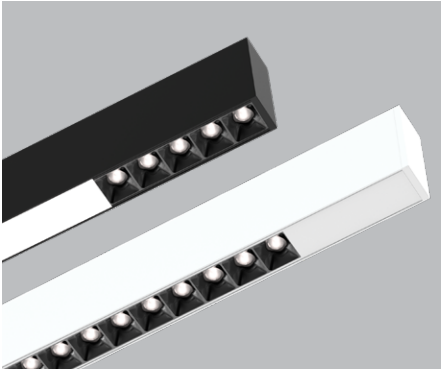


# CLUSTERS

## SURFACE COMBINATIONS



Project: \_\_\_\_\_  
 Type: \_\_\_\_\_



### DESCRIPTION

Cluster Combinations integrate the Cluster lighting elements into a 1.5" wide x 3.75" high aluminum channel, creating endless possibilities for visually interesting lighting. Six different downlight optics in 3-, 5-, or 10-cell configurations and multiple finishes can be arranged in continuous rows or separated by diffusers for general lighting or by blank covers. All LED's used in the combination have consistent color characteristics. Channel modules are available from 4' to 12' in 1' increments, can be neatly connected together, and install in accessible grid and drywall ceilings. All drivers are mounted in the channel. For configurations other than those shown here, please consult the factory.

**We require a drawing illustrating the combination you would like to order - anything from a simple line drawing to elaborate architectural drawings.** Enter the required **TOTAL LUMINAIRE LENGTH**, CRI, Lumens, Color Temperature and Voltage.

Consult pages 2-5 for details before specifying

### GENERAL SPECIFICATIONS CODE:

Luminaire ID	Distribution	Total Luminaire Length (MIN 4')		Light Source	CRI	Color Temp	Voltage
	<b>D</b>	<b>FT</b>	<b>IN</b>	<b>SW</b>	<b>90</b>		

OPTICS	BEAM	LOUVER	LOUVER FINISH
<b>SOF</b> - Soft edge downlight <b>REF</b> - Sharp edge downlight	<b>SPT</b> <sup>1</sup> - Spot <b>NFL</b> <sup>2</sup> - Narrow flood <b>FLD</b> - Flood <b>WFL</b> - Wide flood  <sup>1</sup> Available with REF only. <sup>2</sup> Available with SOF only.	<b>SQR</b> - Square <b>HYP</b> - Hyperbolic	<b>MF01</b> - Matte white <b>MF04</b> - Matte black <b>BL05</b> - Black chrome

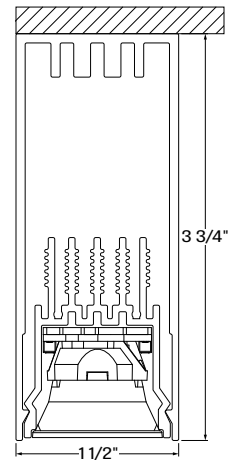
### OPTICS LIST CODE:

CLUSTER OPTIONS	Quantity (for actual clusters size see page 2)	Lumen Package Per Unit			
		LOW	MED	HIGH	
<b>CLU03</b> - Clusters 3x1	<input type="text"/>	<input type="text"/> <b>lm</b>	145 lm	362 lm	578 lm
<b>CLU05</b> - Clusters 5x1	<input type="text"/>	<input type="text"/> <b>lm</b>	230 lm	577 lm	923 lm
<b>CLU10</b> - Clusters 10x1	<input type="text"/>	<input type="text"/> <b>lm</b>	448 lm	1120 lm	1791 lm

CONFIGURATION OPTIONS	Optic Length		Lumen Package Per Unit
	FT	IN	
<b>*HLO</b> - High-Efficiency Lambertian Optic	<input type="text"/>	<input type="text"/>	<input type="text"/> <b>lm/ft</b> 350 lm-750 lm
<b>**BLA</b> - Blank	<input type="text"/>	<input type="text"/>	No minimum length

### CROSS SECTION



### ALL OTHER PARTS OF THE CODE:

DRIVER	ELECTRICAL	MOUNTING	FINISH
<b>DI</b> - 1% 0-10V <b>ELV</b> <sup>3</sup> - ELV 120V <b>TRI</b> <sup>3</sup> - TRIAC 120V <b>DA</b> <sup>4</sup> - DALI	<b>LDE1</b> <sup>4</sup> - Lutron Hi-Lume 1% Eco <b>ELD1</b> - eldoLED 1% ECOdrive 0-10V <b>ELD0</b> - eldoLED 0.1% SOLOdrive 0-10V	<b>1</b> - 1 circuit <b>2</b> - 2 circuits <b>+EM</b> - Emergency light circuit <b>+NL</b> - Night light circuit	<b>GRD</b> - Grid ceiling <b>DRC</b> - Drywall ceiling  <b>W</b> - Matte white <b>B</b> - Matte black <b>CF#</b> - Custom finish, specify RAL#

<sup>3</sup>Available with 120V only.  
<sup>4</sup>On-site commissioning is required.



