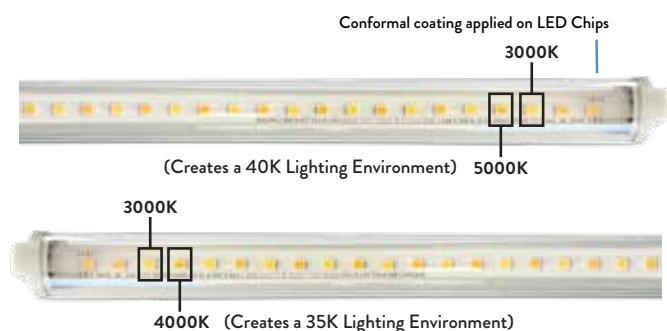
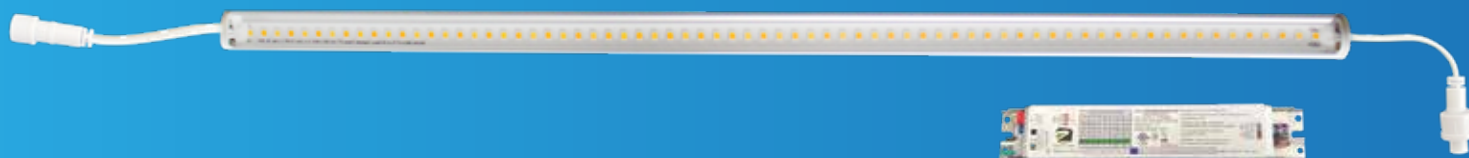


MAGNIBLEND REFRIGERATION

by **ZLED**
LIGHTING
ZLEDLIGHTING.COM



LED bars have either 30K/40K or 30K/50K chips installed in every other color temperature pattern.

WATTAGE	Wattage selectable drivers
COLOR TEMPS	30K/40K and 30K/50K
EFFICACY	125 lm/W with Frosted Lens 150 lm/W with Clear Lens 160 lm/W with No Lens
VOLTAGE INPUT	120/277V
DRIVER OUT VOLTAGE	27-42VDC
CRI	90+
DIMMING	0-10VDC, (optional: TRIAC)
AMBIENT TEMP	-20 to 50C; -40 to 122F
SURGE PROTECTION	2KV
LED CHIPS	Conformal coating applied
RATED	IP20 for damp location
WARRANTY	5 year
LED LIFESPAN (L70)	50,000 hours
FLICKER	Meets Title 24 Flicker Requirements
LISTED	ETL

Bright and energy-efficient LED refrigerated case lighting can significantly enhance product visibility and appeal.

By illuminating fresh produce, meats, seafoods, and prepared foods with vibrant, true color light, this not only creates an inviting atmosphere but also improves the shopping experience for customers. Plus, with the added benefit of energy efficiency, it can reduce operational costs while maintaining optimal visually appealing display conditions. It's a smart investment for any commercial refrigeration space!

MagniBlend Refrigeration LED Lighting not only Improves a shopping experience it creates consistent uniformity, minimal glare and eliminates dark spots. Shopping Markets and retailers benefit with eco-friendly, lower maintenance, and costs due to lower power consumption. MagniBlend LED Lighting solutions are designed to help retailers and shopping markets easily switch cases from older forms of lighting technology to MagniBlend Refrigeration LED.

EASY TO INSTALL:

Pre-installed onboard magnets on both bars and driver. Slide out mounting brackets on bars, pre drilled holes on driver for easy screw mount installation. (Self drilling screws included).
Optional Directional Magnets are available. See Magnet Accessories.



Hot and Cold Door Refrigeration Lighting LED Bars include Mounting Clips for Installation.



MagniBlend Refrigeration LED Lighting not only Improves a shopping experience it creates consistent uniformity, minimal glare and eliminates dark spots. Shopping Markets and retailers benefit with eco-friendly, lower maintenance, and costs due to lower power consumption. MagniBlend LED Lighting solutions are designed to help retailers and shopping markets easily switch cases from older forms of lighting technology to MagniBlend Refrigeration LED.

