

# M9700C LED RETROFIT

## Modular Retrofit Kits

CATALOG NUMBER	
NOTES	
TYPE	

### DESCRIPTION

IngradeLED retrofit kit for use in Hydrel's most popular size of ingrade luminaires, the 12" M9700 and 9100 series. Retrofit kit consists of the MACLC LED module and the MHS97C power module ordered as two separate components for flexibility.

For use with the following series:

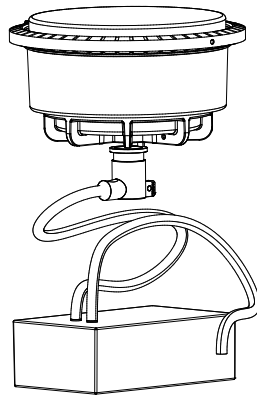
M9710  
M9720  
M9730  
M9740  
9100

Specifications

See page 3.

**LED** IP68

**SUITABLE FOR  
WET LOCATIONS**



### ORDERING INFORMATION - LED MODULE

EXAMPLE: MACLC LED P3 30K MFL FLC5

Model	Performance Package	LED Color	Distribution	Lens	Accessories	Dimming
MACLC LED <sup>1</sup>	P1	30K 3000K	NSP Narrow Spot	FLC Flat Lens Clear	<b>Internal</b> <sup>4</sup> <b>IHL</b> <sup>5</sup> Internal Honeycomb Louver <b>LSF</b> Linear Spread Filter	<b>EDIM</b> <sup>6</sup> 0-10V (Dims to Dark)
	P2	40K 4000K	NFL Narrow Flood	FLC5 Flat Lens Clear, 5° Axial Spread		
	P3	50K 5000K	MFL Medium Flood	FLC10 Flat Lens Clear, 10° optical tilt		
	P4 <sup>1</sup>		FL Flood	FLC20 Flat Lens Clear, 20° optical tilt		
			WFL Wide Flood	FLF Flat Lens Frosted		
			WWD <sup>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		

### ORDERING INFORMATION - POWER MODULE

EXAMPLE: MHS97C LED P3 MVOLT

Model	Performance Package	Voltage	Options
MHS97C LED	P1 29 watts	MVOLT	<b>LDIM</b> 0-10V Dimming (Dims to 10%)
	P2 35 watts		<b>IDIM</b> <sup>7</sup> Inline Dimming (Dims to 40%)
	P3 46 watts		<b>EDIM</b> 0-10V (Dims to Dark)
	P4 <sup>1</sup> 53 watts		

#### Notes:

- P4 packages should not be used with M9720 or M9740 luminaires
- Recommended to use the FLF or FLCSR lens with WWD
- Meets ADA requirements for coefficient of friction.
- Accessories are mutually exclusive, choose one only.
- Not available with FLC10 or FLC10SR.
- Dimming option only called out on the MACLC when EDIM is used.
- IDIM forward phase dimming not available with P3. IDIM option should be run at 120 volt.

**Requires both the MACLC and the MHS97C power module to operate - order as separate line items.**



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01/25/16  
M9700C\_LED\_RETROFIT

