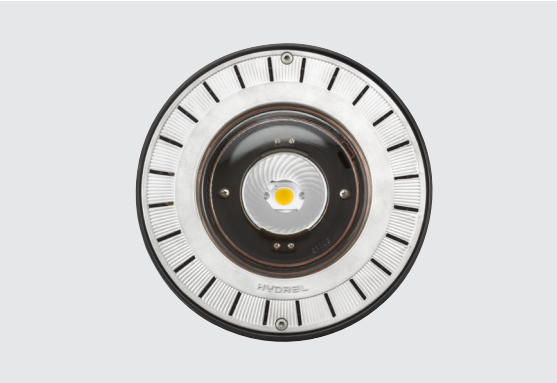
HYDREL

CATALOG NUMBER

NOTES

TYPE



Specifications

Weight: 17lbs. Consists of LED module and LED driver

M9400C LED RETROFIT

Modular Retrofit Kits

HIGHLIGHTS

- LED retro fit kit for use with Hydrel's M9400, 9000, 9330 and 9335 series
- LED retro fit consists of the MACSC LED module and MHSLC94 driver module
- Factory-sealed LED lamp module and encapsulated power module
- Optical and mechanical aiming with an optional double lens
- Optimal efficiency through photometric improvements
- Color temperature: 27K - 50K
- In-line & 0-10V Dimming
- Seven distributions including very narrow spot & wall wash
- Flow-through technology

5 YEAR warranty

LED

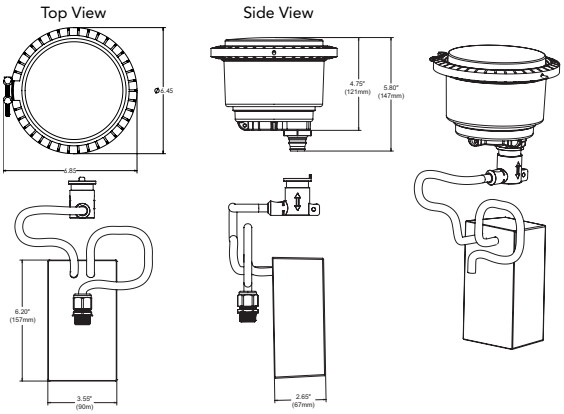
IP68

WET LOCATION™

BAA

BABA

DIMENSIONS

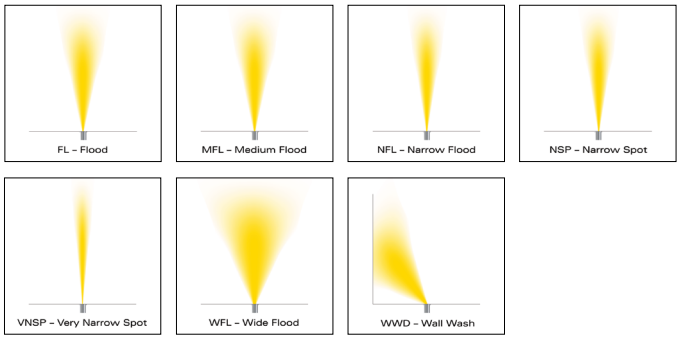


LUMEN PACKAGES

	VNSP	NSP	NFL	MFL	FL	WFL	WWD
Delivered Lumens	2,425	2,527	2,426	2,154	2,254	1,955	1,550
Watts	20	20	20	20	20	20	20
LPW	119	128	123	109	114	99	78
Peak Candela	22,634	15,940	14,728	3,364	2,097	1,423	1,729

Note: Information based on 4000K @ P2 Performance Package - Single lens (M9410C and M9430C)

