Onstate Technologies ™

LLK-AR45 LED Lighting
Heatsink Enclosure Kit

Technical Information- LED Lighting
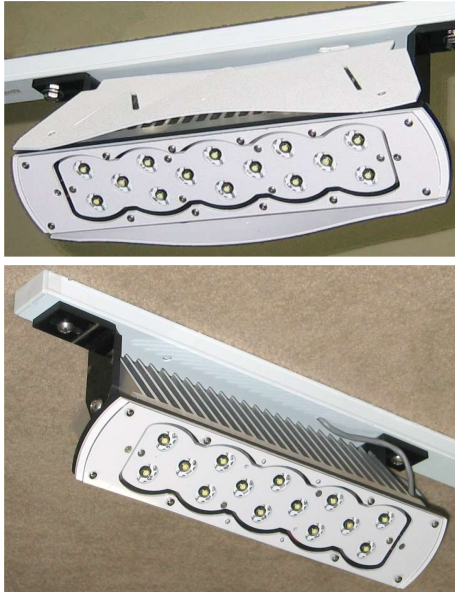LED Lighting Kits And Accessories

Seeing with LED Lighting™

LLK-AR45 LED Illuminator Heatsink Enclosure Kit

The LLK-AR45 LED lighting heatsink enclosure kit is a high-quality and high-performance multi-purpose LED lighting unit. The large, extruded aluminum heatsink has high thermal conductivity, is light weight and high strength to provide optimum performance for high power LEDs lighting (up to 45W). RGB, coloured, white, or infrared LEDs could be used for special effects or applications. The CNC machined plastic window covers provide a precision finish and look to the product. The LLK-AR45 is designed to perform in professional as well as general lighting applications. Whether you need LED lighting for portable, area, video, machine vision or CCTV applications, the LLK-AR45 will provide years of maintenance-free service.

Features:
- Large aluminum heatsink, up to 45W
- CNC machined window and case
- Compact, small, light weight, durable
- Easy mounting and installation
- Easy to drill plastic and alumimum parts.
- Corrosion resistant parts and hardware
- High-power, multi-purpose design
- Assembly hardware included

Benefits:
- Maximise and maintains peak LED performance
- Configurable for various lighting applications.
- Efficient and low cost, long life illumination

Applications:
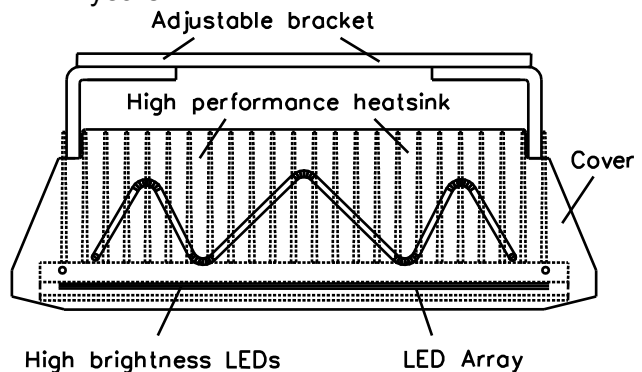- Residential, commercial general lighting,
- CCTV, machine vision lighting
- Accent, architectural lighting

Technical Specifications:
LLK-AR45 LED Illuminator Heatsink Enclosure Kit.
Power: 45W Max.
LEDs: 14x 3/5W star LEDs.
Dimension: 11.9" (L) x 2.4" (W) x 3.6" (D)
Material: Extruded aluminum heatsink.
            CNC ABS plastic shell.
Window: 1/16" clear Lexan, CNC machined.
Weight: 1.5kg (3.3lb)
Hardware: Plastic, stainless steel
Warranty: 2 years.