## 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		30K (3000K, 70CRI)			40K (4000K, 70CRI)			50K (5000K, 70CRI)		
			°H	°V	°H	°V	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW
P1	29W	NSP	29	29	13	13	22,341	3,285	113	31,686	3,499	121	31,820	3,660	126
		NFL	70	70	25	25	6,182	2,964	102	9,252	2,950	102	9,281	3,067	106
		MFL	65	56	52	40	3,093	2,802	97	4,571	2,766	95	4,602	2,850	98
		FL	84	78	69	57	1,911	2,957	102	2,840	2,964	102	2,934	3,051	105
		WFL	103	93	78	61	1,228	2,527	87	1,861	2,580	89	1,881	2,592	89
		WWD	122	75	78	36	2,592	2,618	90	2,585	2,611	90	2,689	2,547	88
P2	35W	NSP	29	29	13	13	27,686	3,887	112	37,026	4,068	118	36,439	4,233	122
		NFL	70	70	25	25	7,665	3,504	101	10,668	3,488	101	10,630	3,630	105
		MFL	65	56	52	40	3,835	3,312	96	5,270	3,271	95	5,270	3,374	98
		FL	84	78	69	57	2,369	3,496	101	3,275	3,504	101	3,361	3,611	104
		WFL	103	93	78	61	1,522	2,987	86	2,146	3,050	88	2,155	3,067	89
		WWD	123	77	79	40	2,179	2,892	84	2,944	3,032	88	3,080	3,015	87
P3	46W	NSP	27	27	12	12	47,420	5,111	111	46,761	5,098	111	45,742	5,215	113
		NFL	70	70	25	25	13,125	4,617	100	13,487	4,595	100	13,354	4,777	104
		MFL	65	56	52	40	6,566	4,364	95	6,663	4,309	94	6,621	4,440	97
		FL	84	78	69	57	4,057	4,606	100	4,140	4,617	100	4,222	4,753	103
		WFL	103	93	77	61	2,607	3,936	86	2,713	4,018	87	2,707	4,037	88
		WWD	123	77	79	40	3,731	3,810	83	3,721	3,800	83	3,869	3,968	86
P4	53W	NSP	27	27	12	12	50,447	5,504	104	50,400	5,476	104	52,146	5,615	107
		NFL	70	70	25	25	13,952	4,973	94	14,485	4,949	94	15,224	5,145	98
		MFL	65	56	52	40	6,980	4,700	89	7,156	4,641	88	7,548	4,782	91
		FL	84	78	69	57	4,313	4,961	94	4,446	4,973	94	4,813	5,119	97
		WFL	103	93	77	61	2,771	4,239	80	2,914	4,327	82	3,086	4,348	83
		WWD	122	75	78	36	4,104	4,149	79	4,093	4,138	79	4,411	4,274	81

## 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		30K (3000K, 70CRI)			40K (4000K, 70CRI)			50K (5000K, 70CRI)		
			°H	°V	°H	°V	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW	Max Cd	Lumens	LPW
P1	29W	NSP	29	29	13	13	19,883	2,924	101	28,201	3,114	107	28,320	3,257	112
		NFL	70	70	25	25	5,502	2,638	91	8,234	2,625	91	8,260	2,729	94
		MFL	65	56	52	40	2,752	2,494	86	4,068	2,462	85	4,095	2,537	87
		FL	84	78	69	57	1,701	2,632	91	2,528	2,638	91	2,612	2,716	94
		WFL	103	93	78	61	1,093	2,249	78	1,656	2,296	79	1,674	2,307	80
		WWD	122	75	78	36	2,307	2,330	80	2,301	2,324	80	2,393	2,267	78
P2	35W	NSP	29	29	13	13	24,641	3,459	100	32,953	3,621	105	32,431	3,767	109
		NFL	70	70	25	25	6,822	3,119	90	9,495	3,104	90	9,461	3,230	93
		MFL	65	56	52	40	3,413	2,948	85	4,691	2,911	84	4,691	3,002	87
		FL	84	78	69	57	2,109	3,111	90	2,915	3,119	90	2,991	3,214	93
		WFL	103	93	78	61	1,355	2,659	77	1,910	2,714	78	1,918	2,730	79
		WWD	123	77	79	40	1,939	2,574	74	2,620	2,699	78	2,741	2,683	78
P3	46W	NSP	27	27	12	12	42,204	4,549	99	41,617	4,537	99	40,710	4,641	101
		NFL	70	70	25	25	11,681	4,109	89	12,003	4,090	89	11,885	4,252	92
		MFL	65	56	52	40	5,844	3,884	84	5,930	3,835	83	5,893	3,952	86
		FL	84	78	69	57	3,611	4,099	89	3,685	4,109	89	3,758	4,230	92
		WFL	103	93	77	61	2,320	3,503	76	2,415	3,576	78	2,409	3,593	78
		WWD	123	77	79	40	3,321	3,391	74	3,312	3,382	74	3,443	3,532	77

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

## 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

## 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.

Operating Hours	0	25,000	50,000	100,000
Lumen Maintenance Factor	1.00	0.94	0.93	0.92