Suggested Color Blends by department for Grocery Stores:

Produce / General / Bakery / Seafood

MagniBlend Linear Case Lighting 30/50K-90 CRI Creates a 40K Lighting Environment



45"	MRK-LB-45"-30/50K-BL-FR-HH
33"	MRK-LB-33"-30/50K-BL-FR-HH
22"	MRK-LB-22"-30/50K-BL-FR-HH



Meat / Poultry / Cheese

MagniBlend Linear Case Lighting 30/40K-90 CRI Creates a 35K Lighting Environment



45"	MRK-LB-45"-30/40K-BL-FR-HH
33"	MRK-LB-33"-30/40K-BL-FR-HH
22"	MRK-LB-22"-30/40K-BL-FR-HH



Door Refrigeration

MagniBlend Linear Door Retrofit Lighting 30/50K-90 CRI Creates a 40K Lighting Environment

70"	MRK-DR-70"-30/50K-BL-FR-HH
58"	MRK-DR-58"-30/50K-BL-FR-HH



Includes 4- No Magnet Hooks for mounting



Olive Bar / Pizza Bar

MagniBlend Hot Cold Bar Linear Case Lighting Kits 30/40K-90 CRI Creates a 35K Lighting Environment

47 7/8"	MRK-HCB-KT-47-7/8"-30/40K-BL-CL-HH
35 7/8"	MRK-HCB-KT-35-7/8"-30/40K-BL-CL-HH
23 7/8"	MRK-HCB-KT-23-7/8"-30/40K-BL-CL-HH
11 7/8"	MRK-HCB-KT-11-7/8"-30/40K-BL-CL-HH



Includes 2- Bar Clips for mounting



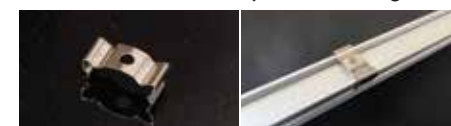
Hot and Cold Bar

MagniBlend Hot Cold Bar Linear Case Lighting Kits 30/50K-90 CRI Creates a 40K Lighting Environment

47 7/8"	MRK-HCB-KT-47-7/8"-30/50K-BL-CL-HH
35 7/8"	MRK-HCB-KT-35-7/8"-30/50K-BL-CL-HH
23 7/8"	MRK-HCB-KT-23-7/8"-30/50K-BL-CL-HH
11 7/8"	MRK-HCB-KT-11-7/8"-30/50K-BL-CL-HH



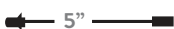
Includes 2- Bar Clips for mounting



Accessories

Harnesses with Male and Female waterproof end connections

PART NUMBER: HARNESS-5IN-JUMP-HH
5 in Waterproof Harness for Refrigerated Case



PART NUMBER: HARNESS-8IN-JUMP-HH
8 in Waterproof Harness for Refrigerated Case



PART NUMBER: HARNESS-12IN-JUMP-HH
12 in Waterproof Harness for Refrigerated Case



PART NUMBER: HARNESS-24IN-JUMP-HH
24 in Waterproof Harness for Refrigerated Case



PART NUMBER: HARNESS-36IN-JUMP-HH
36 in Waterproof Harness for Refrigerated Case



PART NUMBER: HARNESS-8FT-JUMP-HH
8 ft Waterproof Harness for Refrigerated Case



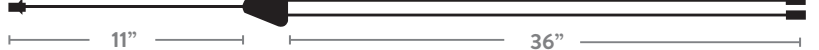
PART NUMBER: HARNESS-12FT-JUMP-HH
12 ft Waterproof Harness for Refrigerated Case



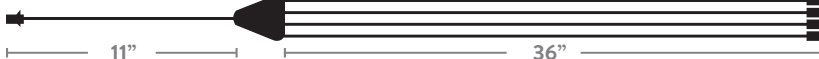
PART NUMBER: HARNESS-16FT-JUMP-HH
16 ft Waterproof Harness for Refrigerated Case



