the luminaire returns to 100% power and light output. The luminaire remains on high until no motion is detected for the duration period, after which the luminaire returns back to automatic profile dimming. Duration period is factory set at 15 minutes, and is field adjustable from 5 minutes up to 15 minutes. The area motion detector provides coverage equal to up to 6 times the sensor height above ground, 270° from the front-center of the sensor.

Pole Details: IMRO requires that the pole include an additional hand hole 15 feet above the pole base,



normally oriented 180° to the standard hand hole. For Gardco poles, order the pole with the Motion Sensor Mounting (MSM) option which includes the hand hole and a special hand hole cover plate for the sensor with a 1/2" NPT receptacle centered on the hand hole cover plate into which the motion sensor mounts. Once the motion sensor is connected to the hand hole cover plate, then wiring connections are completed in the pole. The plate (complete with motion sensor attached and wired) is then mounted to the hand hole. If poles are supplied by others, the customer is responsible for providing suitable mounting accommodations for the motion sensor in the pole (see Gardco Poles specification sheets for more information).

DCC: Dual Circuit Control permits separate switching of a specific number of LED modules. Available as an option with 2 through 6 modules.

Wireless system: Controller radio/sensor module attached to luminaire arm and includes radio, photocell and motion sensor. Available with #3 lens (LLC3) for 15-25' mounting heights or #4 lens (LLC4) for 25-40' mounting heights. Also available with remote pod accessory where pod is mounted separate from luminaire to pole or wall (see accessories and wireless system information page 7-8).

F1: Fusing Single (for 120, 277 or 347VAC)

F2: Fusing Double (for 208, 240 or 480VAC)

F3: Fusing Canadian Double Pull (for 208, 240 or 480VAC)

FP1: Fusing Pole Single (pole mounted near handhole, for 120, 277 or 347VAC)

FP2: Fusing Pole Double (pole mounted near handhole, for 208, 240 or 480VAC)

FP3: Fusing Pole Canadian Double Pull (pole mounted near handhole, for 208, 240 or 480VAC)

SP2: Surge Protection, 20kV/10kA, 120-277V

SP2HV: Surge Protection, 20kV/10kA, 347-480V

HIS: Internal House Side Shield. Injection molded in black finish. Ships installed with 1 per 46 LED module. Also available shipped separately as an accessory for 2-6 LED modules.

SW

SiteWise option is a fully integrated controller that connects to SiteWise system in order to offer a complete area lighting management system. The communication signal is based on patented central dimming technology. SiteWise delivers it deliver optimal energy savings using your site's existing cabling. No additional wiring required, installation and commissioning are simple. An intuitive, mobile app makes it easy for authorized users to set schedules to meet site specific lighting needs, local regulations, and energy codes.

PFAS PowerForm

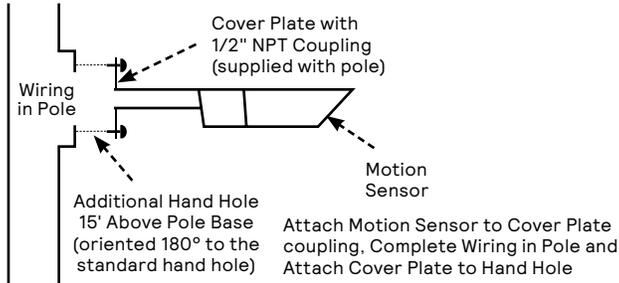
Site & Area

Luminaire accessories – Ordered separately

Pole Mount IMRO Sensors

MS-A-120: 120V Input Area Motion Sensor

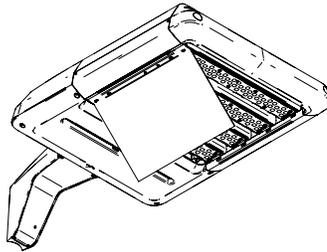
MS-A-277: 120V Input Area Motion Sensor



For use with option IMRO. Motion Sensors are ordered separately, with one (1) motion sensor required per pole location for luminaires with IMRO option. Area motion sensor color is Arctic White.

