
**Specifications**

Weight: 20lbs, consists of LED module and LED driver

# M9700C LED RETROFIT

## Modular Retrofit Kits

### HIGHLIGHTS

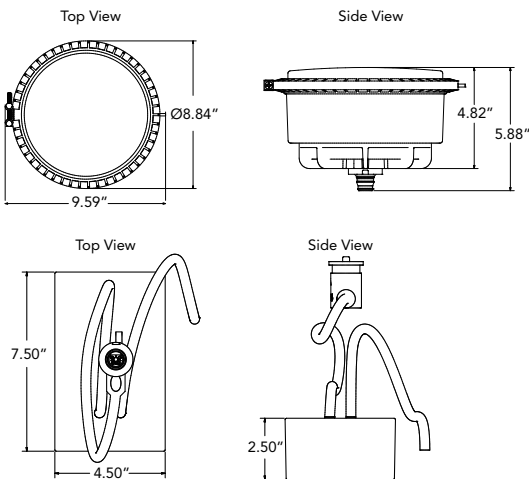
- LED retro fit kit for use with Hydrel's M9700, 9100 and 9350 series
- LED retro fit consists of the MACLC LED module and MHS LC97 driver module
- Factory-sealed LED lamp module and encapsulated power module
- Optical and mechanical aiming with an optional double lens
- Optimal efficiency through photometric improvements
- Color temperature: 27K - 50K
- In-line & 0-10V Dimming
- Flow-through technology

**5**  
YEAR  
warranty


IP68



### DIMENSIONS

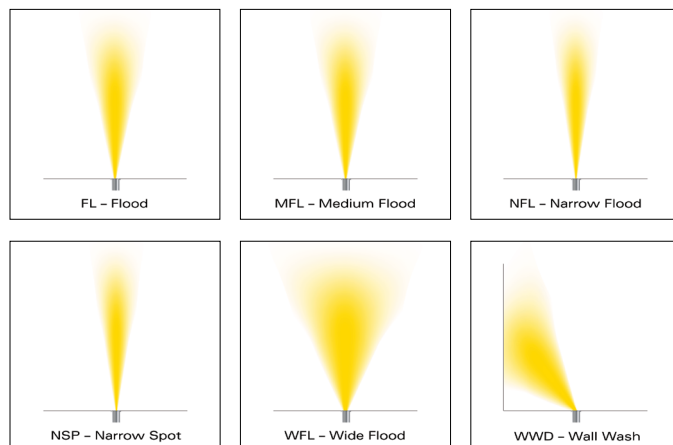


### LUMEN PACKAGES

	NSP	NFL	MFL	FL	WFL	WWD
Delivered Lumens	4,205	3,786	3,537	3,586	3,320	2,871
Watts	35	35	35	35	35	35
LPW	120	110	108	101	95	82
Peak Candela	40,082	10,183	5,440	3,417	2,225	2,649

Note: Information based on 4000K @ P2 Performance Package - Single lens (M9710C and M9730C)

### STANDARD DISTRIBUTION



**ORDERING INFORMATION**

**EXAMPLE:** RFM97 LED P1 30K MVOLT MFL FLC

Model*	Performance Package*	LED Color*	Voltage*	Distribution*	Lens*	Accessories	Dimming
RFM97 LED	P1	27K 2700K	MVOLT	NSP Narrow Spot	FLC Flat Lens Clear	Internal <sup>4</sup>	LDIM 0-10V Dimming (Dims to 10%)
	P2	30K 3000K		NFL Narrow Flood	FLC5 Flat Lens Clear, 5° Axial Spread		
	P3	35K 3500K		MFL Medium Flood	FLC10 Flat Lens Clear, 10° optical tilt	LSF Linear Spread Filter	IDIM <sup>6</sup> Inline Dimming (Dims to 40%)
	P4 <sup>1</sup>	40K 4000K		FL Flood	FLC20 Flat Lens Clear, 20° optical tilt		
		50K 5000K		WFL Wide Flood	FLF Flat Lens Frosted		
				WWD <sup>1,2</sup> Wall Wash	FLCAS Flat Lens Clear, Anti-Slip		
					FLC5AS Flat Lens Clear, 5° Axial Spread, Anti-Slip		
					FLCSR <sup>3</sup> Flat Lens Clear Slip Resistant		
					FLC5SR <sup>3</sup> Flat Lens Clear, 5° Axial Spread, Slip Resistant		
					FLC10SR <sup>3</sup> Flat Lens Clear, 10° optical tilt, Slip Resistant		
					FLC20SR <sup>3</sup> Flat Lens Clear, 20° optical tilt, Slip Resistant		
					CLC Convex Lens, Clear		
					CLF Convex Lens, Frosted		

Note:  
Use CLC or CLF for 9350 series.