Made In Canada

Adjustable bracket

High performance heatsink

Cover

High brightness LEDs   LED Array

DO NOT STARE DIRECTLY INTO THE LED LIGHT

This kit requires soldering and machining. Please use safety precautions when using tools. Please consult an experienced person if you have difficulties.
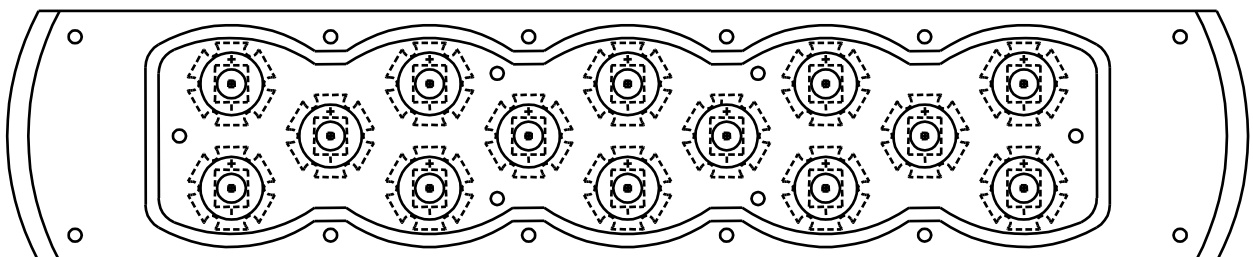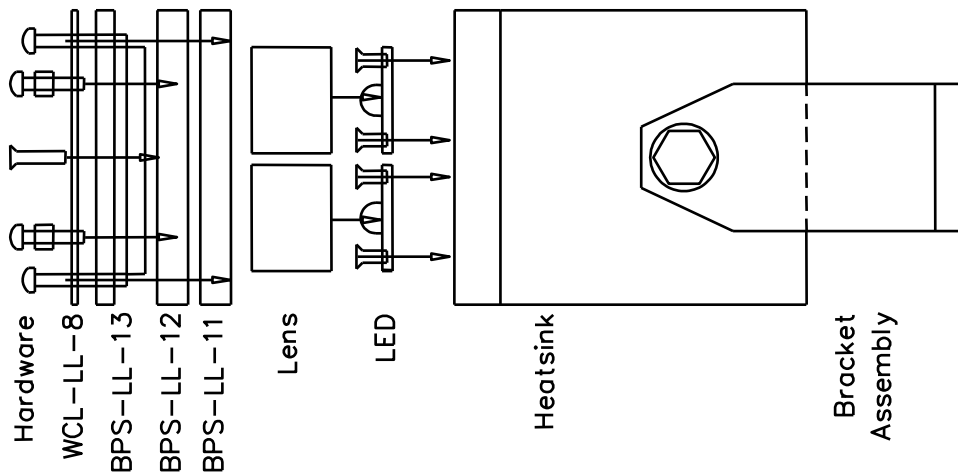
Assembly:

   Maximize airflow to LED array for best performance. The LEDs and components get warm during operation. Do not install in an enclosed area or expose to high temperatures. LEDs are sensitive to heat and static. Use proper care during soldering and assembly. Follow the assembly procedures sequentially for quick and easy assembly. Please use proper safety precautions when using tools. If you do not have the proper tools or have insufficient experience assembling electronic parts, this kit may be difficult for you.

LLK-AR45 parts.   Assembled LLK-AR45

LLK-AR45 parts assembly layout.

1. Arrange all parts on a clean, flat surface for inspection and assembly. Check all parts for fit and use. Clean sharp edges on parts if necessary. Determine power and LEDs required. The LED cover plate is designed for 14 star LEDs.
2. Print heatsink layout drawing for a 1:1 scale (adjust printer settings if necessary). The heatsink dimension should be 10.1" length. Use a scissors to cut-out the outer shape of the heatsink. Put the white cover plate on top of the parts layout to check for accurate hole alignment. With the cover plate on top, use a pencil to mark off holes on the printout. Center punch mounting holes. Determine LED mounting holes. Center punch appropriate hole locations. Center and align printout on heatsink. Tape printout onto heatsink. Mark off drill holes with pencil. Drill cover plate mounting holes with a 3/32" drill bit (16x) to ¼" depth. Drill LED mounting holes with a 5/64" drill bit (28x) to ¼" depth. If mounting LEDs with adhesive, mounting holes may not be required. Thread the 3/32" holes with a 4-40 thread tap. Do not over torque the tap or it might break.
3. Drill 2x 7/32" on the outer heatsink fins for the mounting bracket. Thread with 1/4-20 thread tap.
4. Clean LED mounting surfaces. Mount LEDs onto heatsink with screws provided. Do not over torque screws. Mark off wiring connections with pencil.
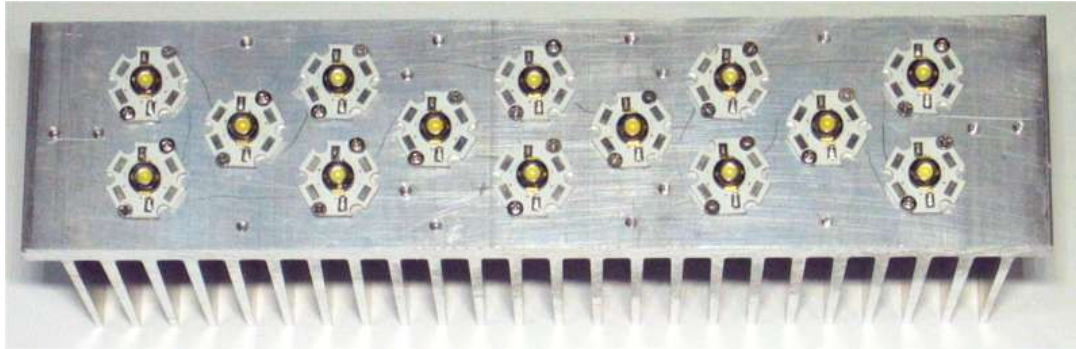