Auto Front Row External Shield⁴ (Rotated 90° or 270°)

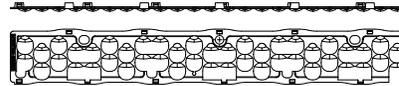
AFRES-PFAS-92	92 LEDs, 2 modules
AFRES-PFAS-138	138 LEDs, 3 modules
AFRES-PFAS-184	184 LEDs, 4 modules
AFRES-PFAS-230	230 LEDs, 5 modules
AFRES-PFAS-276	276 LEDs, 6 modules



Accessory AFR-90 or AFR-270 External Shield, is a single aluminum sheet metal external shield for use with auto front row rotated optics. Ordered separately and determined by total number of LED's per luminaire.

Internal House Side Shield

HIS-PFAS-92	For 92 LEDs (2 modules)
HIS-PFAS-138	For 138 LEDs (3 modules)
HIS-PFAS-184	For 184 LEDs (4 modules)
HIS-PFAS-230	For 230 LEDs (5 modules)
HIS-PFAS-276	For 276 LEDs (6 modules)



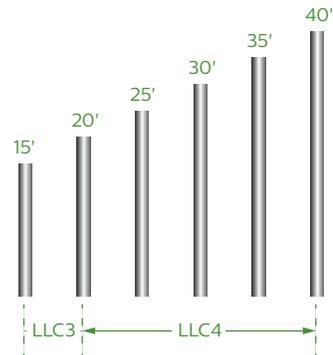
Accessory house side internal shields. For use with Type 2, 3, 4, 5 and AFR optics (not for use with AFR-90 or AFR-270 rotated optics). A set of internal shields can be ordered separately and is determined by total number of LED's per luminaire. One injection molded black polymer shield snap fits to each 46 LED module.

Wireless system – Luminaire configuration information

LLC3/LLC4 Luminaire Mounted Controller

Controller pod attached to luminaire and includes radio, photocell and motion sensor with #3 or #4 lens for 8-40' mounting heights.

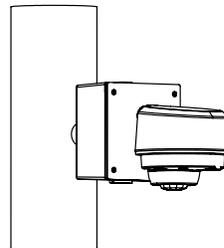
Recommended Sensor by Pole Height



LLCR2/LLCR3/LLCR4 Pole Mounted Controller

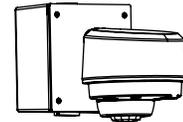
In this configuration, the wireless controller will be mounted to the pole at a fifteen foot mounting height. The number of luminaires on each pole, as well as the specific wattage chosen, will determine how many controllers will be required.

When using the wireless remote accessory option (LLCR-F) in a pole mount application, specify pole option (CL=Coupling Internal Thread, 3/4" size). Confirm required orientation of luminaire and wireless controller. Indicate height above pole base and orientation to hand hole. Recommended min pole height is 18ft, with option (CL) 15ft above pole base. Other heights are possible when choosing the appropriate sensor lens type. See pole specification sheets for more information.



Remote Mount Wireless Controller

Used to extend the communication on site, to extend motion response and add other luminaires that are not pole mounted. Consult factory for more information.

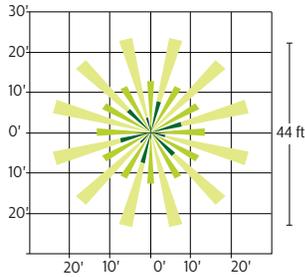
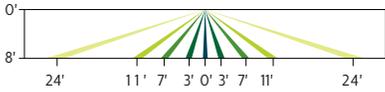


PFAS PowerForm

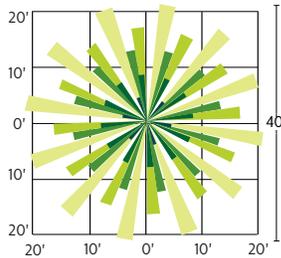
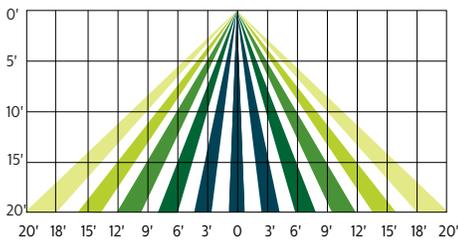
Site & Area