Note: \* is a required field

- Notes:
- P4 Performance Package and WWD Distribution are not available with a double lens unit
  - Recommended to use the FLF or FLCSR lenses with WWD
  - Meets ADA requirements for coefficient of friction.
  - Accessories are mutually exclusive, choose one only.
  - Not available with FLC10 or FLC10SR.
  - IDIM forward phase dimming not available with P3. IDIM option should be run at 120 volt.

**ELECTRICAL LOAD**

Light Engines	Drive Current (mA)	System Watts	Current (A)			
			120	208	240	277
P1	250mA	29	0.24	0.14	0.12	0.10
P2	300mA	35	0.29	0.17	0.15	0.13
P3	400mA	46	0.38	0.22	0.19	0.17
P4	450mA	53	0.44	0.25	0.22	0.19

**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	0.94	0.93	0.92

**LUMEN AMBIENT TEMPERATURE (LAT) MULTIPLIERS**

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

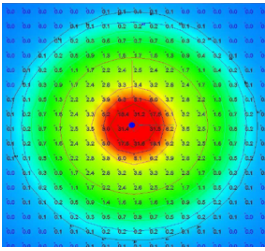
Ambient		Lumen Multiplier
0°C	32°F	1.02
10°C	50°F	1.01
20°C	68°F	1.00
25°C	77°F	1.00
30°C	86°F	1.00
40°C	104°F	0.99

**SLIP RESISTANCE AND LOAD RATING**

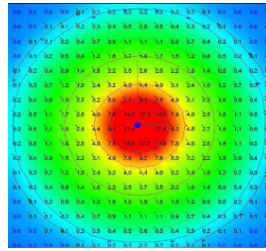
<b>M9700C LED</b>	
<b>MAXIMUM LOAD RATING</b>	
Peak compression force of 3,750 lbs. (single lens), 3,200 lbs. (double lens). 1,590 lbs. 9100 (standard) 3,620 lbs. 9100 with MSR option.	
<b>LENS STATIC COEFFICIENT OF FRICTION</b>	
Anti-Slip Lens (FLCAS): Dry = 0.76; Wet = 0.10	
Slip Resistant Lens (FLCSR): Dry = 0.84; Wet = 0.65	

<b>The RFM97 LED retro fit consists of:</b>	MACLC LED Module MHSLC97 Driver module
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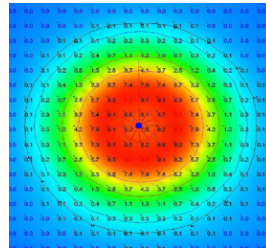
**PERFORMANCE DATA**



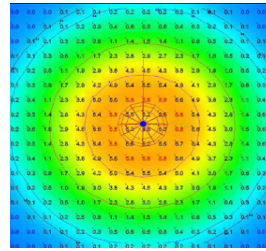
**NSP 2x2**



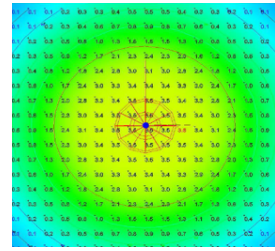
**NFL 3x3**



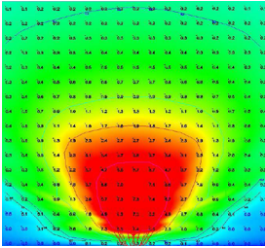
**MFL 4x4**



**FL 5x5**



**WFL 6x6**



**WWD 6x5**

To see complete photometric reports or download .ies files for this product, visit [www.hydrrel.com](http://www.hydrrel.com)

## PERFORMANCE DATA

### LUMEN OUTPUT – SINGLE LENS (M9710C AND M9730C)

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.

