

Adjustable Exposed Shelf Lighting

Phantom™ Ultra AE Series LED light strips are designed for adjustable shelf and cabinet linear lighting applications and represent a breakthrough in strip lighting technology due to proprietary wiring methods. Imagine having the ability to freely move your lighted shelves without rewiring, using only a phillips head screwdriver! These low profile cabinet lights are easily concealed regardless of the shelf design, giving new definition to the phrase, "See the Light, Not the Fixture."

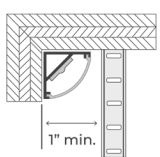
Custom mounting trims establish the optimum aiming angle which allows the contents of any cabinet to be illuminated to a precise degree at the highest level of aesthetics yet to be seen. Strips are precut to any desired length to be custom fitted to moveable shelves. There are no visible wires and shelf positions can be changed without any rewiring whatsoever. Strips are dimmable using a magnetic low voltage dimmer and produce a quality of consistent color and lumen output unmatched by competing products.

PHANTOM ULTRA AE SERIES FEATURES

- Low profile, concealed linear LED lighting source designed for adjustable shelf lighting or adjustable display applications
- Exclusive current carrying design using existing metal shelf standards and brass mounting hardware
- Dimmable high-performance compact magnetic low-voltage 24VDC drivers (available in both 120V and 277V)



Ultra AE Series Exploded View



SPACE REQUIREMENT

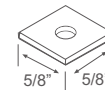
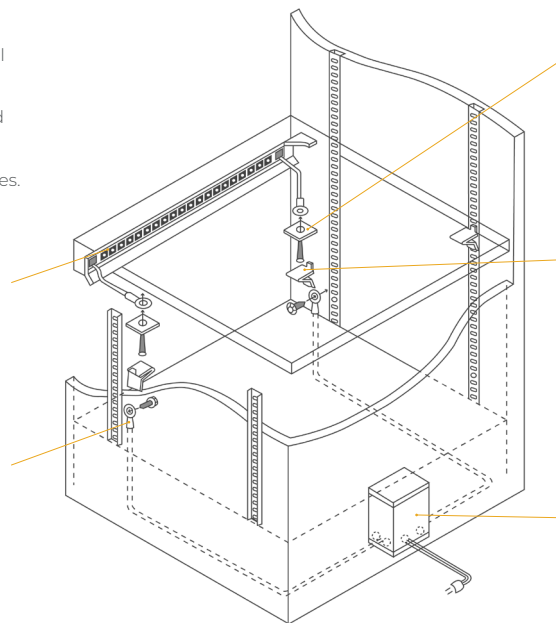
For best results, a wood reveal should be used to conceal the fixture. For applications above eye level use a shielded trim & extend wood reveal as necessary. Allow 1" clearance between light fixture and holes.

LED LIGHTING STRIP

Each LED lighting strip is concealed by either a trim or a lensed enclosure. For best results, use a matte finish on the back of the cabinet to minimize reflections and/or glare.

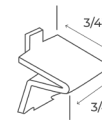
POWER CONNECTION

Attach power leads from driver to existing buss bar using ring connectors provided with product.



BRASS CONTACT PADS

Brass contact pads are designed to transfer electricity from the shelf support clip to the individual fixtures utilizing a safe low voltage current. Contact is made when the shelf is installed. No tools are required to rearrange the shelves!



EXPOSED STEEL SHELF SUPPORTS (BY OTHERS)

You can easily energize new or existing steel supports to conduct safe low voltage current for our exposed wiring method. This system virtually eliminates all the visible wiring and allows you to use standard shelf support clips. The use of aluminum shelf supports is **not** recommended!

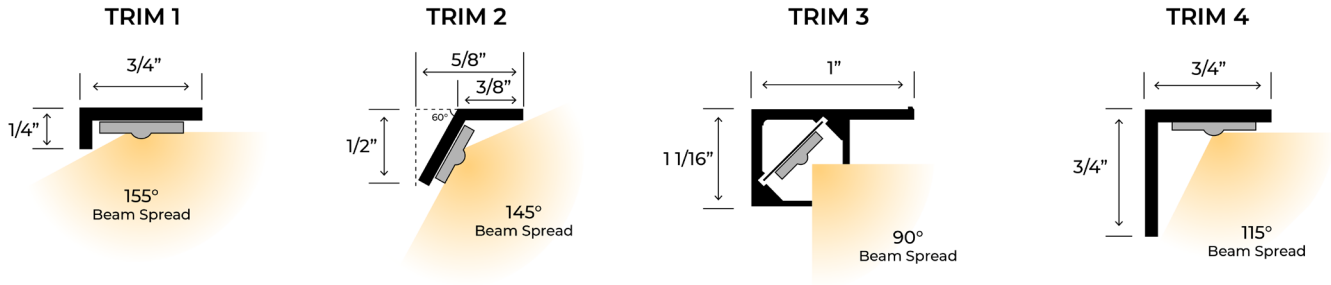
DRIVER

Magnetic drivers are sized to match the total wattage of your lighting load and come equipped with one or more secondary circuit breakers. (See driver sheet for more sizing information and amperage calculations).