# CLUSTERS

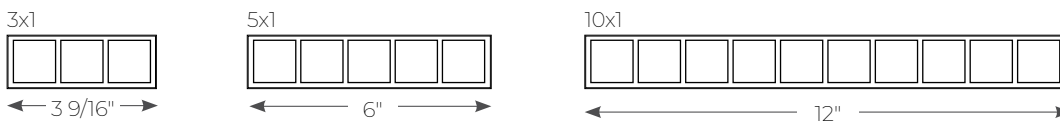
## SURFACE COMBINATIONS



### LOUVERS

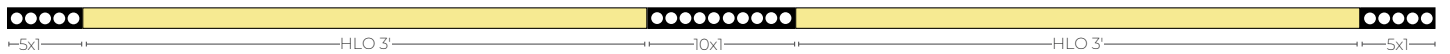


### AVAILABLE CLUSTER SIZES



### CONFIGURATION WITH CLUSTER DOWNLIGHTS (HLO & BLANK)

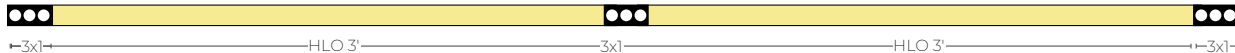
**Configuration A** - OPTIC CODE: 2xCLU05 - 1x CLU10 - HLO6FT



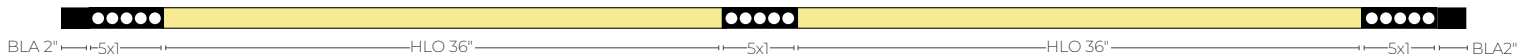
**Configuration B** - OPTIC CODE: 3xCLU05 - BLA4FT



**Configuration C** - OPTIC CODE: 3xCLU03 - HLO6FT

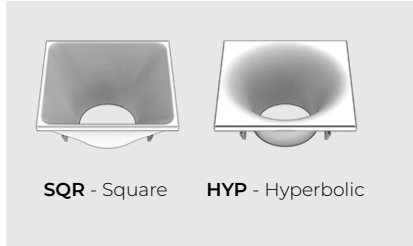


**Configuration D** - OPTIC CODE: 3xCLU05 - HLO6FT - BLA4IN

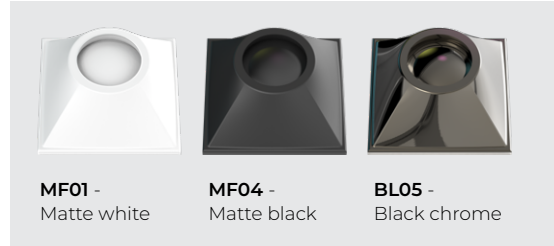


## LIGHT

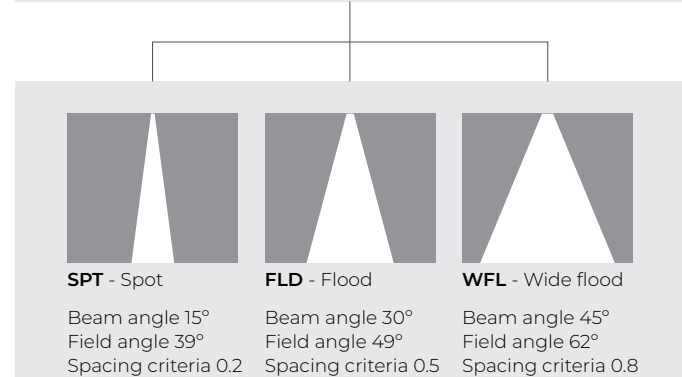
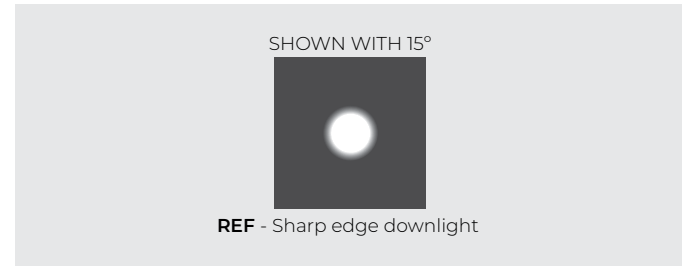
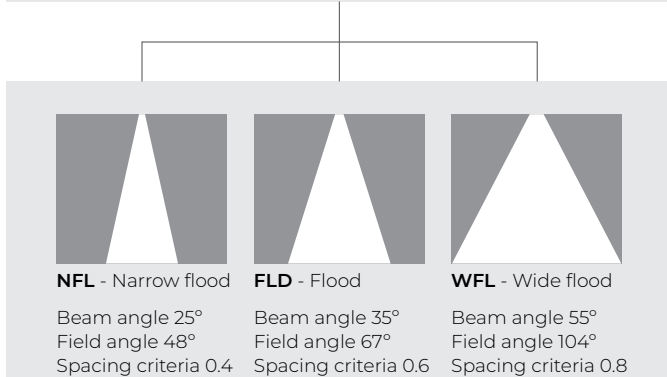
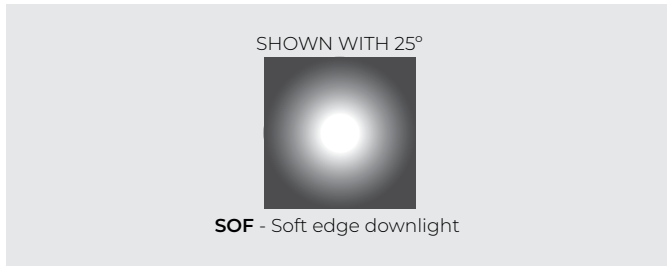
### LOUVER SHAPE