Performance Package	System Watts	Distribution Type	Field Angle		Beam Angle		27K (2700K, 80CRI)			30K (3000K, 80CRI)			35K (3500K, 80CRI)			40K (4000K, 80CRI)			50K (5000K, 80CRI)		
			°H	°V	°H	°V	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW
			P1	29W	NSP	27	27	13	13	31487	3303	114	32579	3418	118	33557	3520	121	34283	3597	124
NFL	72	72			26	26	7999	2975	103	8277	3078	106	8525	3170	109	8710	3239	112	8740	3250	112
MFL	58	64			43	52	4274	2779	96	4422	2875	99	4555	2961	102	4653	3025	104	4670	3036	105
FL	85	78			69	58	2684	3029	104	2777	3134	108	2861	3228	111	2923	3298	114	2933	3309	114
WFL	102	93			78	62	1748	2608	90	1809	2699	93	1863	2780	96	1903	2840	98	1910	2850	98
P2	35W	NSP	27	27	13	13	36813	3862	110	38089	3996	114	29233	4116	118	40082	4205	120	40222	4220	121
		NFL	72	72	26	26	9352	3478	99	9677	3598	103	9967	3706	106	10183	3786	108	10219	3800	109
		MFL	58	64	43	52	4997	3249	93	5170	3361	96	5325	3462	99	5440	3537	101	5459	3550	101
		FL	85	78	69	58	3138	3541	101	3247	3664	105	3345	3774	108	3417	3856	110	3429	3869	111
		WFL	102	93	78	62	2044	3050	87	2115	3155	90	2178	3250	93	2225	3320	95	2233	3332	95
P3	46W	NSP	27	27	13	13	47243	4956	108	48881	5128	111	50349	5282	115	51438	5396	117	51618	5415	118
		NFL	72	72	26	26	12002	4463	97	12419	4618	100	12791	4756	103	13068	4859	106	13114	4876	106
		MFL	58	64	43	52	6412	4169	91	6635	4314	94	6834	4443	97	6982	4539	99	7006	4555	99
		FL	85	78	69	58	4027	4545	99	4167	4702	102	4292	4843	105	4385	4948	108	4400	4966	108
		WFL	102	93	78	62	2623	3914	85	2714	4049	88	2795	4171	91	2856	4261	93	2866	4276	93
P4	53W	NSP	27	27	13	13	52859	5545	105	54692	5738	108	56334	5910	112	57552	6038	114	57754	6059	114
		NFL	72	72	26	26	13429	4993	94	13895	5167	97	14312	5322	100	14621	5437	103	14673	5456	103
		MFL	58	64	43	52	7175	4665	88	7423	4827	91	7646	4972	94	7812	5079	96	7839	5097	96
		FL	85	78	69	58	4506	5085	96	4662	5261	99	4802	5419	102	4906	5536	104	4923	5556	105
		WFL	102	93	78	62	2935	4379	83	3037	4531	85	3128	4667	88	3195	4768	90	3207	4784	90
WFL	114	78	74	51	3493	3786	71	3614	3917	74	3723	4035	76	3803	4122	78	3817	4137	78		

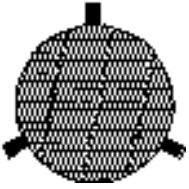
### LUMEN OUTPUT – DOUBLE LENS (M9720C AND M9740C)

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.

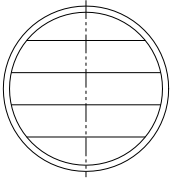
Performance Package	System Watts	Distribution Type	Field Angle		Beam Angle		27K (2700K, 80CRI)			30K (3000K, 80CRI)			35K (3500K, 80CRI)			40K (4000K, 80CRI)			50K (5000K, 80CRI)		
			°H	°V	°H	°V	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW
			P1	29W	NSP	30	30	13	13	25622	2868	99	26510	2967	102	27306	3056	105	27897	3122	108
NFL	62	62			27	25	7147	2507	86	7394	2594	89	7617	2672	92	7781	2730	94	7808	2739	94
MFL	66	56			52	39	3969	2490	86	4107	2577	89	4230	2654	92	4322	2711	93	4337	2721	94
FL	83	75			63	50	2576	2496	86	2665	2583	89	2745	2660	92	2805	2718	94	2815	2727	94
WFL	97	90			67	55	1691	1975	68	1750	2044	70	1803	2105	73	1842	2150	74	1848	2158	74
P2	35W	NSP	30	30	13	13	29956	3353	96	30994	3469	99	31925	3573	102	32616	3650	104	32730	3663	105
		NFL	62	62	27	25	8355	2931	84	8645	3033	87	8905	3124	89	9097	3191	91	9129	3202	91
		MFL	66	56	52	39	4641	2911	83	4802	3012	86	4946	3103	89	5053	3170	91	5071	3181	91
		FL	83	75	63	50	3012	2918	83	3116	3020	86	3210	3110	89	3279	3177	91	3291	3189	91
		WFL	97	90	67	55	1978	2309	66	2046	2389	68	2108	2461	70	2153	2514	72	2161	2523	72
P3	46W	NSP	30	30	13	13	38443	4303	94	39776	4452	97	40971	4586	100	41857	4685	102	42003	4701	102
		NFL	62	62	27	25	10723	3761	82	11095	3892	85	11428	4009	87	11675	4095	89	11716	4110	89
		MFL	66	56	52	39	5956	3736	81	6162	3866	84	6347	3982	87	6485	4068	88	6507	4082	89
		FL	83	75	63	50	3865	3745	81	3999	3875	84	4119	3991	87	4208	4078	89	4223	4092	89
		WFL	97	90	67	55	2538	2963	64	2626	3066	67	2705	3158	69	2763	3226	70	2773	3238	70

OPERATING TEMPERATURE: -30°C through 50°C P1 & P2; -30°C through 40°C P3

## ACCESSORIES



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



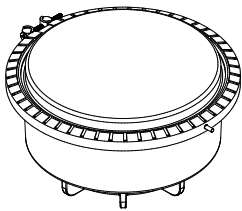
**LINEAR SPREAD FILTER — LSF**  
6.68" diameter, spreads the beam of light along one axis only. May be oriented to spread the light horizontally or vertically.



