SITE / ROADWAY

MX
SERIES

Matrix™

Square Body Luminaire

150 - 400 Watt

KIM LIGHTING

Matrix™

Square Body Luminaire

Table of Contents

Relativity	2-3
Horizontal or Vertical Lamp	4
Optical System Features	5
Mounting Configurations	6
Mechanical Features	7
Installation and Maintenance	8
Arm Mount Ordering Information	10-11
Arm Mount Specifications	12-13
Post Top Mount Ordering Information	14-15
Post Top Mount Specifications	16-17
Lamp and Electrical Guide	19
Application Engineering Services	21

ISO 9001:2000

KIM LIGHTING

SITE / AREA
PARKING STRUCTURE
ROADWAY
ARCHITECTURAL FLOOD
ACCENT
LANDSCAPE

MAILING ADDRESS:
P.O. BOX 60080
CITY OF INDUSTRY, CA
91716-0080

BUSINESS ADDRESS:
16555 EAST GALE AVENUE
CITY OF INDUSTRY, CA 91745
U.S.A.
PHONE 626 / 968-5666
FAX 626 / 369-2695

www.kimlighting.com

HUBBELL®

Hubbell Lighting, Inc.

Printed in U.S.A.
5502103286
Version 1.0 (8/06)

The Matrix™ Series:

The Matrix™ Series is a comprehensive product family offering a wide range of mounting and performance features. The symmetric square body, pyramid roof, and fine detail produce luminaires of exceptional design flexibility. The choice of vertical and horizontal lamp optical systems assures the Matrix Series is able to satisfy the most demanding outdoor lighting requirements.

Kim Theory of Relativity

The Relationship of Outdoor Lighting to Site and Architecture

MX21A Matrix™ Arm Mount

MX21P Matrix™ Post Top Mount

VSB Vandal-Resistant Bollard

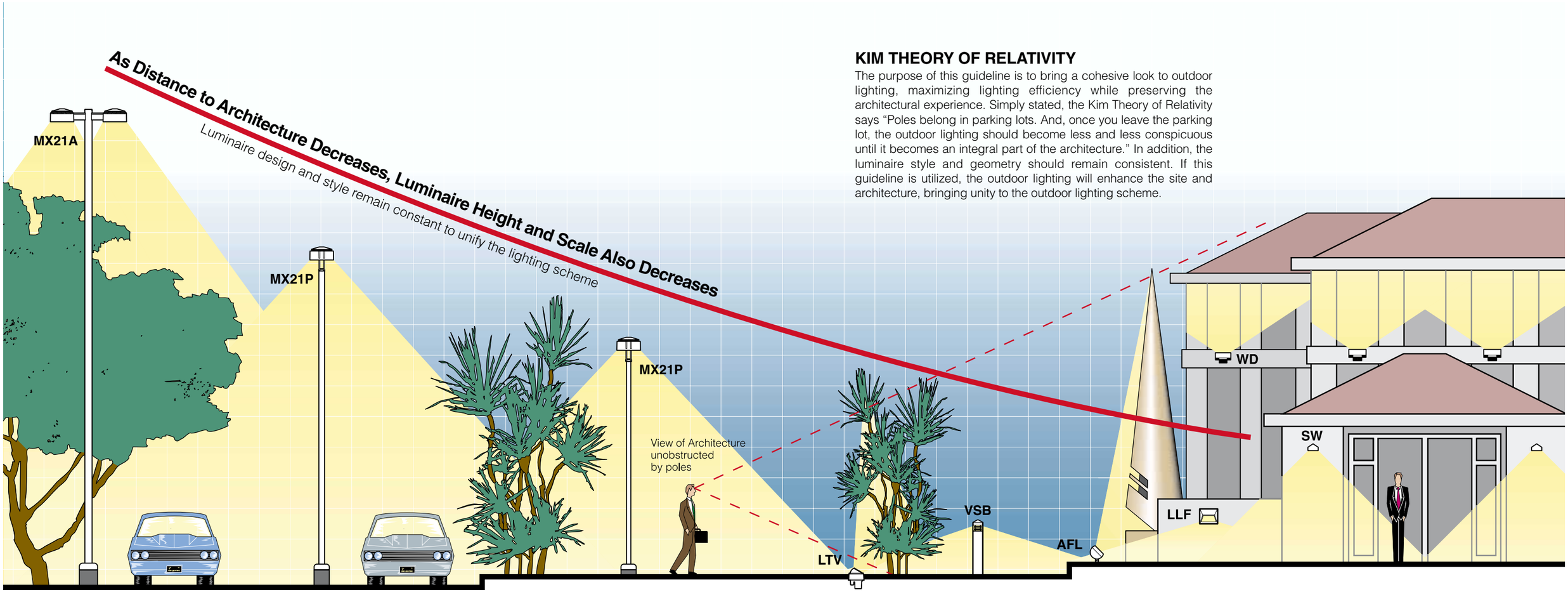
LTV Lightvault®

AFL Architectural Floodlight

LLF Low Level Floodlight

SW Site Wallform

WD Wall Director®



KIM THEORY OF RELATIVITY

The purpose of this guideline is to bring a cohesive look to outdoor lighting, maximizing lighting efficiency while preserving the architectural experience. Simply stated, the Kim Theory of Relativity says “Poles belong in parking lots. And, once you leave the parking lot, the outdoor lighting should become less and less conspicuous until it becomes an integral part of the architecture.” In addition, the luminaire style and geometry should remain consistent. If this guideline is utilized, the outdoor lighting will enhance the site and architecture, bringing unity to the outdoor lighting scheme.

SITE / ROADWAY ZONE

Parking lots and roadways require luminaires on 20′ - 40′ poles to efficiently light these large areas. Therefore, this lighting becomes dominant, and sets the design and style for all other lighting as you progress towards the building.

PEDESTRIAN ZONE

As you leave the parking lot and transition to pedestrian areas, poles should decrease in height to 10′ - 16′. In addition, luminaires should decrease in scale, and can have more decorative features to be appreciated at the pedestrian level.

LANDSCAPE / PATH ZONE

Near the building, luminaires should begin to disappear, blending into the landscape and hardscape elements.

BUILDING / PERIMETER ZONE

No pole mounted luminaires should ever be used near the building, as they will dominate the architecture. The only exception would be the use of decorative luminaires to delineate entrances to the structure. Building mounted, architecturally compatible fixtures should be almost invisible.

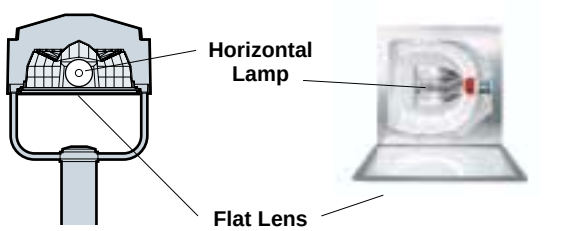
Horizontal or Vertical Lamp

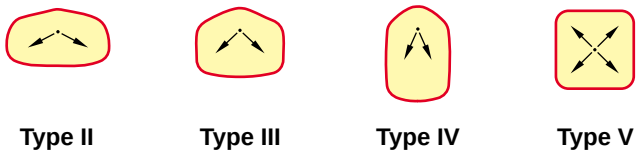
See the **Kim Site / Roadway Optical Systems Catalog** for complete details and explanation of optical system features.