### LOUVER FINISH - Louver is injection molded with integral texture and color



### OPTICS & BEAM ANGLE



### SOFT-EDGED FEATHERED BEAM (SOF)

blends the light into darker areas for a gentle brightness transition. Each LED emitter directs light through a single, custom molded circular optic using total internal reflection (TIR) to shape the light. A 0.5" reflective square louver provides a cut off with a UGR of 10. Three different TIR elements create a choice of beam spread: 25° narrow flood (NFL), 35° flood (FLD), or 55° wide flood (WFL).



### SHARP-EDGED CUT-OFF BEAM (REF)

creates dramatic impact, limiting the spread of light outside of the primary beam. A molded conical reflector redirects light from each emitter into the desired beam angle. A 0.5" reflective square louver provides a cut off with a UGR of 10. Three different TIR elements create a choice of beam spread: 15° spot (SPT), 30° flood (FLD), or 45° wide flood (WFL).



# CLUSTERS

## SURFACE COMBINATIONS



### OPTICS

**High-Efficiency Lambertian Optic (HLO)** - The High-Efficiency Lambertian Optic (HLO) shielding of diffusing 0.075" thick acrylic with up to 88% transmission and good source obscuration is combined with matte white side reflectors to create an efficient optical chamber with uniform luminosity.

**Aluminum Blank (BLA)** - Blank covers are available to provide spacing – functional or rhythmic – in the direct component of a Cluster combinations luminaire. Covers are sized according to the combination design, finished to match the luminaire housing, and snap into the aperture.

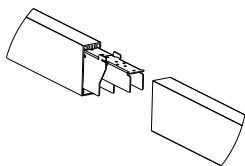
### LIGHT SOURCE

Custom array of high-flux LEDs mounted onto aluminum-backed circuitry. Available in 2700K, 3000K, 3500K and 4000K with a minimum 90 CRI with elevated R9 value. Color consistency is maintained to within 2 SDCM. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

### LUMINAIRE LENGTH

Cluster combinations is made up of standard 4, 8 and 12 foot sections that may be joined together to create longer continuous run lengths. Exact run length must be noted in the product code. The minimum individual section available is 4 foot.

All individual sections are joined together onsite using the joiner kits provided. Lumenwerx offers joiner kits that are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.



Joining system

### ELECTRICAL

Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Dimmable from 100% to 1% with 0-10V dimming control. Rated life (90% survivorship) of 50,000 hours at 50°C max. ambient (and 70°C max. case) temperature. At maximum driver load: Efficiency>84%, PF>0.9, THD<20%. Other specifiable options include Lutron Hi-Lume 1% Eco, eldoLED 1% ECOdrive 0-10V, eldoLED 0.1% SOLOdrive 0-10V, ELV, TRIAC, and DALI protocol drivers. All of our standard 0-10V drivers are NEMA 410 compliant.

### MOUNTING

Fixtures can be mounted directly to T-Bar, drywall and hard surface ceilings, hardware supplied by others. Long runs require a minimum of 6" distance from the vertical wall.

