DESCRIPTION

Recessed 3.5" aperture directional luminaire with angle cut shielding reflector utilizing a low voltage MR16 tungsten-halogen lamp. Suitable for 2x10 residential or commercial constructions, airtight and can be used in direct contact with insulation. Housing platform + optical element support various lamp beams providing desired optical distribution with excellent light control and low aperture brightness. Interchangeable optical elements provide design flexibility; luminaire can be changed from downlight, to accent to wall wash.

Catalog #		Type
Project		
Comments		Date
Prepared By		

SPECIFICATION FEATURES

Frame
Galvanized steel plaster frame with integral bar hanger receivers. Setscrews provide positive horizontal locking. Integral gun sights facilitate the use of guide strings or laser lines for accurate positioning. Shipped with an overspray protector installed.

Housing
Double wall housing provides for effective thermal management. Internal housing is painted matte black for a visually dark interior.

Bar Hangers
Bar hangers adjust from 8-1/2" to 24" wide; pass thru feature allows shortening without removal. Captive nail penetrates standard and engineered lumber. Mounting flange levels platform with ceiling. Integral clip attached directly to tee-bar.

Gaskets
Closed cell gaskets achieve restrictive airflow requirements without additional caulking.

Adjustment Mechanism
Hot aiming rotates 365°, tilts 45° and locks in position. Angle markings assist in repeatable settings. Translating center beam optics aligns axis of primary reflector with aperture from nadir to 45°. Shipped set at nadir. Removable thru aperture for service.

Lamp Capsule
Retained in the adjustment mechanism with spring loaded ball catches, aim and focus is not disturbed during lamp replacement. Ceramic GX5.3 lamp holder mounts a die cast aluminum heat sink to dissipate heat and provide maximum lamp life. Connects to the transformer with electrical quick connect. Accepts 2 lenses, filters, or an optional lamp snoot.

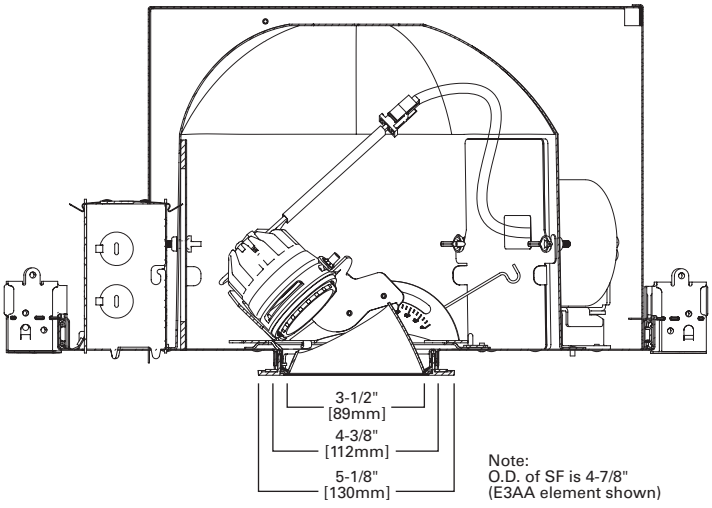
Lower Reflector
Spun 0.04" thick aluminum angle cut parabolic contour provides 50° room side cutoff and is available in a wide range of specular and semi-specular Alzak finishes. Available with self-flange or metal trim ring. Light trap eliminates spill light at edge of trim ring and reflector. Metal trim ring can be removed for painting and can be installed flush mount with optional flush mount collar accessory. Keyed to adjustment mechanism preventing directional trims being installed incorrectly.

Trim Retention
Retained with two torsion springs holding the flange tightly to the finished ceiling surface and accommodates ceiling thickness from 1/2" - 1" thick. Optional PLE3 plaster lip extender accommodates up to 2" thick ceilings.

Junction Box
(6) 1/2" trade size pry outs positioned to allow straight conduit runs. 18 in3 internal volume supports up to (10) #12 or (14) #14 AWG 90° C conductors for pass thru or switch legs.