Horizontal Lamp

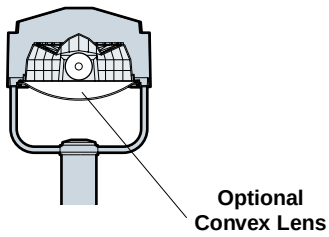
Available in **Type II, Type III, Type IV,** and **Type V Square** distributions. This flat lens system provides **full cutoff control** and very good uniformity.

Sealed optics and performance die-cast reflector technology allow this horizontal lamp optical system to maximize lamp output. An optional houseside shield is available for Types II, III, and IV distributions.





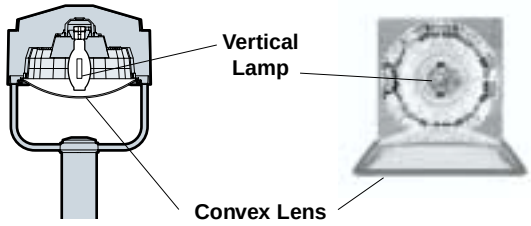
An optional convex lens offers increased lens presence and a subtle improvement in uniformity and increased effectiveness of houseside shielding. Changes light distribution from Full Cutoff to Cutoff.



Vertical Lamp

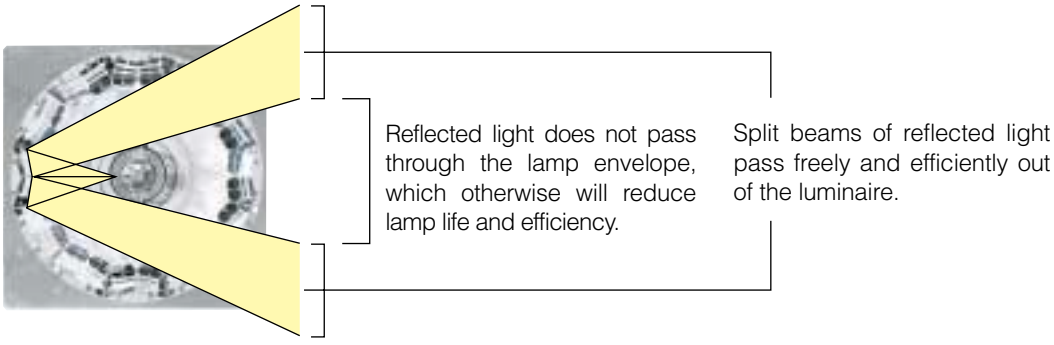
Available in **Asymmetric** and **Symmetric** distributions in wide range. Provides vertical lamp performance in a compact luminaire profile with excellent uniformity.

The die-cast reflector utilizes Kim's split beam reflector technology, optimizing lamp output and life (see below). An optional houseside shield is available for the Asymmetric distribution.



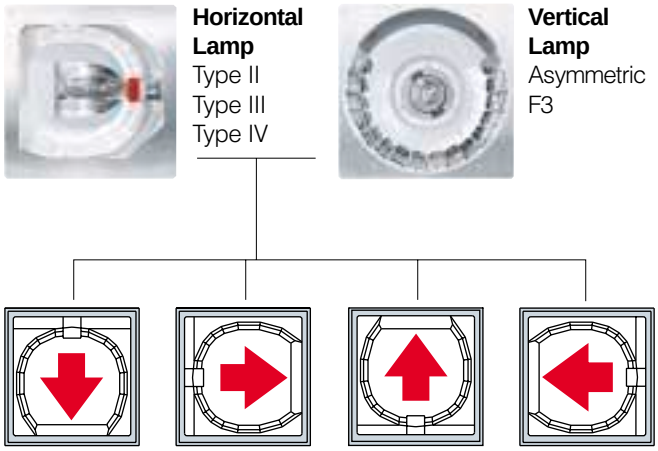
Split Beam Reflector Geometry

Wide-beam vertical lamp reflectors will redirect light back into the lamp unless properly designed. Kim die-cast reflectors are precision engineered to avoid this by using split-beam reflector geometry.



Rotatable Optics

All asymmetric reflectors are field rotatable in 90° increments. This allows design flexibility in producing very high illumination levels for special applications or for maintaining a consistent fixture orientation throughout the site. To facilitate field rotation, each reflector is labeled to show the orientation of the light pattern.

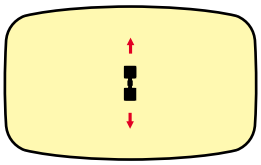


Horizontal Lamp
Type II
Type III
Type IV

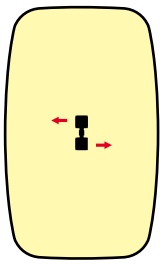
Vertical Lamp
Asymmetric
F3

Rotatable reflectors offer a degree of refinement in fixture orientation when the architecture and site demand perfection.

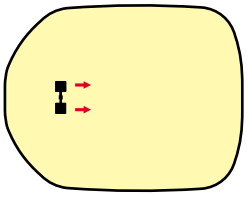
When the twin-mounted luminaires are used for site lighting using Types II, III or IV distributions, the combined effect from the twin mount is a rectangular light pattern.



To change the orientation of the rectangular pattern, you normally change the orientation of the twin mount. An alternative to this is shown at right, where the fixture orientation remains constant and the internal reflectors rotate to change the orientation of the rectangular light pattern. This can maintain identical fixture orientations throughout the site.

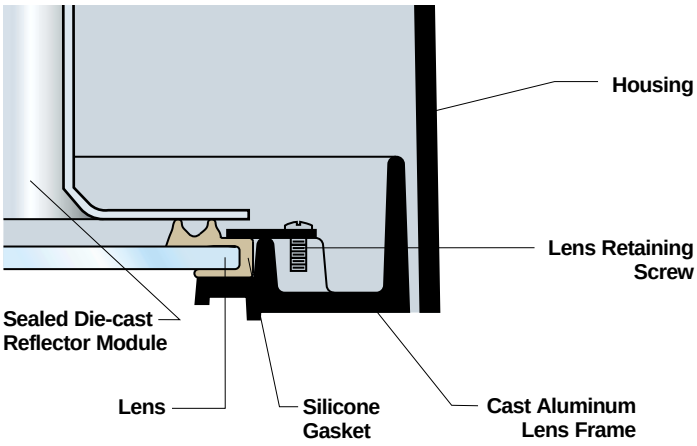


For applications demanding high light levels, such as tennis courts and automobile dealerships, reflectors can be rotated in parallel to double the light levels. Houseside shields can be added to the fixtures for reducing spill light into unwanted areas behind the luminaires. See page **13**.



Sealed Optical System

The optical compartment is completely sealed from outside and inside, including wire entries to the socket and ballast compartment. The tempered clear glass lens is sealed by molded silicone gaskets at the optical compartment. By eliminating the intrusion of moisture, dust, and insects, the efficiency of the optical system is maintained. This assures maximum light output between standard maintenance intervals.



Die-Cast Reflector Construction

Matrix™ reflectors are constructed of specular smooth and textured Alzak® optical elements, formed on class A tooling. These precision optical components are fastened into a precision die-cast shell, then completely sealed to produce a rigid, long lasting system.