SHIELDED

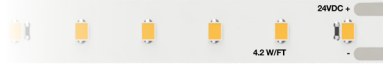






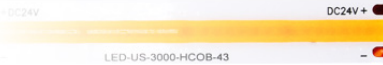









Trim Profiles

Shielded options are best for shaping the light in precise patterns and for minimizing both hot spots on surrounding surfaces and spill light that may stray outside the display. Available options include traditional diode tape and the latest chip-on-board (COB) tape that provides excellent light uniformity and seamless appearance.

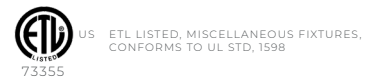


Our most popular shielded trims for this adjustable mounting method are trims 2 and 3. Both shielded trims are great for applications that have a shelf reveal as they provide the best light distribution and glare control. Trim 3 is perfect for shelves that have no reveal and can be installed and painted to match the cabinet color. For lensed trims, we recommend trim 9 for the ultimate in light distribution to conceal the LED diodes and provide total diffusion to prevent reflected glare from objects, reflective or gloss finishes. See page 3 for lensed trim options.

ULTRA TAPE SPECIFICATIONS FOR SHIELDED TRIM PROFILES

24VDC LED Tape	Wattage	Kelvin Color	Lumens per Foot	Efficacy (LM/W)	CRI	Diodes per Foot	Cut Mark	Max Run Length
	4.2 Standard	 1800K	349	83	94+	24	4.0 inches	23 feet
		 2100K	398	94				
		 2700K	400	95				
		 3000K	460	109				
		 3500K	465	110				
		 4000K	490	116				
	4.3 COB	 1800K	344	80	92+	156 COB	2.5 inches	23 feet
		 2100K	390	91				
		 2700K	400	93				
		 3000K	427	99				
		 3500K	450	105				
		 4000K	470	109				
	5.5 Warm-Dim	 1800K	604	80	92+	37	4.0 inches	17 feet
		 3000K	774	103				

Phantom Ultra Lighting Strips - Ordering Matrix
Sample Order Number: **AE-US-1-18-4.2-AD-12-FW-XX**



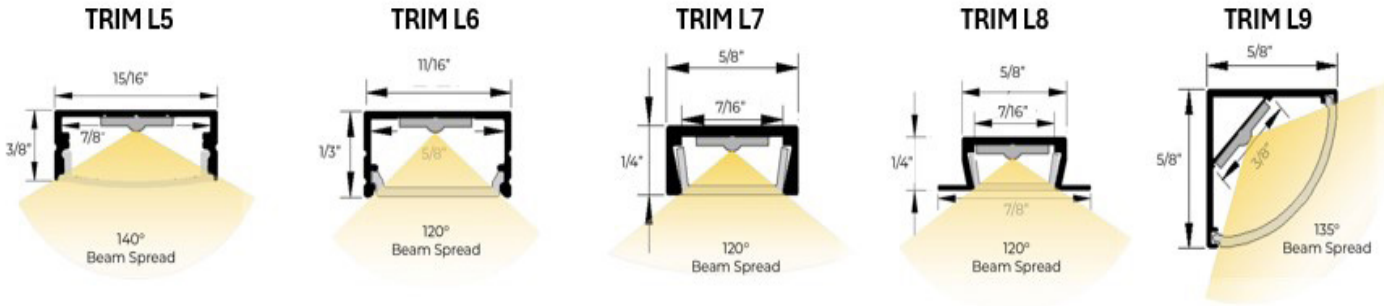
MODEL	SERIES TYPE	TRIM PROFILE	KELVIN COLOR	WATTS/FT	LEAD WIRES*	LEAD LENGTH	TRIM PAINT COLOR	TRIM LENGTH
AE	US	1	18	4.2	AD	12	FW	XX
AE	US - Ultra Shielded	1	18 - 1800K	4.2- 4.2W	AD - Adjustable	12"	FW - Flat White	Inches
	UD - Ultra Dim	2	21 - 2100K	4.3C- 4.3W		24"	GW - Gloss White	
		3	27 - 2700K	5.5WD- 5.5W		36"	FB - Flat Black	Specify Your Trim Length
		4	30 - 3000K				GB - Gloss Black	Inches
			35 - 3500K				LB - Light Beige	
			40 - 4000K				MB - Medium Brown	
							LA - Light Almond	
							UF - Unfinished	
							CC - Custom Color**	

*When facing application
**Contact factory for details

LENSED

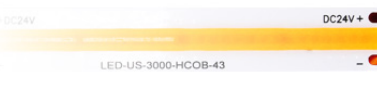


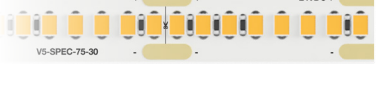
Trim Profiles

Lensed options are the best for applications where the light fixture may be visible, by hiding the individual LED diodes and preventing object or surface reflections by homogenizing the light pattern.

