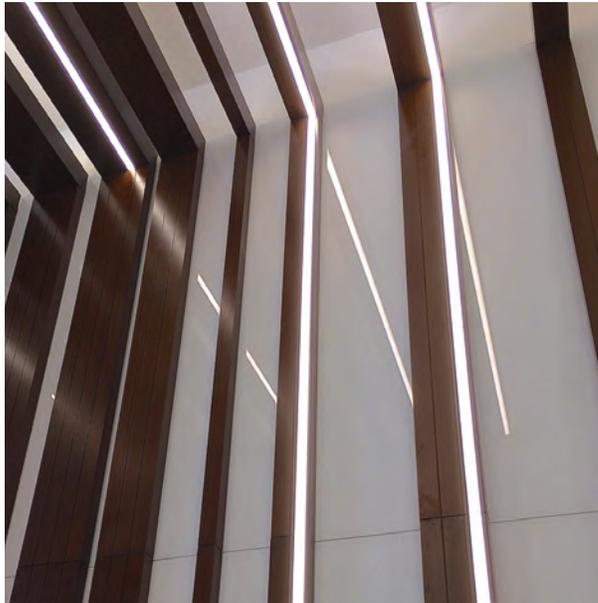
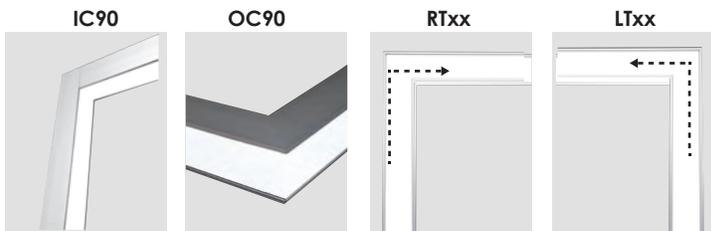
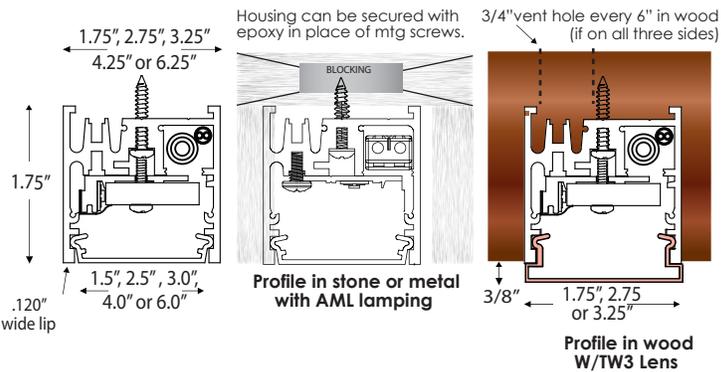


HardLineLED 1.5, 2.5, 3.0, 4.0 or 6.0 x 1-3/4"

Type:



Shallow lines of light mount on or within hard surfaces, e.g. metal, stone, wood, tile or glass
 Order in any length or field cut for precise fit
 1.75" depth meets ADA when surface mounted
 Optional tall lens extends over lips (see pg 3)
 Socket shadow free illumination
 Illuminated corners: Inside, Outside, Left or Right



Environmental Data

For 3KL & 3AKL lamping at 3000k: W: 2.5W/ft (8W/m) LLD: 50,000hrs @ 70%lm 40ft (12M) on one 100w driver	For 1ML & 1AML lamping at 3000k: W: 4.9W/ft (16W/m) LLD: 50,000hrs @ 70%lm 20ft (6M) on one 100w driver	For 2ML & 2AML lamping at 3000k: W: 9.8W/ft (32W/m) LLD: 50,000hrs @ 70%lm 10ft (3M) on one 100w driver	Temp range: 0° ~ 90°F (-20 ~ 30°C) No Mercury, No UV, No Flicker Warranty: 5 years cETLus Damp Listed IC Rated
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Contact factory for construction details to install in environments with ambient temperatures above 90° F for more than 5 hours.