Horizontal Lamp

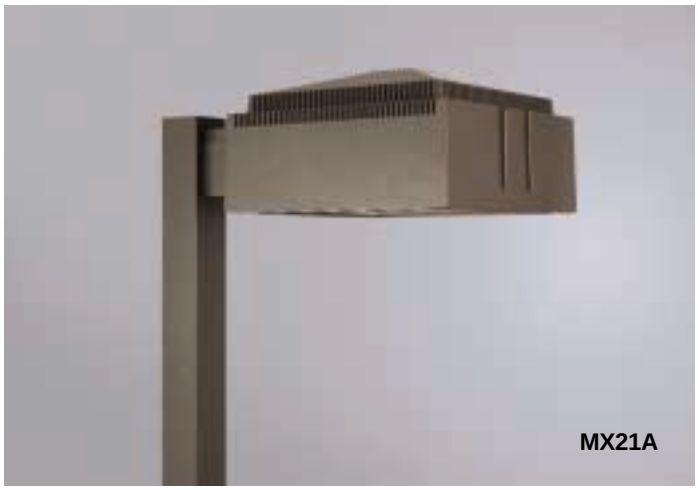
Vertical Lamp

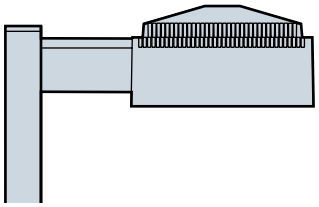
Die-cast Reflector Shell encloses optical system and provides a sealed chamber.

Mounting Configurations

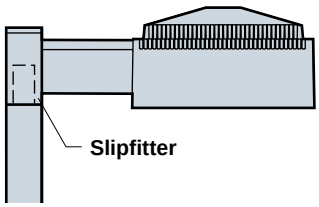
Arm Mounting

The Matrix™ Arm Mount is available in **1A, 2B, 2L, 3T, 4C,** and **1W** configurations. Standard Arm Mount includes reinforcing nut-plate and draw-bolt system. Optional **SVSF** and **VSF** Vertical Slipfitters adapt to 2″ tenon poles while **HSF** Horizontal Slipfitter adapts to horizontal 2″ pipe-size arms.

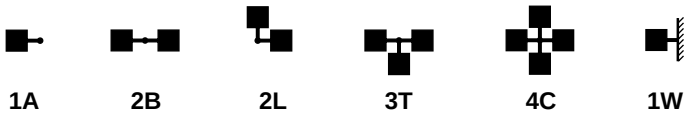


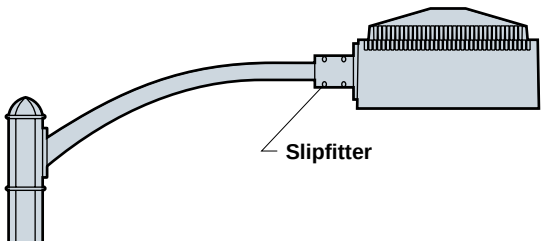


Standard Arm Mount



Optional SVSF / VSF Vertical Slipfitters for mounting to square or round poles having a 2″ pipe-size tenon (2⅜″ O.D. x 4½″ min. length).



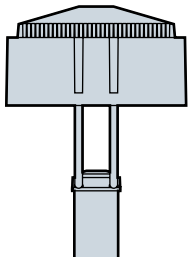


Optional HSF Horizontal Slipfitter replaces standard mounting arm with a slipfitter for mounting to a horizontal arm with 2″ pipe-size mounting end (2⅜″ O.D.).

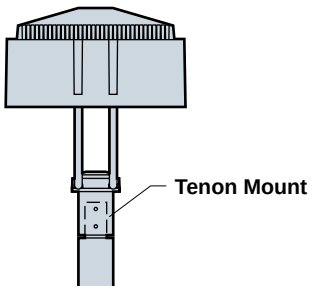
See pages **10-13** for complete ordering information and specifications and page **8** for installation and maintenance and information.

Post Top Mounting

The Matrix™ Post Top Mount for single post top installation can be installed either flush onto square cut, square profile poles, or onto tenon top poles. The **FM** Flush Mount installation produces the cleanest appearance, with fully concealed fasteners, while the **PT** Pole Tenon Mount provides flexibility for mounting to round, square, concrete, fiberglass or other specialty poles (by others).



FM Flush Mount for all 4″, 5″, or 6″ square poles.



PT Pole Tenon Mount for 2″ pipe-size tenon (2⅜″ O.D. x 4½″ minimum length).

See pages **14-17** for complete ordering information and specifications and page **8** for installation and maintenance information.

Die-Cast Aluminum Components

The housing and door frame are die-cast aluminum for precision and repeatability. The housing is internally reinforced at the arm connection, and cooling fins are integral with the top surfaces. This self-cooling feature substantially reduces the operating temperatures on heat-sensitive electrical components, promoting extended life.

Cooling fins increase top surface area, allowing rapid dissipation of internal heat through the fixture housing.

One piece die-cast housing produces sharp detail, superior strength, and durability. This seamless component is impervious to water entry because there are no welded joints to leak.

The door frame is extra thick for rigidity, allowing dependable sealing of the optical chamber through uniform gasket pressure. Concealed thumb latches are designed into the corners of the frame, providing no-tool entry for lamp and ballast access.

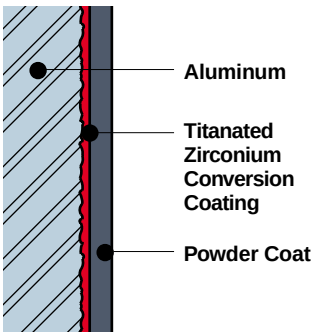
Extruded arm is superbly detailed to complement the luminaire housing. All fasteners are internal.

Durable Powder Coat Finish

Kim's state-of-the-art powder coat paint system is engineered to provide the highest quality finish with absolute paint adhesion under weather extremes. The Super TGIC thermoset polyester powder coat finish is applied over a Titanated Zirconium conversion coating. This finish system has exceeded the A.S.T.M. 2500 hour salt spray test.

Eight Stage Finish

1. Power wash and degrease.
2. Detergent tank bath.
3. Clear water rinse bath.
4. Premium Titanated Zirconium conversion coating as used in the automobile industry.
5. Clear water rinse bath.
6. Dry off oven.
7. Powder coating, 2.5 mil nominal thickness.
8. Bake for 20 minutes at 410°F.