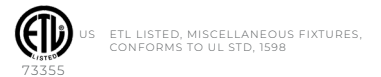


Additional Trim Profiles Available,
Please Contact Factory for Details

ULTRA TAPE SPECIFICATIONS FOR LENSED TRIM PROFILES

24VDC LED Tape	Wattage	Kelvin Color	Lumens per Foot	Efficacy (LM/W)	CRI	Diodes per Foot	Cut Mark	Max Run Length
	4.3 COB	1800K	344	80	92+	156 COB	2.5 inches	23 feet
		2100K	390	91				
		2700K	400	93				
		3000K	427	99				
		3500K	450	105				
	4000K	470	109					
	5.0 High Density	1800K	362	72	94+	64	1.50 inches	20 feet
		2100K	491	98				
		2700K	514	102				
		3000K	565	113				
		3500K	595	119				
	4000K	610	122					
	5.2 Ultra Density / Short Cut	1800K	360	80	94+	85	1.00 inches	20 feet
		2100K	482	89				
		2700K	549	93				
		3000K	570	103				
		3500K	597	116				
	4000K	606	110					
	7.5 High Density	1800K	604	80	94+	72	1.375 inches	13 feet
		2100K	670	89				
		2700K	698	93				
		3000K	774	103				
		3500K	872	116				
	4000K	862	110					

Phantom Ultra Lighting Strips - Ordering Matrix
Sample Order Number: **AE-UL-5-18-5.0-AD-12-SA-XX**



MODEL	SERIES TYPE	TRIM PROFILE	KELVIN COLOR	WATTS/FT	LEAD WIRES*	LEAD LENGTH	TRIM PAINT COLOR	TRIM LENGTH
AE	UL	5	18	5.0	AD	12	SA	XX
AE	UL - Ultra Lensed	5 6 7 8 9 10	18 - 1800K 21 - 2100K 27 - 2700K 30 - 3000K 35 - 3500K 40 - 4000K	4.3C-4.3W 5.0 - 5.0W 5.2 - 5.2W 7.5 - 7.5W	AD - Adjustable	12" 24" 36"	SA - Satin Aluminum CC - Custom Color**	Inches Specify Your Trim Length In Inches

*When facing application
**Contact factory for details

MAGNETIC DRIVER SPECIFICATIONS

	20 VA	40 VA	60 VA	96 VA	150 VA	192 VA	200 VA	288VA	300 VA
120VAC/24VDC¹	MD20-24	MD40-24	MD60-24	MD96-24	MD150-24	MD192-24	MD200-24	MD288-24	MD300-24
Class	Class 2	Class 2	Class 2	Class 2	Class 1	Class 2 (2 ch)	Class 1	Class 2 (3 ch)	Class 1
Maximum Load*	20	40	60	96	150	192	200	288	300
Minimum Load	10	16	24	38	60	80	80	38	120
Circuit Breaker	Auto	Auto	Auto	Auto	Manual	Manual	Manual	Manual	Manual
Dimming	Yes - MLV	Yes - MLV	Yes - MLV	Yes - MLV	Yes - MLV	Yes - MLV	Yes - MLV	Yes - MLV	Yes - MLV
Height (H)	5.50"	5.50"	6.50"	6.50"	9.50"	9.50"	9.80"	9.50	9.80"
Width (W)	2.25"	2.25"	2.75"	2.75"	3.25"	3.25"	3.25"	3.25	4.25"
Depth (D)	2.00"	2.00"	2.25"	2.25"	4.00"	3.00"	3.00"	3.00	3.50"
Weight (lbs)	1.80	1.80	2.00	2.00	5.00	5.00	5.50	5.50	8.75