STANDARD DISTRIBUTION



ORDERING INFORMATION

EXAMPLE: RFM94 LED P2 30K NSP FLC LDIM

Model*	Performance Package*	LED Color*	Voltage*	Distribution*	Lens*	Accessories	Options
RFM94 LED	**P1** **P2** **P3** **P4** **P5** Note: P5 only used with AMBLW	**27K** 2700K **30K** 3000K **35K** 3500K **40K** 4000K **50K** 5000K **AMBLW** Amber Note: AMBLW is not available with NSP or VNSP distribution	**MVOLT**	**NSP** Narrow Spot **NFL** Narrow Flood **MFL** Medium Flood **FL** Flood **WFL** Wide Flood **WWD**[1] Wall wash **VNSP** Very Narrow Spot	**FLC** Flat Lens Clear **FLC5** Flat Lens Clear, 5° Axial Spread **FLC10** Flat Lens Clear, 10° tilt **FLC20** Flat Lens Clear, 20° tilt **FLF** Flat Lens Frosted **FLCAS** Flat Lens Clear, Anti-Slip **FLC5AS** Flat Lens Clear, 5° Axial Spread, Anti-Slip **FLCSR**[2] Flat Lens Clear Slip Resistant **FLC5SR**[2] Flat Lens Clear, 5° Axial Spread, Slip Resistant **FLC10SR**[2] Flat Lens Clear, 10° tilt, Slip Resistant **FLC20SR**[2] Flat Lens Clear, 20° tilt, Slip Resistant **CLC** Convex Lens, Clear **CLF** Convex Lens, Frosted *Note: Use CLC or CLF for 9330 and 9335 series.*	**Internal**[3,4] **IHL** Internal Honeycomb Louver **LSF** Linear Spread Filter	**LDIM** 0-10V Dimming (Dims to 1%) **IDIM** Inline Dimming (Dims to Dark) **RK90** Used for existing 9000/9050 series *Note: IDIM option should be run at 120 volt* *Note: RK90 is required if exisitng fixture is the 9000 or 9050*

Note: * is a required field

Notes:
1 Recommended to use the FLF or FLCSR lens with WWD. WWD distribution is not available with double lens.
2 Meets ADA requirements for coefficient of friction.
3 Accessories are mutually exclusive, choose one only.
4 Not available with FLC10, FLC10SR, CLC or CLF lenses.

ELECTRICAL LOAD

			Current (A)			
Light Engines	**Drive Current (mA)**	**System Watts**	120	208	240	277
P1	250mA	10	0.083	0.048	0.042	0.036
P2	500mA	20	0.167	0.096	0.083	0.072
P3	700mA	28	0.233	0.135	0.117	0.101
P4	850mA	31	0.258	0.149	0.129	0.112
P5	1050mA	14	0.117	0.067	0.058	0.051

PROJECTED LED LUMEN MAINTENANCE

Data references the extrapolated performance projections for the **Fixture** platform in a **25°C ambient**, based on 13,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Based on 2700K-5000K LED color

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.00	0.91	0.85	0.75
Lumen Maintenance Factor*	1.00	0.94	0.94	0.93

*For VNSP only

LUMEN AMBIENT TEMPERATURE (LAT) MULTIPLIERS

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Based on 2700K-5000K LED color

Ambient		**Lumen Multiplier**	**Lumen Multiplier***
0°C	32°F	1.05	1.06
10°C	50°F	1.03	1.04
20°C	68°F	1.01	1.01
25°C	77°F	1	1
30°C	86°F	0.99	0.99
40°C	104°F	0.96	0.96

*For VNSP only

SLIP RESISTANCE AND LOAD RATING

M9400C
LENS STATIC COEFFICIENT OF FRICTION
M9400 Anti-Slip Lens (FLCAS): Dry = 0.76; Wet = 0.10
M9400 Slip Resistant Lens (FLCSR): Dry = 0.84; Wet = 0.65

The RFM94 retro fit consists of	MACSC LED module
	MHSLC94 Driver Module

PERFORMANCE DATA

LUMEN OUTPUT — SINGLE LENS (M9410C AND M9430C)

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Contact factory for performance data on any configurations not shown here.