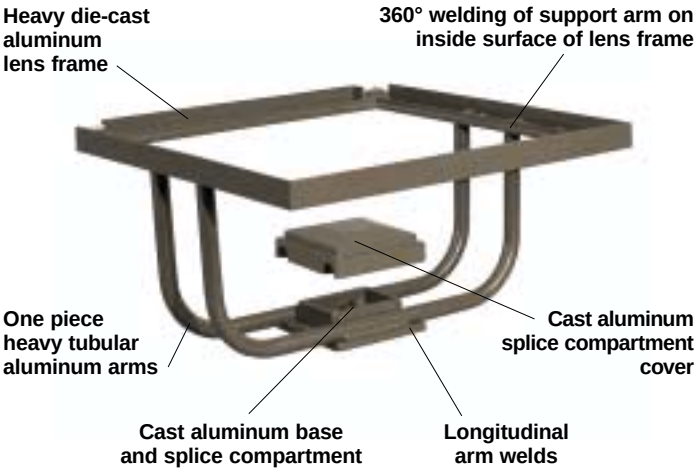


Standard Super TGIC Colors

BL-P Black
DB-P Dark Bronze
LG-P Light Gray
PS-P Platinum Silver
WH-P White

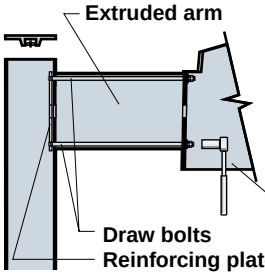
High Strength Yoke

A post top mounted Matrix™ utilizes Kim's unique yoke configuration, which optimizes component strength while reducing stress on the welds. The key element of this design is a single tube system which spans the lens frame with longitudinal welding at the hub. This design efficiently transfers the fixture weight to the center hub and away from the welds. Stress at the weld is minimized to resist wind and vibration forces. The base hub serves as a splice compartment and complements the housing design.



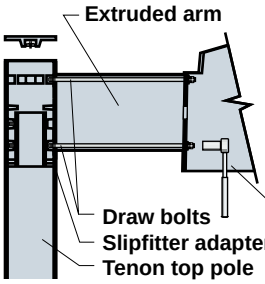
Installation and Maintenance

Standard Arm Mount Installation



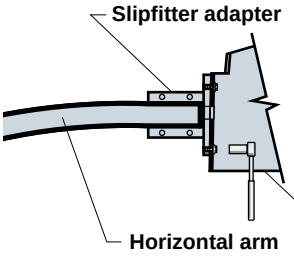
Arm Mount Installations utilize a draw-bolt system concealed within the arm's internal centering guides.

Optional Vertical Slipfitter Installation



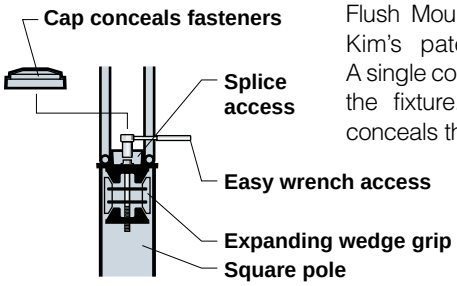
Vertical Slipfitter Installations utilize a slipfitter adapter to which the fixture arm is bolted. Adapter slipfits tenon and is held in place by four set screws. One set screw is drilled into the tenon to eliminate rotation.

Optional Horizontal Slipfitter Installation



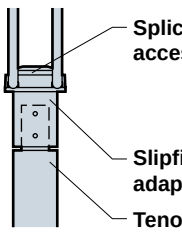
Horizontal Slipfitter Installations utilize a slipfitter adapter to which the fixture housing is bolted. Adapter slipfits and clamps to horizontal arm. One set screw is drilled into arm to prevent fixture rotation.

Flush Mount Installation



Flush Mount Installations utilize Kim's patented wedge grip. A single concealed bolt attaches the fixture. A decorative cap conceals the fasteners.

Pole Tenon Mount Installation



Pole Tenon Mount Installations slipfit tenons and are held in place by four set screws. One set screw is drilled into tenon to prevent fixture rotation.

Accessibility

Fast installation and easy maintenance are achieved by modular construction and ergonomic engineering. Hinged lens frames (arm mounts) and housings (post top mounts) swing out of the way and lock in place for easy hands-free access.

The reflector module easily installs with no-tool snap-in fasteners.

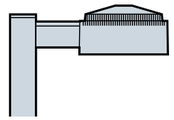
The ballast module is factory prewired with quick-disconnect plugs, and is located with keyhole slots.


50

Ordering Information

Matrix™ Arm Mount

MX21A
Arm Mount
150 to 400 Watt



Ordering Example:
For Standard Fixture and Pole

Mounting	Fixture	Electrical Module	Finish	Options	Pole	
1A /	**MX21A3** /	**400MH277** /	**LG-P** /	**A-25** /	**PSA30-6250A** /	**LG-P**
1	2	3	4	5-11	12	

See separate Kim Pole Catalog. Omit for **1W** Wall Mount.

1 Mounting:

Plan View:

EPA:	2.1	4.2	3.8	5.1	6.0	n/a
Cat. No.:	**1A**	**2B**	**2L**	**3T**	**4C**	**1W**

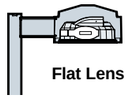
Wall Mount

2 Fixture:

Cat. No. designates **MX21A** fixture and light distribution.

See the Kim Site/Roadway Optical Systems Catalog for detailed information on reflector design and application.

Horizontal Lamp



Flat Lens

Light Distribution:	Type II Full Cutoff	Type III Full Cutoff	Type IV Forward Throw Full Cutoff	Type V Square Full Cutoff
Cat. No.:	**MX21A2**	**MX21A3**	**MX21A4**	**MX21A5**

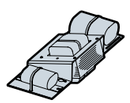
Vertical Lamp

Convex Lens

Light Distribution:	Asymmetric	Symmetric Square
Cat. No.:	**MX21AF3**	**MX21AF5**

3 Electrical Module:

HPS = High Pressure Sodium
MH = Metal Halide
PMH = Pulse Start Metal Halide



Lamp Watts	Lamp Type	Line Volts
400	**HPS**	**277**

150HPS120	**250HPS120**	**400HPS120**
150HPS208	**250HPS208**	**400HPS208**
150HPS240	**250HPS240**	**400HPS240**
150HPS277	**250HPS277**	**400HPS277**
150HPS347	**250HPS347**	**400HPS347**
150HPS480	**250HPS480**	**400HPS480**

175MH120	**250MH120**	**400MH120**	**175PMH120[1]**	**250PMH120**	**400PMH120**
175MH208	**250MH208**	**400MH208**	**175PMH208[1]**	**250PMH208**	**400PMH208**
175MH240	**250MH240**	**400MH240**	**175PMH240[1]**	**250PMH240**	**400PMH240**
175MH277	**250MH277**	**400MH277**	**175PMH277[1]**	**250PMH277**	**400PMH277**
175MH347	**250MH347**	**400MH347**	**175PMH347[1]**	**250PMH347**	**400PMH347**
175MH480	**250MH480**	**400MH480**	**175PMH480[1]**	**250PMH480**	**400PMH480**

[1]175PMH lamp not for use in horizontal lamp reflectors.

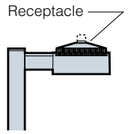
4 Finish:

Super TGIC powder coat paint over Titanated Zirconium conversion coating.

Color:	Black	Dark Bronze	Light Gray	Platinum Silver	White	Custom Colors
Cat. No.:	**BL-P**	**DB-P**	**LG-P**	**PS-P**	**WH-P**	**CC-P** Consult representative for custom colors.

5 Optional Photocell Control:

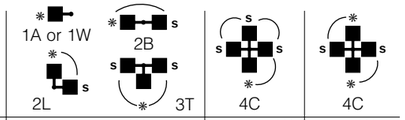
Factory installed receptacle in flat portion in housing top for NEMA base photocells (by others).



Receptacle

Cat. No.: **A-25**
Mounting Configuration

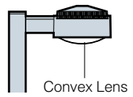
✳ Fixture with photocell receptacle
s slave unit(s).