PART NUMBER: HARNESS-2-WAY-3FT-HH
3 ft each leg High Humidity



PART NUMBER: HARNESS-4-WAY-3FT-HH
3 ft each leg High Humidity



Leads to LED Bars

3M™ VHB™ TAPE



Optional tape for door mounting



Clear Lens



Frosted Lens



End Cap

Part Number	Description
6"-Driver-Bridge-Harness-HH	6 inch Waterproof Driver Bridge Harness from Driver 1
B&W-LEAD-TO-WP-TAIL-HH	B&W Lead 6 inch to WP Tail from Harness QC 2
ZL-MRK-ENDCAP-BAR-HH	End of run endcap for conformal bar
2FT-Clear-Lens-22"-HH	2FT-Clear-Lens for 22" HH LED MC-PCBA's
4FT-Clear-Lens-45"-HH	4FT-Clear-Lens for 45" HH LED MC-PCBA's
2FT-Frosted-Lens-23 7/8"-HH	2FT-Frosted-Lens for 23 7/8" HH LED MC-PCBA's
3FT-Frosted-Lens-35 7/8"-HH	3FT-Frosted-Lens for 35 7/8" HH LED MC-PCBA's
4FT-Frosted-Lens-47 7/8"-HH	4FT-Frosted-Lens for 47 7/8" HH LED MC-PCBA's
ZL-TAPE-HH	Double-coated acrylic foam tape for mounting

Optional Mounting Hardware - Magnets and Clips for Directional Use

45 Degree Angle Magnet
for Doors/Shelves

PART NUMBER:
MAG-NO-HOOK-45DEG-HH



Magnet with Hook

PART NUMBER:
MAG-HOOK-HH



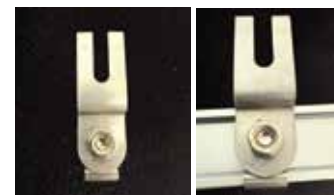
No Magnet No Hook
45 Degree

PART NUMBER:
NO-MAG-NO-HOOK-45DEG-HH



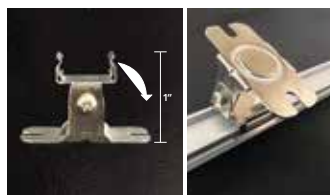
No Magnet Hook

PART NUMBER:
NO-MAG-HOOK-HH



Magnet with Hook
(adjustable 0-180 degrees)

PART NUMBER:
MAG-HOOK-ADJUSTABLE-HH

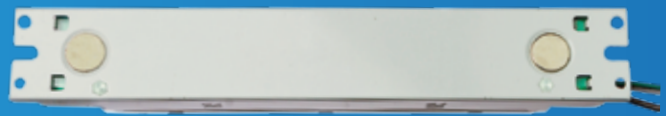


Bar Clip

PART NUMBER:
BAR-CLIP-HH



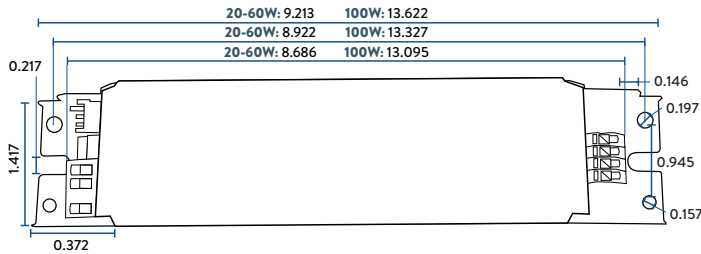
Drivers



FEATURES

- **Input Voltage:** 120/277VAC
- **Power Factor:** ≥ 0.9
- **Efficiency:** $\geq 88\%$
- **THD:** $\leq 10\%$
- **Driver Out Voltage:** 27-42VDC
- **Dimming:** 0-10V

MODEL NUMBER	DEFAULT WATTAGE	WATTAGE POWER SELECTABLE OPTIONS
MRK-DRIVER-20W-2H-PLUS	20W	8W, 10W, 14W, 16W, 18W, 20W, 22W
MRK-DRIVER-30W-2H-PLUS	30W	10W, 16W, 20W, 24W, 28W, 30W, 32W
MRK-DRIVER-40W-2H-PLUS	40W	24W, 28W, 30W, 32W, 38W, 40W, 42W
MRK-DRIVER-50W-2H-PLUS	50W	25W, 30W, 38W, 40W, 45W, 50W, 52W
MRK-DRIVER-60W-2H-PLUS	60W	40W, 45W, 50W, 55W, 57W, 60W, 62W
MRK-DRIVER-100W-4WH-PLUS	100W	65W, 70W, 75W, 85W, 90W, 95W, 100W



Enclosures for Drivers



100W DRIVER ENCLOSURE (with two knockouts)