5. Clean LED mounting surfaces. Mount LEDs onto heatsink with screws provided. Do not over torque screws. Tighten screws after soldering. Mark off wiring connections with pencil. Solder LED connections and power leads. Test LED array. Insert power cable and strain relief into bottom cover plate (BPS-LL-11). The top area of the strain relief may be trimmed for proper wire fit. Use screws to temporarily mount the plate. Test LED array for proper operation.
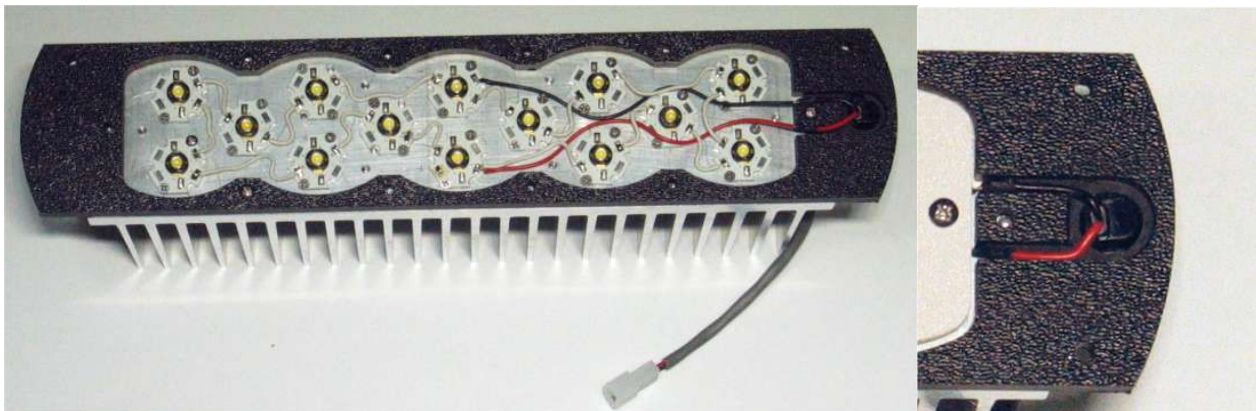
6. If LED lenses are not required, mount the LED cover plate (BPS-LL-13 inner part) with #4x1/8" plastic spacers and 4-40 x3/8" screws. Do not over torque screws. Counter-sunk the two outer holes on part BPS-LL-11 (black) or BPS-LL-13 (white) and mount with 4-40 flat head screws. Clean plastic surfaces. Mount clear plastic window plate with screws.