Allowable Wattage per fixture:	150-400W	150-250W	400W

6 Optional Convex Glass Lens:

For Horizontal Lamp Optical Systems.



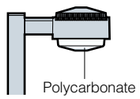
Convex Lens

Cat. No.: **CGL**

Tempered convex glass lens replaces standard flat lens. For use with horizontal lamp Type II, III, IV, and V distributions. Changes light distribution from Full Cutoff to Cutoff.

NOTE: Convex lens is standard on all Vertical Lamp Optical Systems.

7 Optional Polycarbonate Lens:

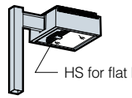


Polycarbonate Lens

Cat. No.: **LS**

Polycarbonate Lens replaces standard tempered glass lens. 250 watt maximum. May be used with 400HPS in outdoor locations where ambient air temperature during fixture operation will not exceed 85°F. Changes light distribution from Full Cutoff to Cutoff. See "**CAUTION**" on page **13**.

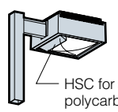
8 Optional Houseside Shield:



HS for flat lens

Cat. No.: **HS**

Recommended for use with clear lamps only. Effectiveness is reduced for coated lamps. Not for use with Type V (horizontal lamp) or symmetric (vertical lamp) light distributions.

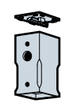


HSC for convex lens or polycarbonate lens

Cat. No.: **HSC**

For use with all fixtures with convex glass lens. Not for use with Type V or symmetric light distributions.

9 Optional Vertical Slipfitter Mounts:



Square

Cat. No.
SVSF-1A
SVSF-2B
SVSF-2L
SVSF-3T
SVSF-4C

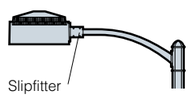
Round

Cat. No.
VSF-1A
VSF-2B
VSF-2L
VSF-3T
VSF-4C

Mounting Configuration
1A - Single arm mount
2B - 2 at 180°
2L - 2 at 90°
3T - 3 at 90°
4C - 4 at 90°

Allows standard fixture and arm to be mounted to poles having a 2″ pipe-size tenon (2⅜″ O.D. x 4½″ min. length).

10 Optional Horizontal Slipfitter Mount:



Slipfitter

Cat. No.: **HSF**

Replaces standard mounting arm with a slipfitter for mounting to a horizontal arm with 2″ pipe-size mounting end (2⅜″ O.D.).

11 Optional Fusing:

Line Volts:	120V	208V	240V	277V	347V	480V
Cat. No.:	**SF**	**DF**	**DF**	**SF**	**SF**	**DF**

12 Poles:

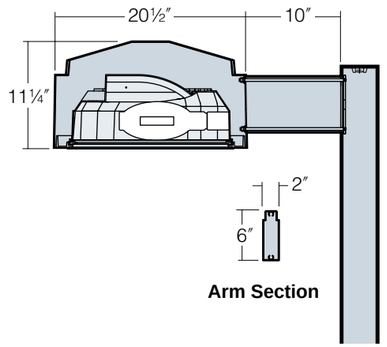
See Kim Pole Catalog for a complete selection of poles in aluminum or steel.

Matrix™ Arm Mount Models

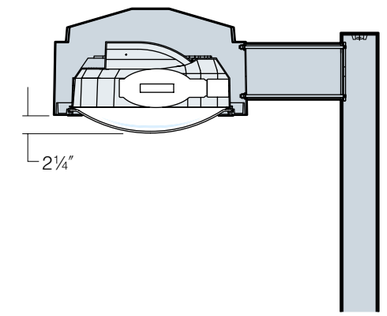
See pages 10-11 for complete ordering information

Dimensions

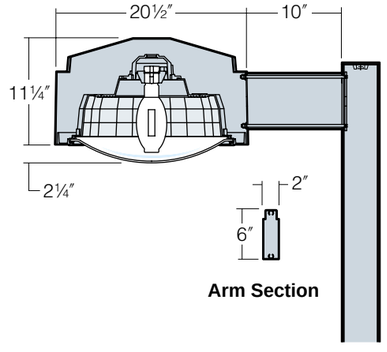
Horizontal Lamp
Flat Lens



Horizontal Lamp
with optional
Convex Lens



Vertical Lamp
Convex Lens



Housing: One piece die-cast aluminum with stepped top edge and integral cooling fins to increase surface area for inductive component cooling. All hardware is stainless steel. A stainless steel self-locking stop-arm is provided to hold the lens frame in the open position while servicing.

Lens Frame Assembly: One piece die-cast aluminum with 1″ minimum thickness around the gasket flange for rigidity. Stainless steel hinges provided for attachment to the housing. Two stainless steel thumb latches are recessed into the side corners, concealed from normal view. The 3⁄16″ thick clear flat or convex tempered glass lens seals against the reflector flange by a one piece extruded silicone gasket with the ends fused to produce a continuous loop, to eliminate gaps that allow the intrusion of foreign objects into the optical system.

Standard Arm Mounting: Arm is one piece extruded aluminum with internal bolt guides. The luminaire to pole attachment is by draw-bolts, including a pole reinforcing plate with wire strain relief. Arm will be circular cut to mate with specified round pole.

Reflector Module: Specular Alzak® optical segments are rigidly mounted within a die-cast aluminum enclosure that attaches to the housing as a one piece module. Reflectors are field rotatable in 90° increments. All sockets are factory prewired with a quick-disconnect plug for the ballast module. Wire penetrations to the socket are sealed by a silicone gasket to create a totally sealed optical chamber. The optical segments are positioned so that reflected light does not pass through the lamp arc tube. The horizontal metal halide lamp reflectors are equipped with pin-oriented mogul base socket with a molded silicone lamp stabilizer. All vertical reflectors and all HPS and PMH horizontal reflectors are equipped with a mogul base socket rated 4KV. All optical systems are interchangeable within the housing.

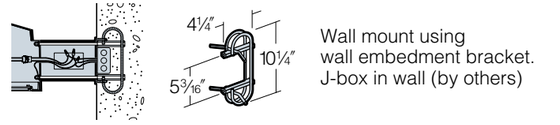
Electrical Module: All electrical components are UL and CSA recognized, mounted on a single plate and factory prewired with quick-disconnect plugs for attachment to the incoming wires and the socket wires. The module attaches inside the housing using keyhole slots. All ballasts are high power factor with starting temperatures of -40°F. for HPS and -20°F. for MH lamp modes. Fixtures must be grounded in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

Finish: Super TGIC thermoset polyester powder coat paint, 2.5 mil nominal thickness, applied over a Titanated Zirconium conversion coating; A.S.T.M. 2500 hour salt spray test endurance rating. Standard colors are Black, Dark Bronze, Light Gray, Platinum Silver, or White. Custom colors are available and subject to additional charges, minimum quantities and longer lead times. Consult representative.

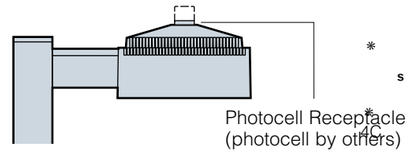
Certification: UL Listed to U.S. and Canadian safety standards for wet locations. Fixture manufacturer shall employ a quality program that is certified to meet the ISO 9001:2000 standard.