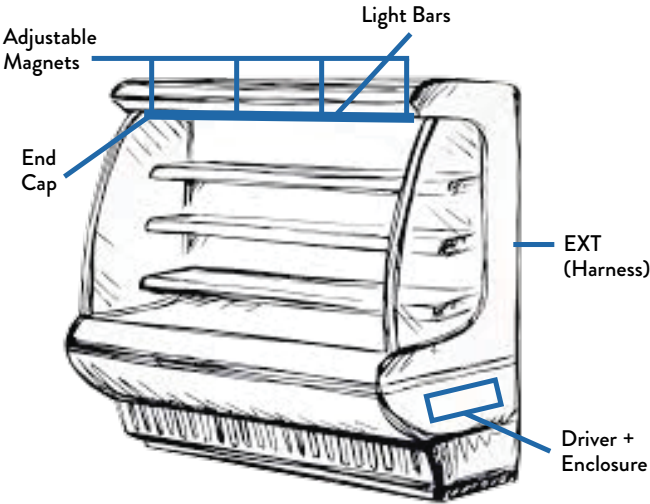
PN: MRK-100W-DRIVER-ENCLOSURE
DIMENSIONS: 16" (L) x 1.75" (W) x 1.3125" (D)

20-60W DRIVER ENCLOSURE (with two knockouts)

PN: MRK-20/60W-DRIVER-ENCLOSURE
DIMENSIONS: 12" (L) x 1.75" (W) x 1.3125" (D)



Creating a Bill of Materials (BOM) for a Magnilumen refrigeration lighting retrofit system involves listing all necessary components and materials required for installation. Start by identifying the specific Magnilumen LED lighting model suitable for the refrigeration unit, including wattage, voltage, and dimensions. Include the number of LED fixtures needed, along with power supplies, wiring, connectors, mounting hardware, and any necessary control devices such as dimmers or motion sensors. Review any additional materials like brackets, adhesive tapes, or protective covers, ensuring compatibility with the existing refrigeration system. Document part numbers, quantities, and supplier details for each item to streamline procurement.



Example Bill of Material

Part Number	Description	Qty
MRK-LB-45"-30/50K-BL-FR-HH	MagniBlend Linear Case Lighting 30/50K-90 CRI Creates a 40K Lighting Environment	2
HARNESS-12FT-JUMP-HH	12ft Waterproof Harness for Refrigerated Case	1
MRK-20/60W-DRIVER-ENCLOSURE	Metal Driver Enclosure for 20/60W Mag Plus Driver with Grommet	1
MRK-DRIVER-40W-2H-PLUS	Magnilumen Plus™, Driver, 40W DFW, Wattage Selectable	1
ZL-MRK-ENDCAP-BAR-HH	End of run endcap for refrigeration Bars (Included)	1

Impact of LED Lighting on Food Spoilage in Grocery Stores:

Key Points:

- **LED Adoption:** Increasing due to energy efficiency, long lifespan, little to no UV and environmental benefits.
- **Food Spoilage Concern:** LED lighting characteristics can affect perishable food quality and shelf life.

Main Spoilage Mechanisms:

- **Microbial Growth:** Promoted by temperature and humidity changes.
- **Oxidation:** Light exposure accelerates lipid oxidation.
- **Photo-Degradation:** Breaks down vitamins and pigments.
- **Temperature Fluctuations:** Encourage microbial activity.

Best Practices for LED Use in Grocery Stores:

Optimize Light Conditions:

- Use warm-spectrum LEDs (2700K-3500K) for sensitive items.
- Implement dimmable LEDs and timers to reduce exposure during off-hours.

Protect Products:

- Apply filters and shielding to minimize photo-degradation.
- Customize lighting zones to balance product preservation and illumination.

How LED Lighting Affects Different Food Categories:

1. Fresh Produce:

- **Positive:** Cooler LEDs reduce heat stress, extending shelf life.
- **Negative:** High-intensity light degrades pigments, causing discoloration.

2. Dairy Products:

- **Positive:** Reduced heat minimizes temperature fluctuations.
- **Negative:** UV-rich LEDs degrade vitamins (e.g., riboflavin).

3. Meat & Seafood:

- **Positive:** Lower heat prevents surface drying.
- **Negative:** Light exposure accelerates lipid oxidation, leading to off-flavors.

4. Packaged Foods:

- **Positive:** Consistent lighting enhances visual appeal.
- **Negative:** Prolonged exposure causes oxidation and staleness.

Monitor & Adjust:

- Regularly track temperature, humidity, and light exposure.
- Adjust LED settings based on real-time environmental data for optimal food preservation.