Ordering

Series	HL15 <input type="checkbox"/> HardLine LED 1.5 inch width
	HL25 <input type="checkbox"/> Hardline LED 2.5 inch width
	HL30 <input type="checkbox"/> Hardline LED 3.0 inch width
	HL40 <input type="checkbox"/> Hardline LED 4.0 inch width
	HL60 <input type="checkbox"/> Hardline LED 6.0 inch width
Lamping <small>Delivered Lumans</small>	3KL <input type="checkbox"/> 88lu/ft LED 2.5w/ft (8w/m) (30 & 35K only)
	3AKL** <input type="checkbox"/> 143lu/ft LED 2.5w/ft (8w/m) (30 & 35K only)
	1ML <input type="checkbox"/> 175lu/ft LED 4.9w/ft (16w/m)
	1AML** <input type="checkbox"/> 285lu/ft LED 4.9w/ft (16w/m)
	2ML <input type="checkbox"/> 350lu/ft LED 9.8w/ft (32w/m)
	2AML** <input type="checkbox"/> 570lu/ft LED 9.8w/ft (32w/m)
	_CC <input type="checkbox"/> Constant Current LED Up to 8.0 w/ft (485lu/ft)
	_ACC** <input type="checkbox"/> Constant Current LED Up to 8.0 w/ft (791lu/ft)
	6P* <input type="checkbox"/> 228Lu/ft LED 6.2w/ft for use with LUTP96 power supply (269 & 299K only)
	**Available in HL15 series only
Color	269 <input type="checkbox"/> 2650K, 90+CRI, 6P lamping only
	27 <input type="checkbox"/> 2700K, 85+ CRI
	279 <input type="checkbox"/> 2700K, 90+ CRI
	299 <input type="checkbox"/> 2950K, 90+CRI, 6P lamping only
	30 <input type="checkbox"/> 3000K, 85+ CRI
	309 <input type="checkbox"/> 3000K, 90+ CRI
	35 <input type="checkbox"/> 3500K, 85+ CRI
	40 <input type="checkbox"/> 4000K, 85+ CRI
	Consult for other colors, RBG and warm dim
Wire Harness 1	<input type="checkbox"/> Single
Lens	W <input type="checkbox"/> White flush
	TW3 <input type="checkbox"/> 3/8" Tall White (HL15, HL25 & HL30 only)
	G <input type="checkbox"/> Custom graphics, braille to be added to W or TW3 lens
Driver	R <input type="checkbox"/> Remote
Start End	S <input type="checkbox"/> Straight End
	SNS <input type="checkbox"/> Straight End without visible screw (use if surface mounting)
	RECF <input type="checkbox"/> __x__ Rectangle Flat XX" by XX"
	PAT <input type="checkbox"/> Use to denote patterns as drawn
Length	xx <input type="checkbox"/> xx is distance in inch or mm
	Add OAL to include 1/8" thick end caps in length
	xxFC <input type="checkbox"/> Allows for housing to be field cut for exact fit
Transition <small>(Only if lens changes direction. Consult factory for angles beyond range shown.)</small>	LTxx <input type="checkbox"/> Left Turn same plane (degrees 66° to 179°)
	RTxx <input type="checkbox"/> Right Turn same plane (degrees 66° to 179°)
	OC90 <input type="checkbox"/> Outside Corner (degrees 75° to 179°)
	ICxx <input type="checkbox"/> Inside Corner (degrees 75° to 179°)
Finish End	<input type="checkbox"/> Choose from Start End choices listed above
Lip Color	NA <input type="checkbox"/> Natural anodized BK <input type="checkbox"/> Black
	BZ <input type="checkbox"/> Bronze <input type="checkbox"/> Other WH <input type="checkbox"/> White
	(Add E if entire fixture needs color)
Units	in <input type="checkbox"/> inches <input type="checkbox"/> mm millimeters
Options	CL2Pxx <input type="checkbox"/> Longer length CL2P feed cable (std is 15ft) to reach remote power supply.
	CP <input type="checkbox"/> Chicago Plenum
	EF <input type="checkbox"/> Feed cable exits end (10' or shorter housings)
	EM <input type="checkbox"/> Feed cable labeled for connection to EM circuit.
	PoE <input type="checkbox"/> 10ft CL2P cable, Remote POE driver by others. PoE performance and compatibility TBD by PoE component provider