Peformance Package	System Watts	Distribution Type	Field Angle		Beam Angle		27K (2700K, 80CRI)			30K (3000K, 80CRI)			35K (3500K, 80CRI)			40K (4000K, 80CRI)			50K (5000K, 80CRI)			AMBLW		
			°H	°V	°H	°V	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW
P1	10 watts	VNSP	27	28	12	12	11,378	1,219	121	11,774	1,262	125	12,125	1,299	129	12,389	1,328	131	12,433	1,332	132			
		NSP	40	38	15	15	7,685	1,218	123	7,959	1,262	128	8,199	1,300	132	8,358	1,325	134	8,391	1,330	135			
		NFL	34	35	15	15	7,101	1,169	118	7,354	1,211	123	7,576	1,248	126	7,722	1,272	129	7,753	1,277	129			
		MFL	61	58	50	44	1,622	1,038	105	1,680	1,075	109	1,730	1,108	112	1,764	1,129	114	1,771	1,134	115			
		FL	77	84	61	72	1,011	1,087	110	1,047	1,125	114	1,079	1,159	117	1,100	1,182	120	1,104	1,187	120			
		WFL	93	85	77	68	686	942	95	711	976	99	732	1,005	102	746	1,025	104	749	1,029	104			
		WWD	84	76	70	46	834	747	76	863	774	78	889	797	81	907	813	82	910	816	83			
P2	20 watts	VNSP	27	28	12	12	20,788	2,228	109	21,511	2,305	113	22,153	2,374	116	22,634	2,425	119	22,715	2,434	119			
		NSP	40	38	15	15	14,657	2,324	117	15,179	2,406	122	15,637	2,479	125	15,940	2,527	128	16,003	2,537	128			
		NFL	34	35	15	15	13,542	2,230	113	14,025	2,310	117	14,448	2,379	120	14,728	2,426	123	14,787	2,435	123			
		MFL	61	58	50	44	3,093	1,981	100	3,203	2,051	104	3,300	2,113	107	3,364	2,154	109	3,377	2,162	109			
		FL	77	84	61	72	1,928	2,073	105	1,997	2,146	109	2,057	2,211	112	2,097	2,254	114	2,106	2,263	114			
		WFL	93	85	77	68	1,309	1,797	91	1,355	1,861	94	1,396	1,917	97	1,423	1,955	99	1,429	1,962	99			
		WWD	84	76	70	46	1,590	1,425	72	1,647	1,476	75	1,696	1,520	77	1,729	1,550	78	1,736	1,556	79			
P3	30 watts	VNSP	27	28	12	12	26,186	2,806	95	27,096	2,904	98	27,905	2,990	101	28,512	3,055	103	28,613	3,066	103			
	27 watts	NSP	40	38	15	15	19,329	3,064	112	20,017	3,173	116	20,622	3,269	119	21,021	3,333	122	21,105	3,346	122			
		NFL	34	35	15	15	17,859	2,941	107	18,495	3,046	111	19,054	3,138	114	19,423	3,199	117	19,500	3,211	117			
		MFL	61	58	50	44	4,079	2,612	95	4,224	2,705	99	4,352	2,787	102	4,436	2,841	104	4,454	2,852	104			
		FL	77	84	61	72	2,543	2,733	100	2,634	2,831	103	2,713	2,916	106	2,766	2,972	108	2,777	2,984	109			
		WFL	93	85	77	68	1,726	2,370	86	1,788	2,455	90	1,842	2,529	92	1,877	2,578	94	1,885	2,588	94			
		WWD	84	76	70	46	2,097	1,879	69	2,171	1,946	71	2,237	2,005	73	2,280	2,044	75	2,289	2,052	75			
P4	33 watts	NSP	40	38	15	15	22,891	3,629	109	23,707	3,758	113	24,423	3,872	117	24,895	3,947	119	24,994	3,963	119			
		NFL	34	35	15	15	21,151	3,483	105	21,904	3,607	109	22,566	3,716	112	23,002	3,788	114	23,094	3,803	114			
		MFL	61	58	50	44	4,831	3,093	93	5,003	3,203	96	5,154	3,300	99	5,254	3,364	101	5,275	3,377	102			
		FL	77	84	61	72	3,012	3,237	97	3,119	3,352	101	3,213	3,454	104	3,275	3,520	106	3,289	3,534	106			
		WFL	93	85	77	68	2,044	2,807	85	2,117	2,907	88	2,181	2,995	90	2,223	3,053	92	2,232	3,065	92			
		WWD	84	76	70	46	2,483	2,226	67	2,572	2,305	69	2,649	2,375	71	2,701	2,421	73	2,711	2,430	73			
P5	14 watts	NFL	5	30	3	3																4,375	355	25
		MFL	74	79	61	63																393	303	21
		FL	96	96	82	81																218	283	20
		WFL	98	95	79	78																187	245	17
		WWD	82	83	55	40																220	197	14

OPERATING TEMPERATURE: --20°C through 50°C P1, P2 & P5; -20°C through 35°C P3; -20°C through 25°C P4.