Infrared Motion Response and Wireless system sensor – Coverage patterns

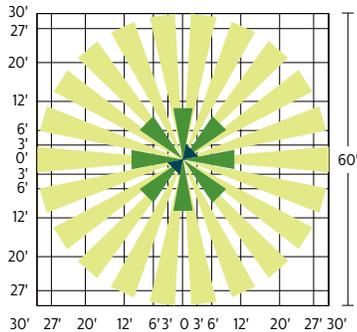
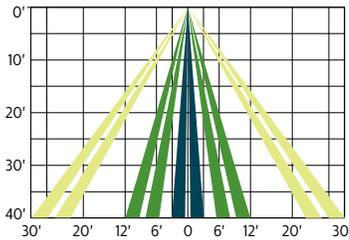
LLCR2
Remote mount controller
with #2 lens



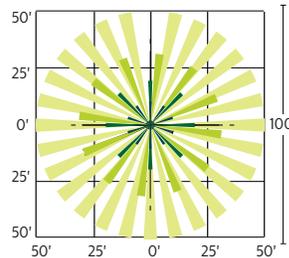
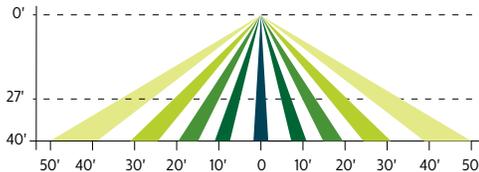
IMRI3/LLC3/LLCR3
Luminaire or Remote mount controller
with #3 lens



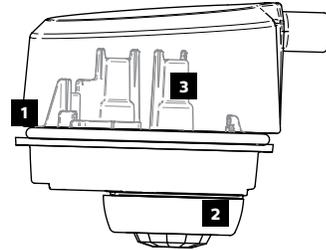
IMRI4/LLC4/LLCR4
Luminaire or Remote mount controller
with #4 lens



IMRI7
Integral motion response
with #7 lens



Controller



1. Photocell

- Ambient light photocell on every wireless radio that averages the light levels of up to 5 controllers for an accurate reading and optimal light harvesting activity.
- Reports ambient light readings to 1500 Fc.

2. Motion Response

- Detects motion through passive infrared sensing technology with three different lens configurations.
- Motion sensor coverage can be adjusted from a narrow to a wide detection range, which helps reduce false triggers to further increase energy savings.
- Sensing profiles can be updated to adapt to activity levels in the environment, such as occupancy level, wind, and mounting height.

3. Wireless Radio

- 1.8 Watts max (no load draw)
- Operating voltage 120-277 VAC RMS
- Communicates using the ZigBee protocol
- Carries out dimming commands from Gateway
- Reports ambient light readings to 1500 Ft-Cd
- Transmission Systems Operating within the band 2400-2483.5Mhz
- ROHS Compliant