HardLineLED x 1-3/4^{HT} 1.5, 2.5, 3.0, 4.0 or 6.0

R-FLV Driver

Forward phase low voltage remote mounted power supply with 24Vdc Constant Voltage output for simple class 2 installation. 20W, 40W, 60W or 96W; 120V 60Hz input. Minimum 50% watt load required; e.g. 10W on ELV20
 Dims to 20% with forward phase 2-wire magnetic low voltage dimmer. Short circuit and overload protected.
 Non-IC installations.
 Listed for 90 C conductors with 1/2" trade size knock outs.
 NEMA 3R enclosure.

R-xxx-UNV Drivers

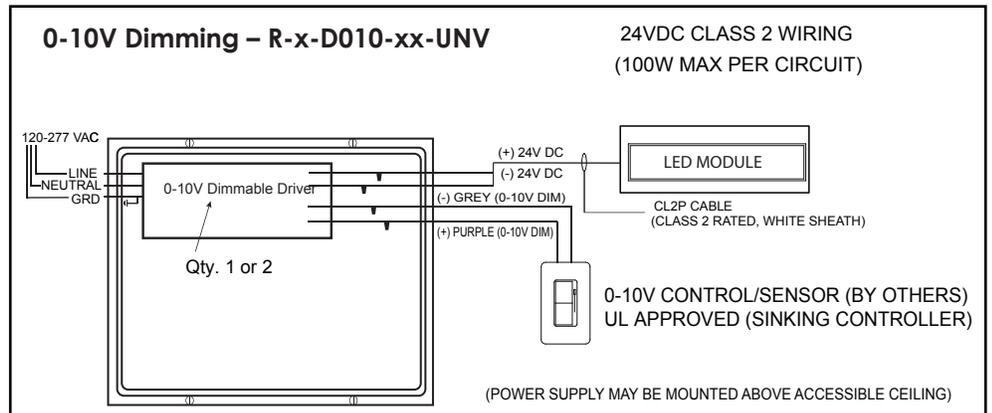
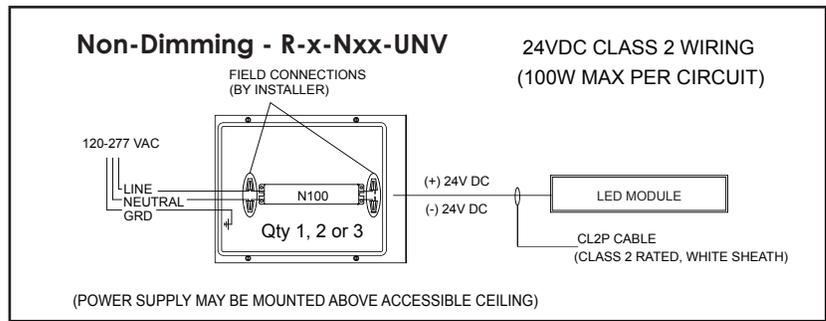
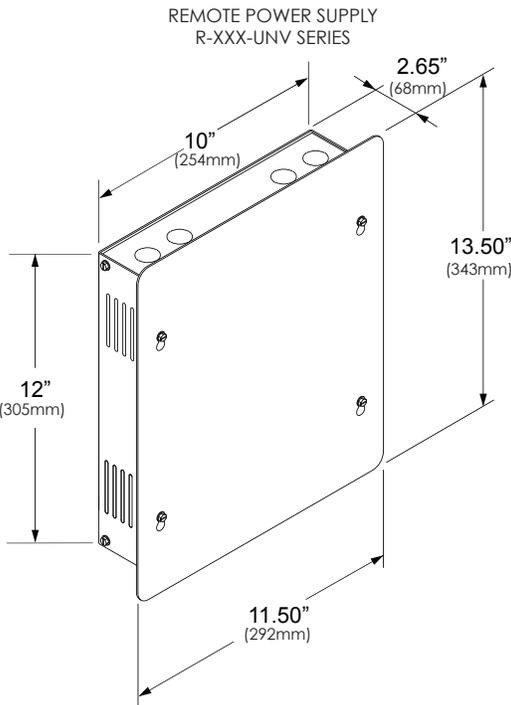
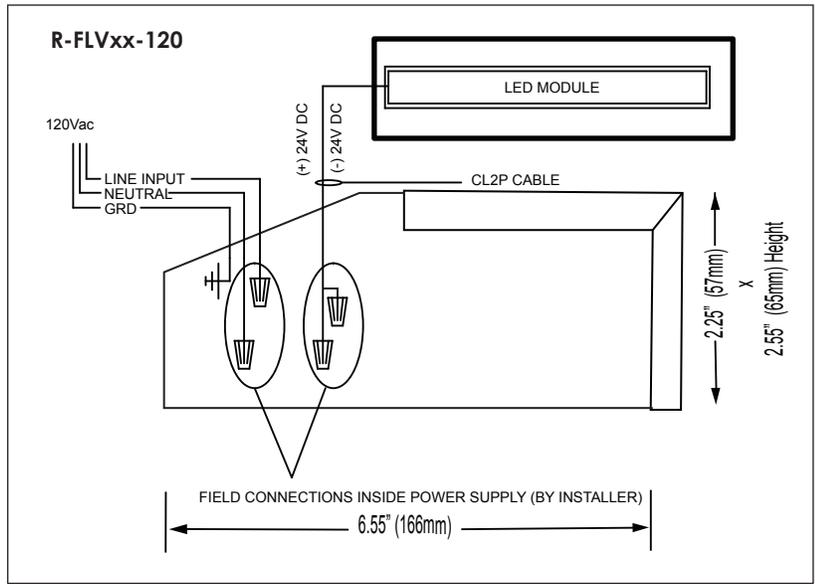
Remotely located power supply with 24Vdc Constant Voltage, or Constant Current, output for simple class 2 installation. Electronic Drivers 50/60 Hz, 120 thru 277 input. Choice of 0-10V dimming or switched on/off. Dimmable drivers with 3KL, 1ML, or 2ML may flicker below 10%. Use Constant Current version to dim to 1%.
 Nxx requires 8W and D010 requires 20W minimum load
 Type A Sound Rating,
 Non IC installations standard; consult factory for IC installation.
 May be surface mounted or recessed in 2x4 walls or above accessible ceilings.
 Housing is die formed 16ga CRS with White painted after fabrication finish.
 Listed for 90°C conductors with 1/2" trade size Knock Outs.