### FINISH

**Interior** - 95%, reflective matte powder coated white paint  
**Exterior** - Matte white or matte black powder coating  
**Louwer** - Reflective white or reflective black

### CONSTRUCTION

**Housing** - Extruded aluminum (0.095" nominal) up to 90% recycled content  
**Interior channel** - Extruded aluminum (0.095" nominal) up to 90% recycled content  
**Joining system** - 16 gauge galvanized sheet metal  
**End caps** - Die cast aluminum (0.95" nominal)  
**Louwer optics** - Polycarbonate

### CERTIFICATIONS

**ETL** - Rated for indoor dry/damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0

### WARRANTY

Lumenwerx provides a five-year limited warranty on electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. Lumenwerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.

## DRIVER

The driver can power several lighting units, depending on their total power. The minimum and maximum number of lighting units and driver type are shown in the table below and must be observed.

### LUMEN PACKAGE <sup>1</sup> (AT 3500K)

LUMINAIRE ID	LUMEN PACKAGE			VOLTAGE	DRIVER	NUMBER OF LIGHTING UNITS PER DRIVER
<b>CLU03</b> <b>CLU05</b> <b>CLU10</b>	<b>LOW</b> 145 lm 230 lm 448 lm	<b>MEDIUM</b> 362 lm 577 lm 1120 lm	<b>HIGH</b> 578 lm 923 lm 1791 lm	<b>120</b> - 120V <b>277</b> - 277V <b>UNV</b> - 120V-277V	<b>D1</b> - 1% 0-10V <b>ELV</b> <sup>2</sup> - ELV 120V <b>TRI</b> <sup>2</sup> - TRIAC 120V <b>DA</b> <sup>3</sup> - DALI <b>LDE1</b> <sup>3</sup> - Lutron Hi-lume 1% Eco <b>ELD1</b> - eldoLED 1% ECOdrive 0-10V <b>ELDO</b> - eldoLED 0.1% SOLOdrive 0-10V	See table below for maximum and minimum possible number of lighting units per each driver.

<sup>2</sup> Available with 120V only.  
<sup>3</sup> On-site commissioning is required.

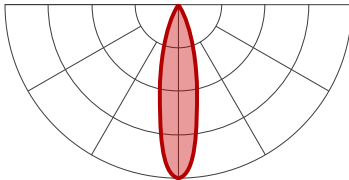
<sup>1</sup> Watts and lumen per watts will vary based on the number of light units per remote driver as well as on the type of driver selected

### NUMBER OF LIGHTING UNITS PER DRIVER - MINIMUM AND MAXIMUM

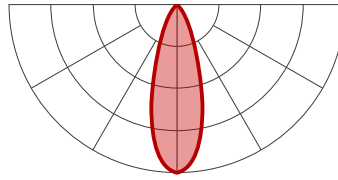
DRIVER	3x1	5x1	10x1
D1	2-10	1-6	1-2
ELV	4-6	2-3	1
TRI	4-6	2-3	1
DA	1-10	1-6	1-2
LDE1	3-5	2-3	1
ELD1	1-10	1-6	1-2
ELDO	1-10	1-6	1-2

For any quantities of lighting units per driver that fall outside the minimum and maximum listed above, please consult factory.

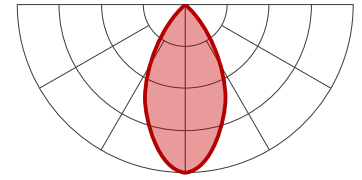
### SOFT-EDGE DOWNLIGHT



**NFL** - Narrow flood  
Beam angle 25°  
Field angle 48°  
Spacing criteria 0.4

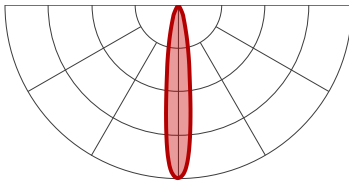


**FLD** - Flood  
Beam angle 35°  
Field angle 67°  
Spacing criteria 0.6

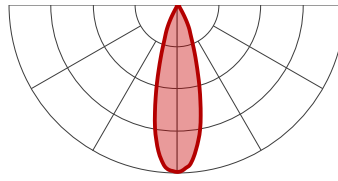


**WFL** - Wide flood  
Beam angle 55°  
Field angle 104°  
Spacing criteria 0.8

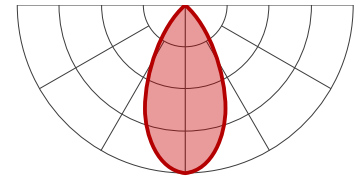
### SHARP-EDGE DOWNLIGHT



**SPT** - Spot  
Beam angle 15°  
Field angle 39°  
Spacing criteria 0.2



**FLD** - Flood  
Beam angle 30°  
Field angle 49°  
Spacing criteria 0.5



**WFL** - Wide flood  
Beam angle 45°  
Field angle 62°  
Spacing criteria 0.8