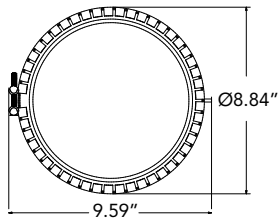
**POTTING COMPOUND — PC21**  
Re-enterable potting compound which pours yellow and cures transparent so connections are easily located. It meets NEC requirements for potting junction boxes and is recommended as part of the installation in areas with high water tables, poor drainage or are prone to flooding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

## DIMENSIONS

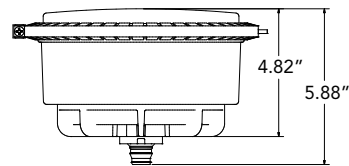
MACLC LED Array Module



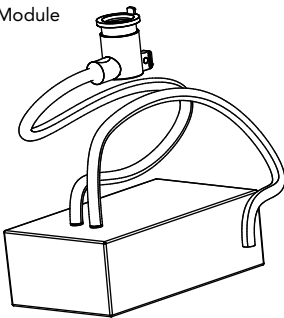
Top View



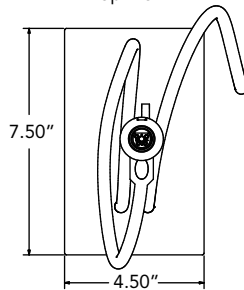
Side View



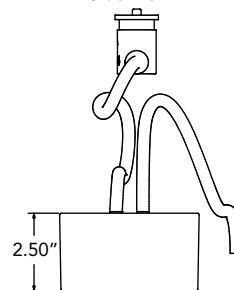
MHSLC97 Power Module



Top View



Side View



## CROSS-OVER GUIDE

### LED MODULE

**EXAMPLE:**

Old Nomenclature - ACL 100M MFL FLC20 LP

New Nomenclature - MACLC P3 40K MFL FLC20

Model		Source		Color Temperature		Distribution		Lens	
Old	New	Old	New	Old	New	Old	New	Old	New
ACL	MACLC LED	35CMT6	P1	Incandescent	30K	NSP	NSP	FLC	FLC
MACL		P2035CM		Metal Halide T4, T6, PAR30	30K	SP		FLC5	FLC5
	18TRT	Metal Halide E17 or PAR38		40K	NFL	NFL	FLC10	FLC10	
	26TRT	Sodium		30K	MFL	MFL	FLC20	FLC20	
	50M				FL	FL	FLCAS	FLCAS	
	50S				WFL	WFL	FLCSR	FLCSR	
	70M				WWD	WWD			
	P3870M		P2						
	70CMT6								
	P3883I								
	70S								
	32TRT								
	42TRT								
	100M		P3						
	100Q								
	100S								
	P38100M								
	150M		P4						
	150CMT6								
	P38150M								
	150Q								
	150S								
	250Q								

### POWER MODULE

**EXAMPLE:**

Old Nomenclature - HSL 100M 120

New Nomenclature - MHSLC97 LED P3 MVOLT

Model		Power Package	Voltage	
Old	New		Old	New
HSL	MHSLC97 LED	P1	120	MVOLT
MHSL97		P2	208	
	P3	220		
	P4	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 LED module is done through a submersible quick disconnect plug connector with gold-plated contacts.

**LIGHT ENGINE:** Light engines consist of chip-on-board (COB) LEDs directly coupled to the housing to maximize heat dissipation and promote long life (100,000 hrs, L92). Heat generated by LEDs is dissipated into and through the fixture housing, and adds less than 15°C to steady state operating lens temperature. For example, in a typical 25°C (77°F) operating environment, lens temperature would not exceed 40°C (104°F). All within 3 MacAdam ellipses.

**POWER MODULE:** LED driver is encapsulated in a custom heat-dissipating epoxy resin that eliminates all moisture intrusion. Module is provided with submersible rated cord leads for connection to integral junction box and LED module.

**ELECTRICAL:** MVOLT (120-277) 50/60 Hz LED power supply. Class 1 electronic driver has a power factor >90%, THD <20%, and has an expected life of 100,000 hours with <1% failure rate. Surge protection meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

### 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](http://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. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at [www.designlights.org](http://www.designlights.org) to confirm which versions are qualified.

**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](http://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.