R-DLUT96-UNV Driver

* For use with 6P lamping only.
 Dims to 1%
 Remote power supply 24Vdc Constant Voltage Output. 50/60Hz, 120 thru 277V input.
 Class A sound rated.
 Rated for Damp location use. Non-IC installations.
 Dims with 3-Wire dimmer or EcoSystem™ Requires 25W minimum load. For more info visit:
<http://www.lutron.com/TechnicalDocumentLibrary/369883.pdf>

- | | | |
|---------------|---------|---|
| Driver* | R | <input type="checkbox"/> Remote |
| Drive Qty Per | - | <input type="checkbox"/> Blank for FLV & DLUTP type |
| Power Supply | X | <input type="checkbox"/> Factory determined with Nxx or D010 type |
| Type | FLVxx | <input type="checkbox"/> Forward phase low voltage, 20, 40, 60 or 96W |
| | Nxx | <input type="checkbox"/> Non-dim 100W max. |
| | PoE | <input type="checkbox"/> Driver by others |
| | D010 | <input type="checkbox"/> Dimming via 0-10Vdc |
| | D010-CC | <input type="checkbox"/> **Constant Current (up to 8.0w/ft) |
| | DLUTP96 | <input type="checkbox"/> Lutron Hi-Lume Premier 96W (6P lamping only) |
| Voltage | UNV | <input type="checkbox"/> Universal 120-277V for Nxx or D010 type |
| | 120 | <input type="checkbox"/> 120 only for FLV type |
| | CP | <input type="checkbox"/> Chicago Plenum rated enclosure |

*Constant factor for DALi, DMX & Lutron driver options.
 **Constant Current requires a factory programmed driver for each LED panel.
 ***PoE performance and compatibility TBD by PoE component provider.