CAUTION: Fixtures must be grounded in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

Wall Mounting: Modified support arm with side access to allow field splices within the arm, for poured concrete walls only. An electro-zinc plated steel wall embedment bracket is provided to accept draw-bolts. Trim plate provided to cover Junction Box, finished to match fixture and arm.

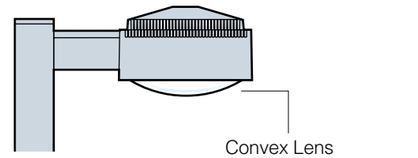


Photocell Receptacle: Factory installed receptacle in the top center of the housing. Fully gasketed, accepts NEMA base photocell (by others). For all multiple fixture pole mountings with two or three fixtures, one fixture has a receptacle to operate the others. Four fixtures at 250 watt or less also require one fixture with a receptacle. Four fixtures at 400 watt require two fixtures with receptacles. See page **11**.



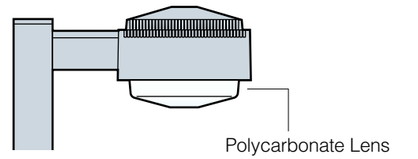
Convex Glass Lens: The 3⁄16″ thick clear convex tempered glass lens replaces the standard flat glass lens in horizontal lamp fixtures. Provides increased lens presence and provides a subtle improvement in uniformity where pole spacing is extreme. Increases effectiveness of houseside shielding.

NOTE: Convex Lens is standard on all Vertical Lamp Optical Systems.

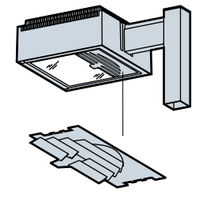


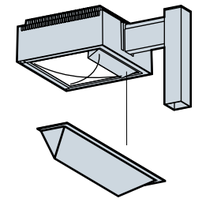
Polycarbonate Lens: One piece vacuum formed, clear, UV stabilized convex polycarbonate, fully gasketed, replacing the standard tempered glass lens. 250 watt maximum. May be used with 400 watt HPS in locations where ambient air temperature during fixture operation will not exceed 85°F.

CAUTION: Use only when vandalism is anticipated to be high. Useful life is limited by UV discoloration from sunlight and metal halide lamps.

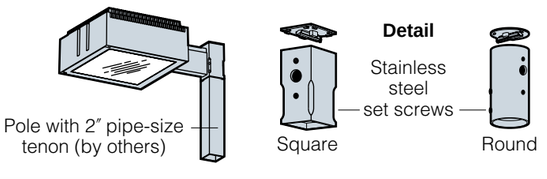


Houseside Shield: (Types II, III, IV, and Asymmetric distributions only). The cutoff horizontal reflectors are available with stamped aluminum louvers that pass streetside light and block houseside light, and a blackened panel added to the reflector to reduce houseside reflections. The vertical reflectors and horizontal reflectors with the optional convex glass lens are available with a formed aluminum shield that passes streetside light and blocks houseside light, and a black anodized panel added to the reflector to reduce houseside reflections.

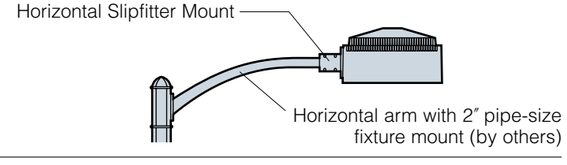




Vertical Slipfitter Mount: Allows the standard fixture and support arm to be mounted to poles having a 2″ pipe-size tenon (2⅜″ O.D. x 4½″ min. length). Any mounting configuration can be used (1A, 2B, 2L, 3T, or 4C). 4″ square or round diameter cast aluminum with flush cap, secured by four ⅜″ stainless steel set point allen screws. Pole tenon must be field drilled at one set screw location to insure against fixture rotation. Finished to match fixture.



Horizontal Slipfitter Mount: Allows the standard fixture to be mounted to any horizontal pole davit-arm with 2″ pipe-size mounting end (2⅜″ O.D.). Cast aluminum clamp-type slipfitter mount with set screw anti-rotation lock. Bolts to housing from inside electrical compartment using mounting holes for standard support arm. Davit-arm must be field drilled at set screw location to insure against fixture rotation. Finished to match fixture and arm.

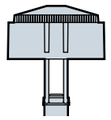


Fusing: High temperature fuse holders factory installed inside the fixture housing. Single fusing (SF) for 120V, 277V, 347V or double fusing (DF) for 208V, 240V, 480V.

Ordering Information

Matrix™ Post Top Mount

MX21P
Post Top Mount
150 to 400 Watt



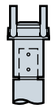
Ordering Example:
For Standard Fixture and Pole

Mounting	Fixture	Electrical Module	Finish	Options	Pole
FM /	**MX21P3** /	**400MH277** /	**LG-P** /	**A-25** /	**PSA30-6250FM** / **LG-P**
1	2	3	4	5-9	10

See separate Kim Pole Catalog.

1 Mounting:

EPA: 1.7



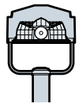
Cat. No.:	**FM** Flush Mount	**PT** Pole Tenon Mount
Pole Top Requirements:	4″, 5″, or 6″ Square	2″ Pipe-size Tenon (2⅜″ O.D. x 4½″ L)

2 Fixture:

Cat. No. designates **MX21P** fixture and light distribution.

See the Kim Site/Roadway Optical Systems Catalog for detailed information on reflector design and application.

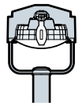
Horizontal Lamp



Flat Lens

Light Distribution:	Type II Full Cutoff	Type III Full Cutoff	Type IV Forward Throw Full Cutoff	Type V Square Full Cutoff
Cat. No.:	**MX21P2**	**MX21P3**	**MX21P4**	**MX21P5**

Vertical Lamp

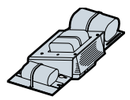


Convex Lens

Light Distribution:	Asymmetric	Symmetric Square
Cat. No.:	**MX21PF3**	**MX21PF5**

3 Electrical Module:

HPS = High Pressure Sodium
MH = Metal Halide
PMH = Pulse Start Metal Halide



Lamp Watts	Lamp Type	Line Volts
400	**HPS**	**277**

150HPS120	**250HPS120**	**400HPS120**
150HPS208	**250HPS208**	**400HPS208**
150HPS240	**250HPS240**	**400HPS240**
150HPS277	**250HPS277**	**400HPS277**
150HPS347	**250HPS347**	**400HPS347**
150HPS480	**250HPS480**	**400HPS480**

175MH120	**250MH120**	**400MH120**	**175PMH120**[1]	**250PMH120**	**400PMH120**
175MH208	**250MH208**	**400MH208**	**175PMH208**[1]	**250PMH208**	**400PMH208**
175MH240	**250MH240**	**400MH240**	**175PMH240**[1]	**250PMH240**	**400PMH240**
175MH277	**250MH277**	**400MH277**	**175PMH277**[1]	**250PMH277**	**400PMH277**
175MH347	**250MH347**	**400MH347**	**175PMH347**[1]	**250PMH347**	**400PMH347**
175MH480	**250MH480**	**400MH480**	**175PMH480**[1]	**250PMH480**	**400PMH480**

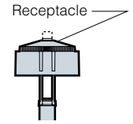
[1]175PMH lamp not for use in horizontal lamp reflectors.