Transformer
Integral magnetic step down transformer, 120V 50/60Hz input, 12V, 50VA nominal output is greater than 90% efficient. Toroidal wound core is epoxy encapsulated providing extremely low noise and reliable operation.

Compliance
Type IC thermally protected, suitable for direct contact with insulation and cULus listed for damp locations. Restrictive airflow per ASTM-E283. Contains no mercury or lead and RoHS compliant.



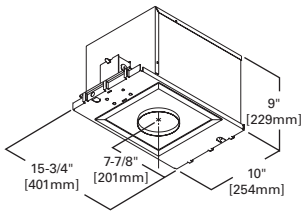
Note:
O.D. of SF is 4-7/8"
(E3AA element shown)

P3MR
E3AA
E3AA20

Directional Angle Cut & Shallow Angle Cut

3.5" Aperture

50W MR16 Tungsten-Halogen



Ceiling Cutout
4-3/8" [112mm]

Energy Data		
Lamp Wattage	Input Watts	Input Current
20	23	0.19
35	41	0.34
37	42	0.35
42	47	0.39
50	57	0.48

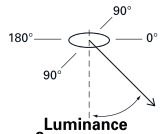
WORKS WITH SORAA®

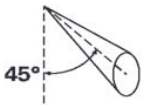
To learn more visit:
www.soraa.com/wws/fixtures
for recommended lamp ratings.

ORDERING INFORMATION

Housing	Optical Element	Finishes	Options	Accessories
P3MR=3.5" aperture IC, AT low voltage 50W MR16 housing platform w/integral 120V transformer **P3MRDR20**=3.5" aperture IC, AT low voltage 20W MR16 housing platform w/integral 120V transformer **P3MRDR35**=3.5" aperture IC, AT low voltage 35W MR16 housing platform w/integral 120V transformer **P3MRDR37**=3.5" aperture IC, AT low voltage 37W MR16 housing platform w/integral 120V transformer **P3MRREMOTE**=3.5" aperture IC, AT low voltage MR16 housing platform for remote transformer	**E3AA**=3.5" aperture open angle cut reflector **E3AA20**=3.5" aperture shallow open angle cut reflector	**Alzak Finishes** **C**=Specular Clear **H**=Semi-Specular Clear **G**=Gold **WMH**=Warm Haze **WH**=Wheat **WHH**=Wheat Haze **GP**=Graphite **GPH**=Graphite Haze **K**=Cognac **KH**=Cognac Haze **CC**=Chocolate **CCH**=Chocolate Haze **B**=Black **Painted Finishes** **MW**=Matte white **W**=Gloss white **BB**=Black Baffle **WB**=White Baffle	**(Blank)**=Metal trim ring, matte white **SF**=Self-flanged (not available with BB or WB) **SFWF**=Self-flanged, matte white flange (not available with BB or WB)	**FMC3**=Flush mount collar accessory **PLE3**=Plaster lip extender for up to 2" thick ceilings **LSA16**=Matte black lamp snoot accessory, for use with die cast lamp capsule **LHEX**=2-inch diameter matte black hex cell louver provides 45° cutoff **LLNR**=Skytek linear spread lens **LSF**=Solite lens **LSPD**=Crystal #73 prismatic spread lens **LUV**=Ultraviolet reducing lens **L27K**=2,700°K dichroic filter **LLPINK**=Light Pink **LLSTRAW**=Light Straw **LDAY**=Daylight Filter **LPLAV**=Pale Lavender **LSPINK**=Surprise Pink