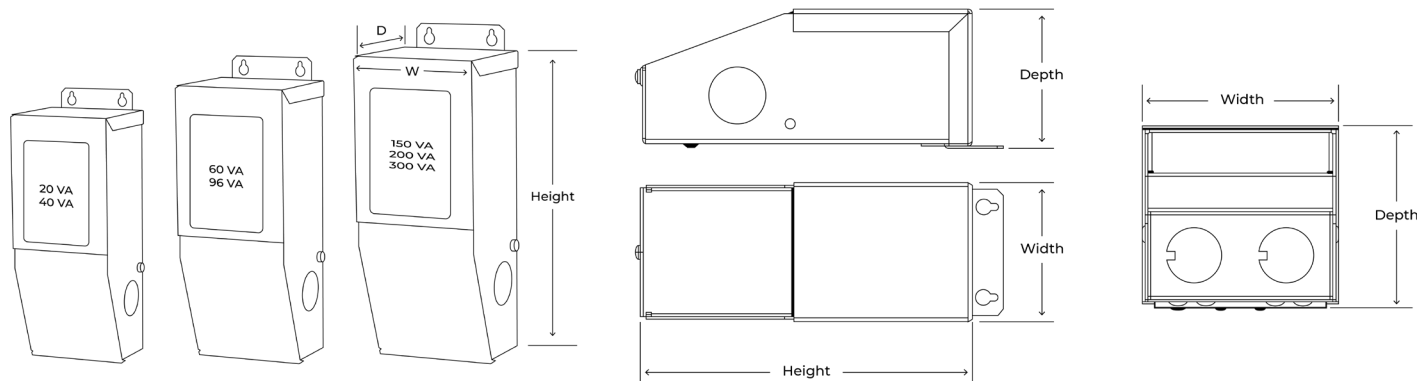
ELECTRONIC DRIVER SPECIFICATIONS

	60 VA	96 VA	96 VA	192 VA	288 VA
120VAC/24VDC¹	EDQ-LED24-MINI60	EDQ-LED24-MINI96	EDJ-LED24-96J	EDJ-LED24-192J	EDJ-LED24-288J
Class	Class 2	Class 2	Class 2	Class 2	Class 1
Maximum Load*	60	96	96	2x 96W (2 Channel)	3x 96W (3 Channel)
Minimum Load	15	40	24	30 per Channel	30 per Channel
Over Current	Protected	Protected	Protected	Protected	Protected
Dimming	Yes - ELV/MLV/Triac	Yes - ELV/MLV/Triac	Yes - ELV/MLV/Triac	Yes - ELV/MLV/Triac	Yes - ELV/MLV/Triac
Height (H)	2.9"	2.9"	4.75"	4.75"	4.75"
Width (W)	1.6"	1.6"	5.0"	7.4"	10.15"
Depth (D)	0.9"	0.9"	1.65"	1.65"	1.65"
Weight (lbs)	0.31	0.35	1.25	1.75	2.5

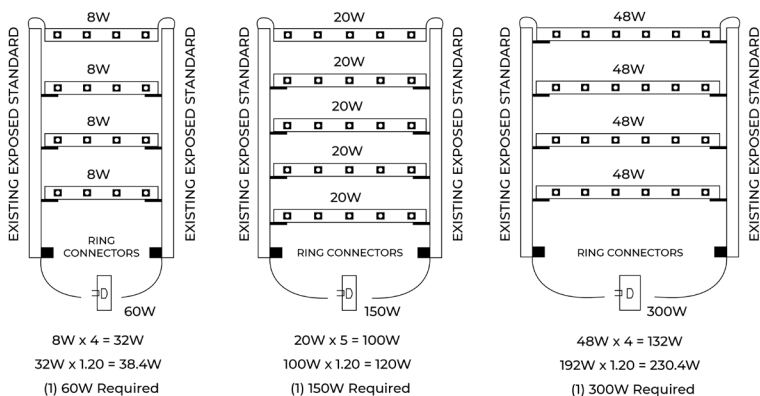
*DOES NOT reflect the 20% safety factor that is recommended to avoid overload or nuisance tripping when selecting a transformer. (Wattage/Voltage = Amperage).
 To calculate amperage, divide total wattage by secondary voltage (Wattage/Voltage = Amperage).
 To calculate wattage, divide amperage by secondary voltage (Amperage/Voltage = Wattage)

¹ Available in 277VAC input, please contact factory for details

Driver Dimensions



Ultra AE Series Load Examples



TERMS AND CONDITIONS

To comply with Phantom™ Lighting System warranty policies and ETL standards, all lighting strips must be used in conjunction with Phantom™ Lighting drivers. All Phantom lighting transformers are ETL Approved for Class 2 applications and are strongly recommended for proper orientation of lighting strips. Phantom™ drivers should **not** be located in areas without ventilation or be subjected to high ambient temperatures. If ambient temperatures exceed 115°F (46°C) around the driver, the circuit breakers may nuisance-trip due to excessive heat and void any warranty.

CAUTION: Failure to correctly size primary and secondary conductors and/or overload protection may result in bodily injury or serious property damage.

If you have any questions or concerns regarding your application, please contact the factory at (713) 863-1184 or consult a licensed electrician or the National Electric Code.