PERFORMANCE DATA

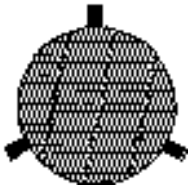
LUMEN OUTPUT — DOUBLE LENS (M94W0C AND M9440C)

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Actual performance may differ as a result of end-user environment and application. Contact factory for performance data on any configurations not shown here.

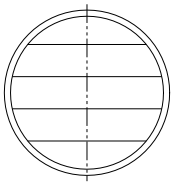
Peformance Package	System Watts	Distribution Type	Field Angle		Beam Angle		27K (2700K, 80CRI)			30K (3000K, 80CRI)			35K (3500K, 80CRI)			40K (4000K, 80CRI)			50K (5000K, 80CRI)			AMBLW		
			°H	°V	°H	°V	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW
P1	10 watts	VNSP	31	31	14	14	9,137	950	94	9,455	983	97	9,737	1,012	100	9,949	1,034	102	9,984	1,038	103			
		NSP	40	39	16	16	6,888	933	94	7,133	966	98	7,349	996	101	7,491	1,015	103	7,521	1,019	103			
		NFL	38	37	16	15	5,558	788	80	5,755	816	83	5,929	840	85	6,044	856	87	6,068	860	87			
		MFL	61	59	49	47	1,358	904	91	1,407	936	95	1,449	965	98	1,477	983	99	1,483	987	100			
		FL	57	72	37	53	920	712	72	953	737	75	982	760	77	1,001	774	78	1,005	777	79			
		WFL	66	66	52	53	726	506	51	752	524	53	775	539	55	790	550	56	793	552	56			
P2	20 watts	VNSP	31	31	14	14	16,694	1,735	85	17,274	1,795	88	17,790	1,849	91	18,176	1,889	92	18,241	1,896	93			
		NSP	40	39	16	16	13,136	1,780	91	13,604	1,843	94	14,015	1,899	97	14,286	1,936	99	14,343	1,943	99			
		NFL	38	37	16	15	10,599	1,502	76	10,977	1,555	79	11,308	1,602	82	11,527	1,633	83	11,573	1,640	83			
		MFL	61	59	49	47	2,590	1,724	88	2,683	1,786	91	2,764	1,840	94	2,817	1,875	95	2,829	1,883	96			
		FL	57	72	37	53	1,755	1,358	69	1,818	1,406	72	1,872	1,449	74	1,909	1,477	75	1,916	1,482	75			
		WFL	66	66	52	53	1,385	964	49	1,435	998	51	1,478	1,029	52	1,506	1,049	53	1,512	1,053	54			
P3	27 watts	NSP	40	39	16	16	17,323	2,347	83	17,941	2,431	86	18,483	2,504	88	18,840	2,553	90	18,915	2,563	90			
		NFL	38	37	16	15	13,978	1,981	70	14,476	2,051	72	14,913	2,113	74	15,202	2,154	76	15,262	2,163	76			
		MFL	61	59	49	47	3,416	2,274	80	3,538	2,355	83	3,645	2,426	85	3,715	2,473	87	3,730	2,483	87			
		FL	57	72	37	53	2,314	1,791	63	2,397	1,854	65	2,469	1,910	67	2,517	1,947	69	2,527	1,955	69			
		WFL	66	66	52	53	1,827	1,271	45	1,892	1,317	46	1,949	1,357	48	1,987	1,383	49	1,995	1,388	49			
P5	14 watts	NFL	5	30	3	3																3,535	227	16
		MFL	72	73	53	54																359	249	18
		FL	69	68	55	56																228	154	11
		WFL	64	68	46	55																173	113	8

OPERATING TEMPERATURE: -20°C through 50°C P1, P2 & P5; -20°C through 40°C P3.

ACCESSORIES



INTERNAL HONEYCOMB LOUVERS — IHL
Hexagonal cell louver with 45° cut-off.