PHOTOMETRICS





Lamp	Luminance cd/m² @ Maximum Tilt			0° Aiming Angle Horizontal Footcandles				30° Aiming Angle Horizontal Footcandles					30° Aiming Angle Vertical Footcandles					45° Aiming Angle Vertical Footcandles				
GE Q20 MR16C/VNSP/7 Lumens: 200 Beam Spread: 7° CBCP: 7,400	**Degree**	**@ 180°**	**@ 90°**	**D**	**FC**	**L**	**W**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**
	85°	0	0	6'	145	0.7	0.6	6'	81	1.1	0.8	3.5	2'	174	0.8	0.5	3.5	2'	521	0.4	0.3	2
	75°	0	0	8'	81	1	0.8	8'	46	1.5	1	4.6	3'	77	1.2	0.8	5.2	3'	231	0.6	0.5	3
	65°	0	0	10'	52	1.2	1	10'	29	1.9	1.3	5.8	4'	43	1.7	1	6.9	4'	130	0.8	0.7	4
	55°	0	0	12'6"	33	1.5	1.3	12'6"	19	2.3	1.6	7.2	5'	28	2.1	1.3	8.7	5'	83	0.9	0.8	5
	45°	922	922	Test # H21231				Test # H21235					Test # H21235					Test # H21238				
	Test # H21238																					
OS Q37 MR16/IR/SP10 Lumens: 900 Beam Spread: 10° CBCP: 13,100	**Degree**	**@ 180°**	**@ 90°**	**D**	**FC**	**L**	**W**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**
	85°	0	0	6'	321	0.9	1.2	6'	181	1.5	1.1	3.5	2'	355	1.3	0.7	3.5	2'	986	0.6	0.5	2
	75°	0	0	8'	180	1.3	1.6	8'	102	1.9	1.5	4.6	3'	158	1.9	1	5.2	3'	438	1	0.7	3
	65°	0	0	10'	115	1.6	2	10'	65	2.4	1.9	5.8	4'	89	2.5	1.3	6.9	4'	247	1.3	1	4
	55°	284	284	12'6"	74	2	2.5	12'6"	42	3	2.3	7.2	5'	57	3.1	1.7	8.7	5'	158	1.6	1.2	5
	45°	3225	2304	Test # H21252				Test # H21251					Test # H21251					Test # H21250				
	Test # H21250																					
GE Q42MR16C/VNSP/9 Lumens: 575 Beam Spread: 9° CBCP: 12,500	**Degree**	**@ 180°**	**@ 90°**	**D**	**FC**	**L**	**W**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**
	85°	0	0	6'	263	0.7	1.2	6'	144	1.1	1.2	0	2'	287	1	0.7	3.5	2'	806	0.5	0.5	2
	75°	0	0	8'	148	1	1.6	8'	81	1.5	1.6	0	3'	128	1.5	1	5.2	3'	358	0.8	0.8	3
	65°	0	0	10'	95	1.2	2	10'	52	1.9	2	0	4'	72	2	1.4	6.9	4'	201	1	1.1	4
	55°	0	284	12'6"	61	1.5	2.5	12'6"	33	2.4	2.5	0	5'	46	2.4	1.7	8.7	5'	129	1.3	1.3	5
	45°	922	1382	Test # H21215				Test # H21214					Test # H21214					Test # H21213				
	Test # H21213																					
PH Q45 MRC16/IRC/SP8 Lumens: 1030 Beam Spread: 8° CBCP: 16,000	**Degree**	**@ 180°**	**@ 90°**	**D**	**FC**	**L**	**W**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**
	85°	0	0	6'	343	1	1.2	6'	152	1.5	1.6	3.5	2'	299	1.3	0.9	3.5	2'	859	0.7	0.6	2
	75°	0	0	8'	193	1.3	1.6	8'	86	2	2.2	4.6	3'	133	2	1.3	5.2	3'	382	1	0.9	3
	65°	0	0	10'	124	1.6	2	10'	55	2.6	2.7	5.8	4'	75	2.6	1.8	6.9	4'	215	1.3	1.2	4
	55°	1136	284	12'6"	79	2	2.5	12'6"	35	3.2	3.4	7.2	5'	48	3.3	2.2	8.7	5'	137	1.7	1.5	5
	45°	3456	2304	Test # H21222				Test # H21129					Test # H21129					Test # H21230				
	Test # H21230																					