4 Finish:

Super TGIC powder coat paint over Titanated Zirconium conversion coating.

Color:	Black	Dark Bronze	Light Gray	Platinum Silver	White	Custom Colors
Cat. No.:	**BL-P**	**DB-P**	**LG-P**	**PS-P**	**WH-P**	**CC-P** Consult representative for custom colors.

5 Optional Photocell Control:

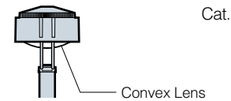


Cat. No.: **A-25**

Factory installed in flat portion of housing top for NEMA base photocells by others. Cat. No. **A-25** applies for all voltages (120V-480V).

6 Optional Convex Glass Lens:

For Horizontal Lamp Optical Systems.

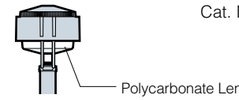


Cat. No.: **CGL**

Tempered convex glass lens replaces standard flat lens. For use with horizontal lamp Type II, III, IV, and V distributions. Changes light distribution from Full Cutoff to Cutoff.

NOTE: Convex lens is standard on all Vertical Lamp Optical Systems.

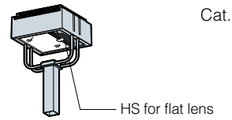
7 Optional Polycarbonate Lens:



Cat. No.: **LS**

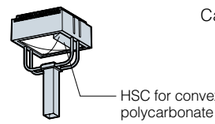
Polycarbonate Lens replaces standard tempered glass lens. 250 watt maximum. May be used with 400HPS in outdoor locations where ambient air temperature during fixture operation will not exceed 85°F. Changes light distribution from Full Cutoff to Cutoff. See "**CAUTION**" on page **17**.

8 Optional Houseside Shield:



Cat. No.: **HS**

Recommended for use with clear lamps only. Effectiveness is reduced for coated lamps. Not for use with Type V (horizontal lamp) or symmetric (vertical lamp) light distributions.



Cat. No.: **HSC**

For use with all fixtures with convex glass lens. Not for use with Type V or symmetric light distributions.

9 Optional Fusing:

Line Volts:	120V	208V	240V	277V	347V	480V
Cat. No.:	**SF**	**DF**	**DF**	**SF**	**SF**	**DF**

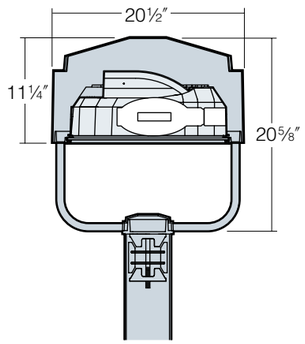
10 Poles:

See Kim Pole Catalog for a complete selection of poles in aluminum or steel.

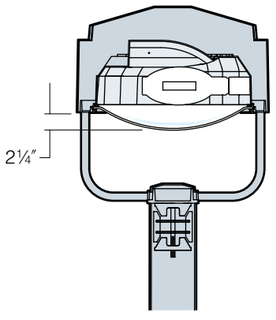
Matrix™ Post Top Mount Models

Dimensions

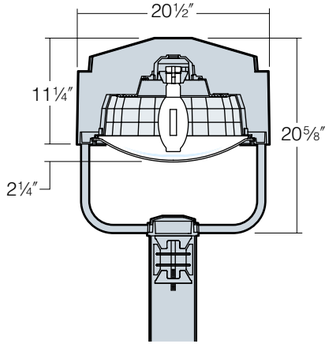
Horizontal Lamp
Flat Lens



Horizontal Lamp
with optional
Convex Lens



Vertical Lamp
Convex Lens



Housing: One piece die-cast aluminum with stepped top edge and integral cooling fins to increase surface area for inductive component cooling. All hardware is stainless steel. A stainless steel self-locking stop-arm is provided to hold the housing in the open position while servicing.

Lens Frame and Yoke: One piece die-cast aluminum with 1″ minimum thickness around the gasket flange for rigidity. Stainless steel hinges provided for attachment to the housing. Two stainless steel thumb latches are recessed into the side corners, concealed from normal view. The 3⁄16″ thick clear flat or convex tempered glass lens seals against the reflector flange by a one piece extruded silicone gasket with the ends fused to produce a continuous loop, to eliminate gaps that allow the intrusion of foreign objects into the optical system. Lens frame is supported at four points by two aluminum U-shaped tubular arms cradled in a cast aluminum hub. Arms are welded to the lens frame, and welded to the hub along their longitudinal axis. Hub contains a field-splice compartment, a cast aluminum cover and one of the following pole attachment means: **FM** - Flush Mounting or **PT** - Pole Tenon Mounting (See page **17** for complete descriptions).

Reflector Module: Specular Alzak® optical segments are rigidly mounted within a die-cast aluminum enclosure which attaches to the housing as a one piece module. Reflectors are field rotatable in 90° increments. All sockets are factory prewired with a quick-disconnect plug for the ballast module. Wire penetrations to the socket are sealed by a silicone gasket to create a totally sealed optical chamber. The optical segments are positioned so that reflected light does not pass through the lamp arc tube. The horizontal metal halide lamp reflectors are equipped with pin-oriented mogul base socket with a molded silicone lamp stabilizer. All vertical reflectors and all HPS and PMH horizontal reflectors are equipped with a mogul base socket rated 4KV. All optical systems are interchangeable within the housing.

Electrical Module: All electrical components are UL and CSA recognized, mounted on a single plate and factory prewired with quick-disconnect plugs for attachment to the incoming wires and the socket wires. The module attaches inside the housing using keyhole slots. All ballasts are high power factor with starting temperatures of -40°F. for HPS and -20°F. for MH lamp modes. Fixtures must be grounded in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

Finish: Super TGIC thermoset polyester powder coat paint, 2.5 mil nominal thickness, applied over a Titanated Zirconium conversion coating; A.S.T.M. 2500 hour salt spray test endurance rating. Standard colors are Black, Dark Bronze, Light Gray, Platinum Silver, or White. Custom colors are available and subject to additional charges, minimum quantities and longer lead times. Consult representative.

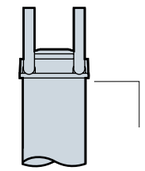
Certification: UL Listed to U.S. and Canadian safety standards for wet locations. Fixture manufacturer shall employ a quality program that is certified to meet the ISO 9001:2000 standard.

CAUTION: Fixtures must be grounded in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury.

See pages 14-15 for complete ordering information

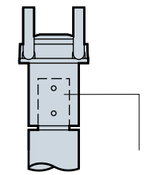
Pole Mounting

FM - Flush Mounting by means of an expansion device activated by a single bolt within the splice compartment. Pole must have a plain-cut top.



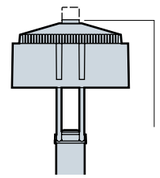
Plain-cut pole top
4″, 5″, or 6″ Square Pole

PT - Pole Tenon Mounting by means of a cast aluminum extension sleeve containing four recessed 3⁄8″ stainless steel allen head set point screws. Pole must have a 2″ pipe-size tenon (2 3⁄8″ O.D. x 4½″ minimum length). Pole tenon must be field drilled at one set screw location to secure against fixture rotation.