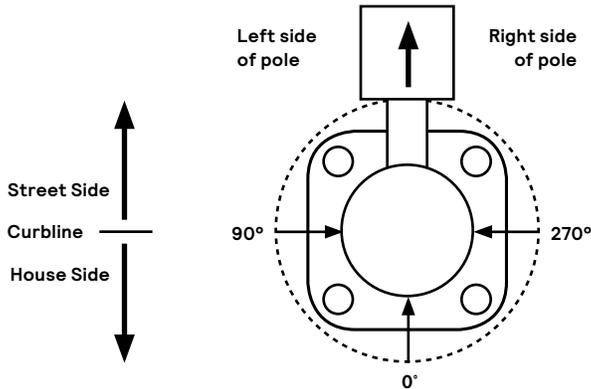
PFAS PowerForm

Site & Area

Optical Orientation Information

Standard Optic Position

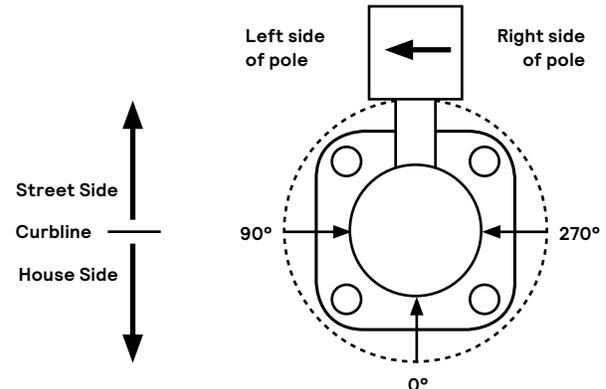
Luminaires ordered with asymmetric optical systems in the standard optic position will have the optical system oriented as shown below:



Note: The hand hole will normally be located on the pole at the 0° point.

AFR -90 Optic Rotated Left (90°) Optic Position

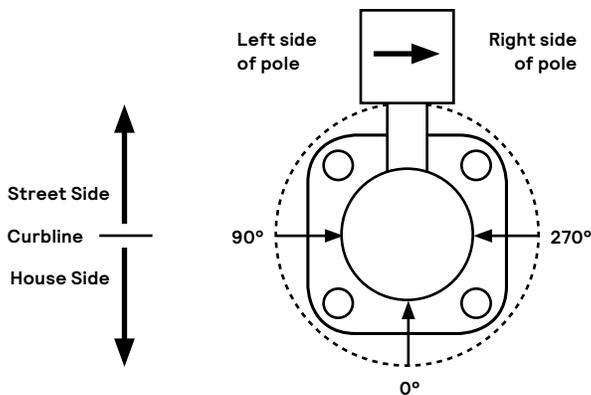
Luminaires ordered with AFR optical systems in the Optic Rotated Left (90°) optic position will have the optical system oriented as shown below (only AFR type optics are available with factory set rotatable optics.):



Note: The hand hole will normally be located on the pole at the 0° point.

AFR Optic Rotated Right (270°) Optic Position

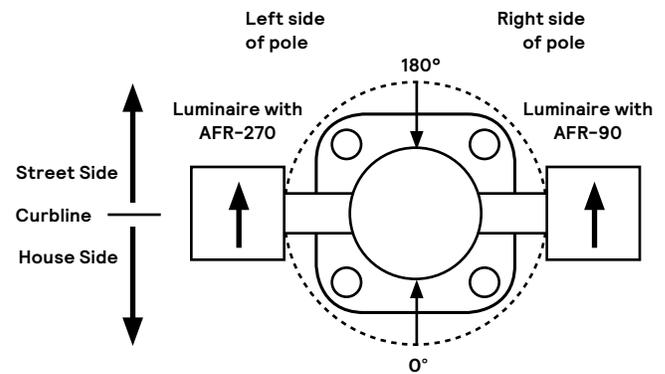
Luminaires ordered with AFR optical systems in the Optic Rotated Right (270°) optic position will have the optical system oriented as shown below (only AFR type optics are available with factory set rotatable optics.):



Note: The hand hole will normally be located on the pole at the 0° point.

Twin Luminaire Assemblies with AFR-90/AFR-270 Rotated Optical Systems

Twin luminaire assemblies installed with rotated AFR type optical systems are an excellent way to direct light toward the interior of the site (Street Side) without additional equipment. It is important, however, that care be exercised to insure that luminaires are installed in the proper location.



Luminaires with Optic Rotated Right (270°) are installed on the LEFT Side of Pole

Luminaires with Optic Rotated Left (90°) are installed on the RIGHT Side of Pole

Note: The hand hole location will depend on the drilling configuration ordered for the pole.