GE Q50 MR16C/NSP15 Lumens: 750 Beam Spread: 15° CBCP: 12,500	**Degree**	**@ 180°**	**@ 90°**	**D**	**FC**	**L**	**W**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**
	85°	0	1869	6'	220	1.5	1.8	6'	143	1.7	1.7	3.5	2'	252	1.5	1	3.5	2'	690	0.8	0.7	2
	75°	629	629	8'	124	2	2.4	8'	80	2.2	2.3	4.6	3'	112	2.3	1.5	5.2	3'	306	1.2	1.1	3
	65°	385	385	10'	79	2.5	3	10'	51	2.8	2.9	5.8	4'	63	3	2	6.9	4'	172	1.6	1.5	4
	55°	568	284	12'6"	51	3.1	3.8	12'6"	33	3.5	3.6	7.2	5'	40	3.8	2.5	8.7	5'	110	2	1.8	5
	45°	3686	1382	Test # H21241				Test # H21245					Test # H21245					Test # H21246				
	Test # H21246																					
GE Q50 MR16C/NFL25 Lumens: 884 Beam Spread: 25° CBCP: 9,500	**Degree**	**@ 180°**	**@ 90°**	**D**	**FC**	**L**	**W**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**
	85°	0	1847	6'	86	2.4	3	6'	50	3	3.2	3.5	2'	115	2.2	1.7	3.5	2'	269	1.3	1.3	2
	75°	0	622	8'	48	3.1	4	8'	28	4	4.3	4.6	3'	51	3.3	2.5	5.2	3'	119	1.9	1.9	3
	65°	0	381	10'	31	3.9	5	10'	18	5	5.4	5.8	4'	29	4.5	3.4	6.9	4'	67	2.6	2.5	4
	55°	281	281	12'6"	20	4.9	6.3	12'6"	12	6.2	6.7	7.2	5'	18	5.6	4.2	8.7	5'	43	3.2	3.2	5
	45°	7059	1366	Test # H21182				Test # H21194					Test # H21194					Test # H21195				
	Test # H21195																					
GE Q50 MR16/C/FL40 Lumens: 800 Beam Spread: 40° CBCP: 1,700	**Degree**	**@ 180°**	**@ 90°**	**D**	**FC**	**L**	**W**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**	**D**	**FC**	**L**	**W**	**CB**
	85°	0	1847	6'	57	2.9	4.2	6'	29	4.3	4.1	3.5	2'	102	1.8	1.7	3.5	2'	169	1.5	1.6	2
	75°	622	622	8'	32	3.9	4.9	8'	16	5.7	5.5	4.6	3'	45	2.7	2.5	5.2	3'	75	2.3	2.4	3
	65°	381	381	10'	21	4.9	7	10'	11	7.1	6.9	5.8	4'	26	3.6	3.3	6.9	4'	42	3	3.2	4
	55°	842	281	12'6"	13	6.1	8.8	12'6"	7	8.9	8.6	7.2	5'	16	4.5	4.2	8.7	5'	27	3.8	3.9	5
	45°	14345	1822	Test # H21249				Test # H21199					Test # H21199					Test # H21198				
	Test # H21198																					

Notes and Definitions:

Luminance: To convert cd/m^2 to footlamberts, multiply by 0.2919

• Beam spread is to 50% center beam candlepower (CBCP.)

• Data shown is based on bare lamp photometrics.

D=Distance to floor or wall.
FC=Footcandles on floor or wall at center beam aiming location.

L =Effective Visual Beam length in feet (50% of maximum footcandle level.)
W=Effective Visual Beam width in feet (50% of maximum footcandle level.)
CB=Distance across or down to center beam location.

The "real world photometrics" shown here are from off the shelf lamps in fixtures using a clear lens and operated at 12.0 volts. Please see page 64 & 65 of the IRiS catalog for a further discussion and appropriate correction mutipliers.