## 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

## Slip Resistance and Load Rating

### M9700C LED

#### MAXIMUM LOAD RATING

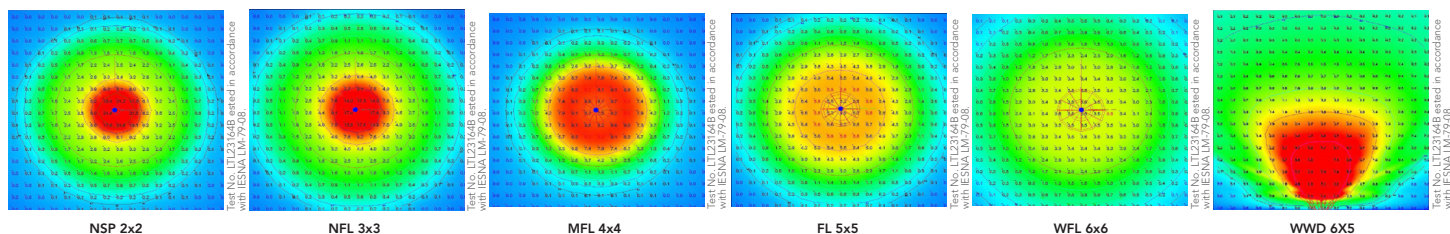
Peak compression force of 3,750 lbs. (single lens), 3,200 lbs. (double lens).  
1,590 lbs. 9100 (standard) 3,620 lbs. 9100 with MSR option.

#### LENS STATIC COEFFICIENT OF FRICTION

Anti-Slip Lens (FLCAS): Dry = 0.76; Wet = 0.10

Slip Resistant Lens (FLSR): Dry = 0.84; Wet = 0.65

## PHOTOMETRIC DIAGRAMS



N5P 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.hydel.com](http://www.hydel.com)

## LED MODULE

## EXAMPLE:

Old Nomenclature - ACL 100M MFL FLC20 LP

New Nomenclature - MACLC P3 40K MFL FLC20

Model	
Old	New
ACL	MACLC LED
MACL	

Source	
Old	New
35CMT6	P1
P2035CM	
18TRT	
26TRT	
50M	
50S	
70M	P2
P3870M	
70CMT6	
P3883I	
70S	
32TRT	
42TRT	P3
100M	
100Q	
100S	P4
P38100M	
150M	
150CMT6	
P38150M	
150Q	
150S	
250Q	

Color Temperature	
Old	New
Incandescent	30K
Metal Halide T4, T6, PAR30	30K
Metal Halide E17 or PAR38	40K
Sodium	30K

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 - HSL 100M 120

New Nomenclature - MHSLC97 LED P3 MVOLT

Model	
Old	New
HSL	MHSLC97 LED
MHSL97	

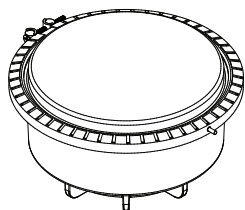
Power Package
P1
P2
P3
P4

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

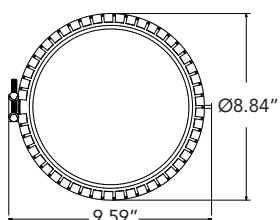
## DIMENSIONS

IP68

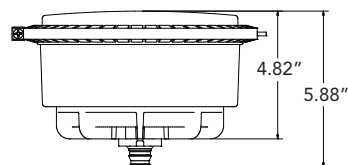
MACLC LED Array Module



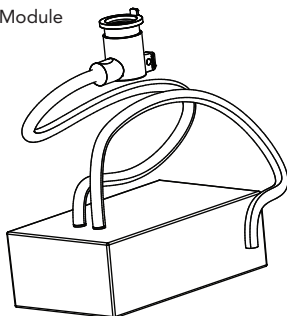
Top View



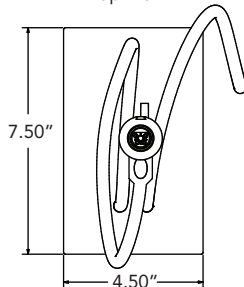
Side View



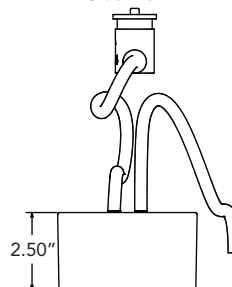
MHSLC97 Power Module



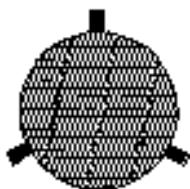
Top View



Side View

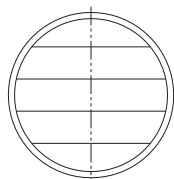


## ACCESSORIES



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

IHL



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

LSF



**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.

PC21

## FEATURES & SPECIFICATIONS

**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).

**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).

**LISTING:** CSA certified to U.S. and Canadian standards. Luminaire is IP68 rated. Suitable for Wet Locations.

**WARRANTY:** 5-year limited warranty. Complete warranty terms located at [www.acuitybrands.com/CustomerResources/Terms\\_and\\_conditions.aspx](http://www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx)

**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.



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