PFAS PowerForm

Site & Area

SiteWise system

SiteWise is a complete area lighting management system including a luminaire integrated controller, dimming signal transmitter cabinet, and locally accessible user interface. Installation and commissioning are simple. The cabinet communicates with the luminaires using a patented central dimming technology. The control signal is embedded on the existing electrical line – no new cabling is required. An intuitive, locally accessible interface makes it easy for authorized users to set schedules in order to meet site specific lighting needs, local regulations, and energy codes.

SiteWise system diagram



SiteWise system interface



SiteWise has an intuitive user interface that makes it easy to plan, edit, and implement lighting schedules for your site. Authorized users can access the interface via a local app.

To ensure that only authorized users can access your lighting, SiteWise offers two user types, each with different permissions. An advanced user, or administrator, can set and edit schedules using the ten pre-set scenes, assign those schedules to calendar days, and check system status.

For everyday use, a basic user can manually override a schedule that is currently running but cannot create or edit schedules.

SiteWise system specifications

The SiteWise system includes both luminaires and controls. The controls used for SiteWise are circuit load dependent. Required for a complete installation are the following SiteWise components: user interface, control kit, dimming signal transmitter cabinet, and dimming signal receiver located in the luminaire (**SW** option). Optional luminaire-integrated or external motion sensors may also be specified as required. Within the electrical closet, the control kit and dimming signal transmitter cabinet are installed into the electrical system between the existing breaker panel and the site luminaires. New LED luminaires containing the dimming signal receiver are installed on the site. Once completed, use of the interface allows for scheduling and override capabilities. Wireless access point and tablet should be supplied by others. Complete information on the control system can be found on the SiteWise website at signify.com/sitewise

PFAS PowerForm

Site & Area

Specifications

Housing

Main body castings made of a low copper die cast Aluminum alloy (A360) for a high resistance to corrosion, 0.100" (2.5mm) minimum thickness. Main body extrusions made of corrosion resistant low copper extruded anodized aluminum alloy (Anodized 6063-T5).

Mounting

Arm Mount: Integrated die cast aluminum arm (AR), constructed of low copper alloy (A360) with access door. Ships fully assembled, ready to install and features an elongated bolt mounting pattern with key slot feature to aid in ease of mounting. Designed to fit a large number of existing pole drillings. Arm mounting radius is designed to fit onto 4"-6" nominal O.D. poles. (Note: nominal pole sizes vary). PowerForm standard arm can mount onto round poles/accessories, sizes as small as 3.5" O.D. min and larger; (confirmations of weight, EPA and structural luminaire/pole design is required). Must order optional square pole adaptor (SPA) for mounting onto minimum 4" square poles. **Slipfitter:** Optional slipfitter (SF), adjustable knuckle mount, available for applications requiring up tilt aiming and used for surface wall mount with accessory brackets. Also serves for mast arm mounting on a horizontal tenon. Fits over 2 3/8" OD tenon.

Driver/Electrical Door

Removable die cast aluminum door made of a low copper alloy (A360). Provides access to electronic components/LED drivers. Designed for robust IP66 rated seal using one-piece silicone rubber gasket surrounding the entire perimeter of the electronics compartment. Door secured with four screws outside of gasket perimeter. Includes a lanyard to prevent accidental dropping if access is required.

Light Engine

Composed of 4 main components: Heat Sink / LED Module / Optical System / Driver. Electrical components are RoHS compliant. IP66 sealed light engines. LEDs tested by ISO 17025-2005 accredited lab in accordance with IESNA LM-80 guidelines extrapolations in accordance with IESNA TM-21. Metal core board ensures greater heat transfer and longer lifespan.

Heat Sink

Anodized 6063-T5 Aluminum for a high resistance to corrosion, designed to ensure high efficacy and superior cooling by natural vertical convection. Air flow pattern always close to LEDs and driver optimizing their efficiency and life. Product does not use any cooling device with moving parts (only passive cooling).

LED Module

Composed of high performance white LEDs. Color temperature as per ANSI/NEMA bin Neutral White, 4000 Kelvin nominal (3985 +/- 275K), CRI 70 Min. PowerForm Area luminaires also offer 4000K 90 CRI min in neutral white.