HardLineLE

1.5, 2.5, 3.0, 4.0 or 6.0
x 1-

Housing

Extruded aluminum housing mounts via screws to framing. Surface material* (metal, tile, stone, etc.) can abut housing sides.
 * If wood on 3 sides, drill 3/4" holes behind fixture every 6" to ensure adequate venting.
 Anodized for superior thermal performance.
 Housing ships with 15ft CL2P cable attached to back to reach remote power supply. Longer lengths optional, or 12AWG wire can be added on site; up to 20' with D010 or 50' with Nxx & FLV.
 One-piece extrusions up to 123". Multiple housings couple together with crossbolt and pins for secure fit & straight alignment.
 Inside corner sections overlap for even illumination without direct view of LEDs.

Modifications

Runs can be provided to the nearest 1/16" or 1mm.
 "FC" Field cutting allows for a perfect architectural fit. "FC" Housings may be field cut up to 6", then LED panels are ordered to fit.
 DO NOT CUT non-FC HOUSINGS.
 For unique custom work, such as sharp corners, consult factory for shop drawings.



Transitions

When lens changes directions (Minimum length 3.875" or 98mm per side).
 "LT" Left Turn same plane (degrees 90° to 179°); pre-assembled at factory
 "RT" Right Turn same plane (degrees 90° to 179°); pre-assembled at factory
 "IC" inside corner between two planes. Housings overlap and tab together for alignment.
 "OC" outside corner around two planes; pre-assembled at factory. 90° standard, consult factory for other angles.

LED

LED boards attached to aluminum heat sink at factory (no need to clean surface with alcohol on site to prevent air bubbles under
 Low wattage white light LED produces even distribution with no shadows.
 Binned within 2 MacAdam ellipses.

Optics

Light guide panel diffuses multiple LED sources.
 Panel plugs into housing via DC quick connects & is secured with screws for quick & easy replacement.
 Snap-in high transmission acrylic lens with matte white finish, up to 26ft per section with flush W lens, or up to 10ft with TW3.
 Custom graphics & raised braille for ADAAG signage can be added by factory. Ink is UV cured to resist flaking, scratches & fading.

Option

"CP" Chicago Plenum rated housing with j-box for attachment of 1/2" EMT.
 "EM" Labeled feed cable. Requires relay by others to switch from normal to EM input at driver. Dado does not provide battery packs.
 "EF" Feed cable exits end, instead of back, on 10' or shorter housings.
 "PoE" Feed cable exits end, instead of back, on 10' or shorter housings.
 Housing ships with 2wire 18ga 10ft CL2P cable to reach POE unit by others. PoE performance and compatibility TBD by PoE component provider.

S end with standard lens
 Adds .125" to end



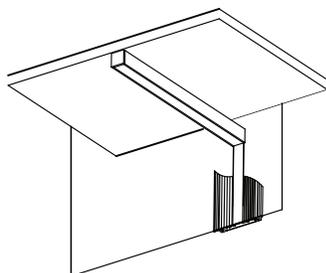
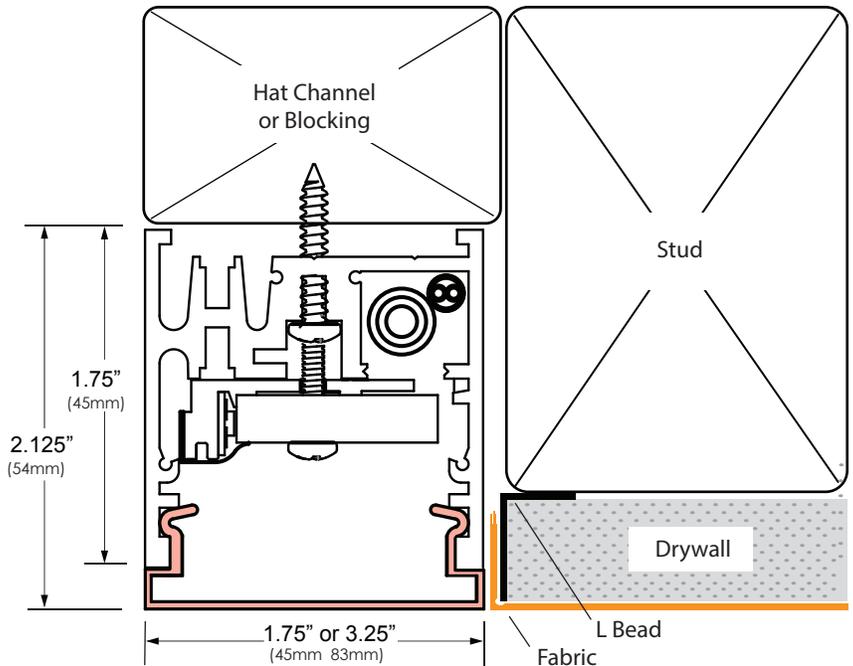
SNS end with standard lens