2″ tenon pole top

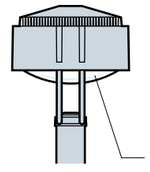
Photocell Receptacle: Factory installed receptacle in the top center of the housing. Fully gasketed, accepts NEMA base photocell (by others). See page **15**.



Photocell Receptacle
(photocell by others)

Convex Glass Lens: The 3⁄16″ thick clear convex tempered glass lens replaces the standard flat glass lens in horizontal lamp fixtures. Provides increased lens presence and provides a subtle improvement in uniformity where pole spacing is extreme. Increases effectiveness of houseside shielding.

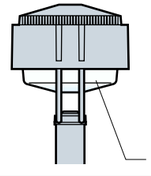
NOTE: Convex Lens is standard on all Vertical Lamp Optical Systems.



Convex Glass Lens

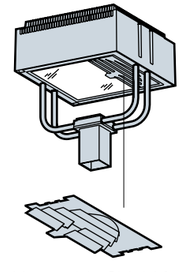
Polycarbonate Lens: One piece vacuum formed, clear, UV stabilized convex polycarbonate, fully gasketed, replacing the standard tempered glass lens. 250 watt maximum. May be used with 400 watt HPS in locations where ambient air temperature during fixture operation will not exceed 85°F.

CAUTION: Use only when vandalism is anticipated to be high. Useful life is limited by UV discoloration from sunlight and metal halide lamps.

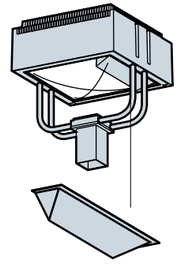


Polycarbonate Lens

Houseside Shield: (Types II, III, IV, and Asymmetric distributions only). The cutoff horizontal reflectors are available with stamped aluminum louvers that pass streetside light and block houseside light, and a blackened panel added to the reflector to reduce houseside reflections. The vertical reflectors and horizontal reflectors with the optional convex glass lens are available with a formed aluminum shield that passes streetside light, and blocks houseside light, and a black anodized panel added to the reflector to reduce houseside reflections.



Houseside Shield for
flat lens



Houseside Shield for
convex lens or
polycarbonate lens

Fusing: High temperature fuse holders factory installed inside the fixture housing. Single fusing (SF) for 120V, 277V, 347V or double fusing (DF) for 208V, 240V, 480V.

Lamp	Lamp Watts	ANSI Ballast Type	Life (Hours)	Initial Lumens[1]	Voltage	Operating Amps.	Open Circuit	Starting Amps.	Max. Amps.
HIGH PRESSURE SODIUM									
150HPS E-23½ Clear Mogul Base	150	S-55	24000	16000	120	1.65	2.80	2.00	2.80
					208	0.95	1.60	1.15	1.60
					240	0.83	1.40	1.00	1.40
					277	0.72	1.25	0.85	1.25
					347	0.56	0.92	0.52	0.92
					480	0.42	0.70	0.50	0.70
250HPS E-18 Clear Mogul Base	250	S-50	24000	29000	120	2.50	1.70	1.65	2.50
					208	1.50	1.00	0.95	1.50
					240	1.30	0.85	0.80	1.30
					277	1.10	0.75	0.70	1.10
					347	0.93	0.70	0.60	0.93
					480	0.63	0.45	0.40	0.63
400HPS E-18 Clear Mogul Base	400	S-51	24000	51000	120	3.80	2.00	3.30	3.80
					208	2.20	1.20	1.80	2.20
					240	1.90	0.95	1.50	1.90
					277	1.70	0.85	1.40	1.70
					347	1.32	0.70	1.00	1.32
					480	0.97	0.55	0.75	0.97
METAL HALIDE									
175MH BT-28 or ED-28 Clear Mogul Base	175	M-57	10000V 10000H	16000V 15000H	120	1.80	1.80	1.30	1.80
					208	1.04	1.04	0.75	1.04
					240	0.90	0.90	0.65	0.90
					277	0.80	0.80	0.55	0.80
					347	0.65	0.65	0.50	0.65
					480	0.45	0.45	0.35	0.45
250MH BT-28 or ED-28 Clear Mogul Base	250	M-58	10000V 10000H	23000V 23000H	120	2.60	2.60	1.00	2.60
					208	1.50	1.50	0.60	1.50
					240	1.30	1.30	0.50	1.30
					277	1.10	1.10	0.45	1.10
					347	0.90	0.75	0.80	0.90
					480	0.65	0.65	0.30	0.65
400MH ED-28 Clear Mogul Base	400	M-59	20000V 20000H	40000V 40000H	120	4.00	3.00	3.50	4.00
					208	2.30	1.75	2.00	2.30
					240	2.00	1.50	1.75	2.00
					277	1.75	1.30	1.50	1.75
					347	1.40	1.05	1.20	1.40
					480	1.00	0.75	0.90	1.00
PULSE START METAL HALIDE[3]									
175PMH[2] ED-28 Clear Mogul Base	175	M-137	15000	17500	120	1.80	1.80	0.95	1.80
					208	1.05	1.05	0.55	1.05
					240	0.90	0.90	0.45	0.90
					277	0.80	0.80	0.40	0.80
					347	0.65	0.65	0.30	0.65
					480	0.45	0.44	0.26	0.45
250PMH ED-28 Clear Mogul Base	250	M-138	15000V 11250H	26300V 23600H	120	2.50	1.40	1.90	2.50
					208	1.45	0.80	1.10	1.45
					240	1.25	0.70	0.96	1.25
					277	1.10	0.65	0.85	1.10
					347	0.90	0.50	0.62	0.90
					480	0.57	0.48	0.21	0.57
400PMH ED-28 Clear Mogul Base	400	M-135	20000V 15000H	44000V 40000H	120	4.00	3.00	3.50	4.00
					208	2.30	1.15	2.00	2.30
					240	2.00	1.00	1.75	2.00
					277	1.75	0.85	1.50	1.75
					347	1.40	0.70	1.20	1.40
					480	1.00	0.55	0.90	1.00

[1] All initial lumen values shown are approximate and may vary from one manufacturer to another. Consult lamp manufacturer's data for exact lumen and life data.

[2] 175W pulse rated lamps are for use in vertical lamp luminaires only.

[3] Data provided is extracted from Venture Uni-Form product information.

NOTE: For lamp/ballast information outside of the U.S.A. and Canada, please consult your local Kim representative.

WARNING: All fixtures must be grounded in accordance with local codes or the National Electrical Code. Failure to do so may result in serious personal injury. Lamps by others.

Application Engineering Services

Applications Assistance

Kim Lighting utilizes the latest computer technology and software to provide specifiers with reliable evaluations of lighting system performance.

Kim can analyze a proposed luminaire layout or provide recommendations based on performance criteria.

Hard copies of plans can be sent directly to the Kim Applications Department via fax, express or regular mail. Any .dwg or .dxf file can be transmitted via modem or email **(kim.apps@kimlighting.com)**, or placed on diskette, CD ROM or Zip disk, and forwarded to Kim Lighting c/o Kim Apps.

Photometric Files

Kim photometric files are available free in both electronic and hard copy format.

Electronic photometric files include .pdf file format pages for printing and .ies files for use in lighting calculation software. The complete .ies / .pdf library is available on CD ROM and on the internet at **www.kimlighting.com**.