Optical System

The advanced LED optical systems provide IES Types 2, 3, 4 and 5W distributions. A dedicated automotive front row optic is also available. The AFR-90 and AFR-270 is specified and used as rotated (factory set only) when needed in specific applications. Composed of high performance UV stabilized optical grade polymer refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Dark sky compliant with 0% uplight and U0 per IESNA TM-15. Designed and tested to rating IK10 in accordance with European standard EN 62262 (equivalent of international standard IEC 62262 2002).

Driver

High power factor of 90% min. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 VAC or 347 to 480 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max. The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

Other Integrated Features

Surge Protection: Each luminaire is provided as standard with surge protector (SP1) tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/5kA waveforms for Line Ground, Line Neutral and Neutral Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid State Street Lighting Consortium) Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High Test Level 10kV / 5kA. Enhanced surge protection (SP2 and SP2HV) is available as an option.

SiteWise Network System

SiteWise system includes a controller fully integrated in the luminaire that enables the luminaires to communicate with a dimming signal transmitter cabinet located on site using patented central dimming technology. A locally accessible mobile app allows users to access the system and set functionalities such as ON/OFF, dimming levels and scheduling. SiteWise is available with motion response options in order to bring the light back to 100% when motion is detected. Additional functionalities are available such as communication with indoor lighting and connection to BMS systems.

Wireless system

PowerForm luminaires are available with optional wireless controllers ready to be connected to a Lighthouse system (sold by other). The system allows you to Wirelessly manage the entire site, independent lighting groups or individual luminaires while on-site or remotely. Based on a high density mesh network with an easy to use web-based portal, you can conveniently access, monitor and manage your lighting network remotely. Wireless controls can be combined with site and area, pedestrian, and parking garage luminaires as well, for a completely connected outdoor solution.

Wiring

#2 - #14 AWG wires from the primary circuit, located inside the housing. Due to the inrush current that occurs with electronic drivers, recommend using a time delay or slow blow fuse to avoid unnecessary and unwanted fuse blowing that can occur with fast acting fuses.

Hardware

All exposed screws shall be stainless and/or corrosion resistant and captive. All seals and sealing devices are made and/or lined with EPDM and/or silicone and/or rubber.

Finish

Five standard colors offered in textured black, white, bronze, dark gray and medium gray. RAL and custom color matching available. Color in accordance with the AAMA 2604 standard. Application of polyester powder coat paint (2.5 mil minimum). The thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard.

PFAS PowerForm

Site & Area

Specifications continued

LED Products Manufacturing Standard

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with EC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

LED Useful Life

Luminaire Useful Life accounts for LED lumen maintenance. Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, LED LM-80/TM-21, expected to reach 100,000 + hours with >L70 lumen maintenance @ 25°C.

Vibration Resistance

PowerForm meets the ANSI C136.31, American National Standard for Roadway Luminaire Vibration specifications for Bridge/overpass applications (Tested for 1.5G over 100,000 cycles by an independent lab).

Certifications and Compliance

cULus Listed for Canada and USA. PowerForm LED luminaires with neutral white color temperature are DesignLights Consortium qualified. Entire luminaire is rated for operation in ambient temperature of -40°C (-40°F) up to +40°C (+104°F).

Limited Warranty

5-year limited warranty. See signify.com/warranties for details and restrictions. Visit our eCatalog or contact your local sales representative for more information.

LED Performance

Predicted lumen depreciation data ¹				
Ambient Temperature (°C)	Driver mA	Calculated L ₇₀ hours ^{1,2}	L ₇₀ per TM-21 ^{2,3}	Lumen Maintenance % @ 60,000 hours
25°C	up to 1050 mA	>100,000	>51,000	96%

1. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. L₇₀ is the predicted time when LED performance depreciates to 70% of initial lumen output.
3. Calculated per IESNA TM21-11. Published L₇₀ hours limited to 6 times actual LED test hours.