S end with TW lens



Profile with fabric wall coverings using TW lens



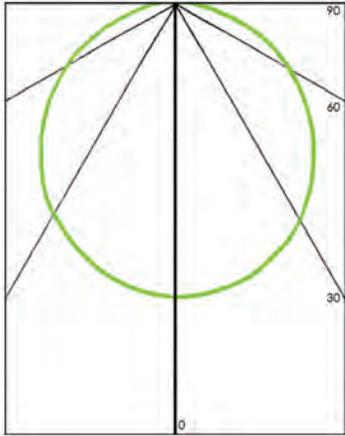
HardLine can be combined with SimpleLine for continuous pattern faces; e.g. GWB to ACT
 runs across differing wall/ceiling

sur

BALLabs

Independent Test No. 17940.0

Candlepower Distribution (cd)



Angle	Along	45°	Across
0°	259	259	259
5°	262	259	256
10°	256	252	251
15°	252	247	246
20°	240	236	234
25°	230	225	225
30°	219	214	211
35°	202	199	197
40°	186	180	179
45°	166	163	162
50°	149	144	145
55°	128	124	125
60°	107	105	104
65°	85	84	82
75°	43	42	40
85°	9	7	10
90°	0	0	0

Zonal Lumen Summary

Zone	Lumen	% Luminaire
0-30°	198	28.4%
0-40°	322	46.1%
0-60°	560	80.2%
60-90°	139	19.8%
90-180°	0	0%
0-180°	699	100%

Cat No.: S25-MC5-2ML-35-1-W-R-S-24-S-in*
Meanwell Driver No.: LPV-20-24 operating at 120v

Total Lumens: 701
* Multiply all data by:
.50 for 1ML;
.25 for 3KL;
1.39 for 8.0CC

Luminance Data (cd/m²)

Angle	Along	45°	Across
45°	6017	5905	5868
55°	5713	5529	5575
65°	5128	5065	5003
75°	4288	4186	3982
85°	2729	2122	3032

Photometric Data

BALLabs

Independent LM-79
Test No. 17943.0

This is an absolute test
per LM-79-08
Luminous Length: 24"
Width: 1.5"

Angle	Along	45°	Across
0°	410	410	410
5°	415	411	407
10°	407	400	399
15°	399	394	389
20°	385	378	372
25°	367	359	355
30°	348	338	334
35°	324	313	310
40°	300	291	287
45°	272	267	260
50°	243	234	229
55°	209	201	197
60°	178	172	165
65°	149	141	137
75°	81	78	77
85°	23	22	24
90°	0	0	0

Zonal Lumen Summary

Zone	Lumen	% Luminaire
0-30°	315	27.7%
0-40°	512	45.1%
0-60°	894	78.7%
60-90°	242	21.3%
90-180°	0	0%
0-180°	1,136.00	100%

Cat No.: LL15-2AML-35-1-W-R-S-24-S-in*
Meanwell Driver No.: LPV-20-24
operating at 120v

Total Lumens: 1142

* Multiply all data by:
.50 for 1AML;
.25 for 3AKL;
1.39 for 8.0ACC
Multiply all data by .60 if 2P wire harness

Luminance Data (cd/m²)

Angle	Along	45°	Across
45°	16411	16065	15660
55°	15530	14960	14604
65°	14986	14213	13826
75°	13262	12788	12630
85°	11252	10783	11721