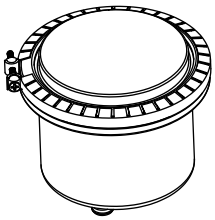


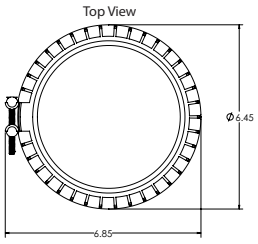
LINEAR SPREAD FILTER — LSF
6.68" diamter, spreads the beam of light along one axis only. May be oriented to spread the light horizontally or vertically.

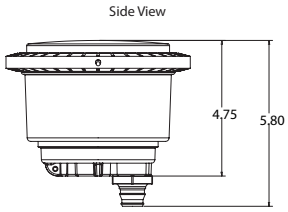
POTTING COMPOUND — PC21
Re-enterable potting compound which pours yellow and cures transparent so connections are easily located. It meets NEC requirements for potting junction boxes and is recommended as part of the installation in areas with high water tables, poor drainage or are prone to flooding to protect the junction box from water intrustion. Sold separately.

DIMENSIONS

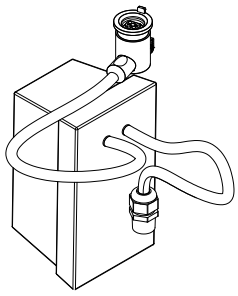
MACSC LED Array Module

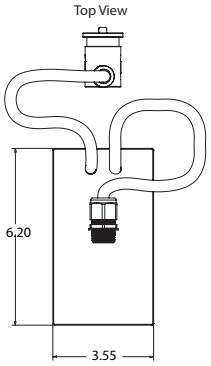


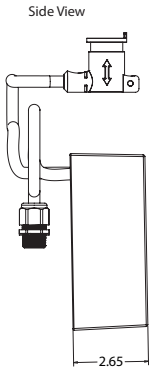




MHSLC94 Driver Module







CROSS-OVER GUIDE

LED MODULE

EXAMPLE:
Old Nomenclature - MACS 100Q MFL FLC LP
New Nomenclature - MACSC LED 40K MFL FLC

Model	
Old	New
ACS	MACSC
MACS	

Color Temperature	
Old	New
Incandescent	30K
Metal Halide T4, T6, PAR20	30K
Metal Halide E17 or PAR30	40K
Fluorescent	27K-35K

Distribution	
Old	New
NSP	NSP
SP	
NFL	NFL
MFL	MFL
FL	FL
WFL	WFL
WWD	WWD

Lens	
Old	New
FLC	FLC
FLC5	FLC5
FLC10	FLC10
FLC20	FLC20
FLCAS	FLCAS
FLCSR	FLCSR

POWER MODULE

EXAMPLE:
Old Nomenclature - MHSL94 100Q 120
New Nomenclature - MHSLC94 LED P2 MVOLT

Model	
Old	New
HSL	MHSLC94 LED
MHSLC94	

Performance Package	
Old	New
M20	P1
M35	
M50	
P2038I	P2
P3038I	
100Q	
20CMT4	P3
35CMT4	
35CMT6	
70CMT6	
P2035CM	
P3035CM	
P3070CM	
18TRT	P4
26TRT	
32TRT	

Voltage	
Old	New
120	MVOLT
208	
220	
240	
277	
MVOLT	
347	not available

SPECIFICATIONS AND FEATURES

LED MODULE: Stainless steel housing, factory-sealed and purged of all moisture for longer component life. Lens is sealed with silicone gasket and stainless steel clamp band assembly with single fastener. Electrical connection to lamp module is done through a submersible quick pull plug connector with goldplated contacts.

LED: White LEDs, in 2700K 3000K, 3500K, 4000K and 5000K and AMBLW. All within 3 MAcAdam ellipses

VOLTAGE: MVOLT (120 - 277 volt), 50/60HZ.

POWER MODULE: LED driver is encapsulated in a custom designed heat-dissipating epoxy resin that also eliminates all moisture intrusion. Module is provided with submersible rated cord leads for connection to integral junction box and lamp module.
NOTE: Potting compound (PC21) recommended for junction box splices. PC21 sold separately.

GOVERNMENT PROCUREMENT
BAA – Buy America(n) Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/resources/buy-american for additional information.

LISTING: cCSAus, suitable for wet locations, laboratory tests conducted by CSA to UL Standard UL-1598 and UL-8750

WARRANTY: 5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Consult factory for details.

NOTE: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.