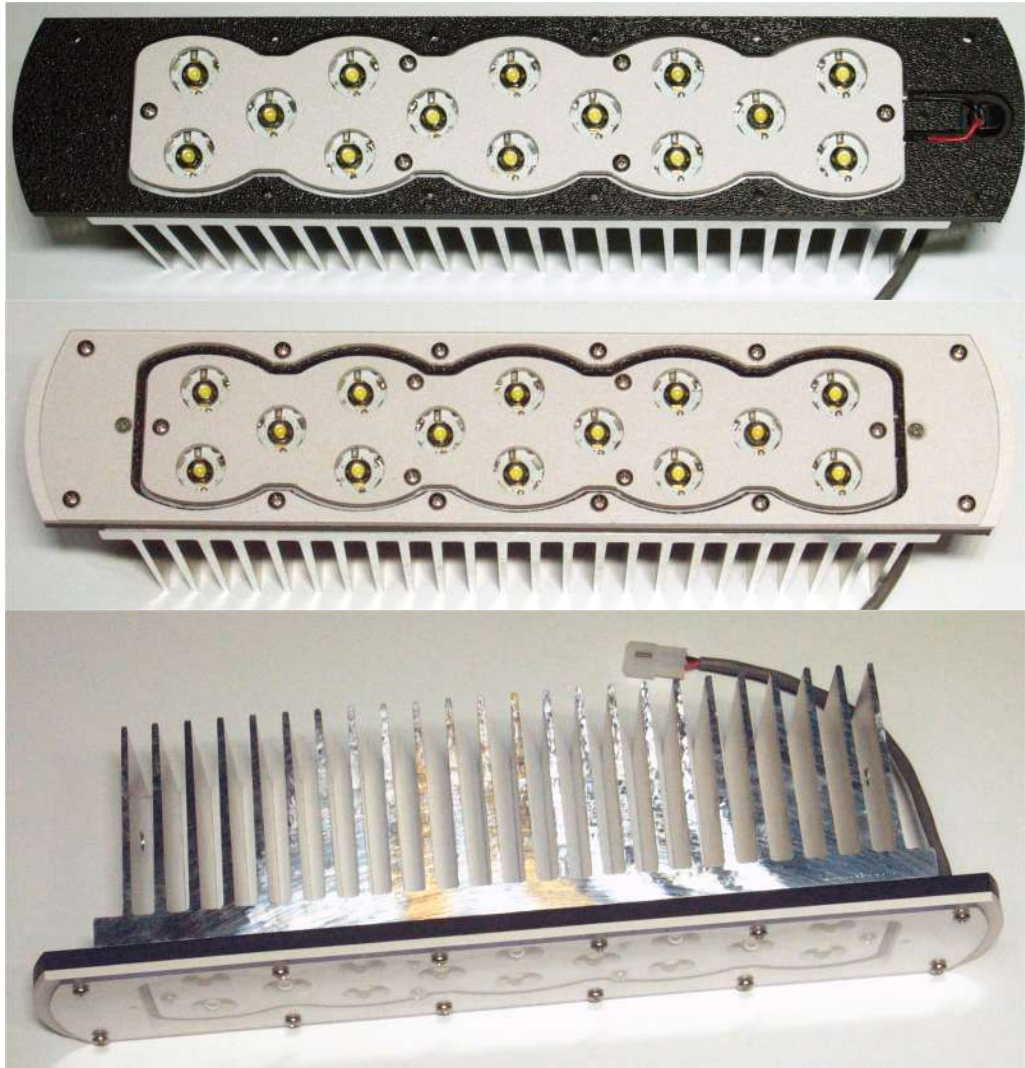
7. If LED lenses are required, use the second cover plate (BPS-LL-12) to increase the case thickness. Counter-sunk the two outer holes on part BPS-LL-12 (black) or BPS-LL-13 (white) and mount with 4-40 flat head screws. Clean plastic surfaces. Mount LED lenses. Add adhesive if necessary. Apply power to test LED array. Mount clear plastic window plate with screws.
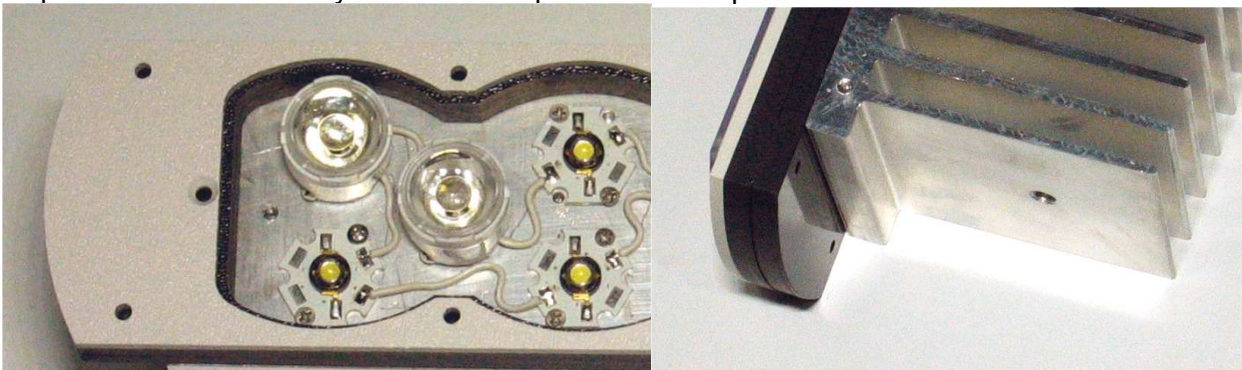
8. Assemble mounting bracket parts. Use ¼-20 hex bolts. Test LED unit for proper operation. The AR45 LED unit assembly is now complete.

LLK-AR45 Parts:

Bill-of-Materials for LLK-AR45 LED lighting heatsink enclosure kit.

Enclosure, heatsink, window and hardware.

QTY	Application	Description
1	LED heatsink	LED heatsink, 10.1"x2.4"
1	Plastic shell 1	11.9"x2.4", 1/4" CNC plate. BPS-LL-11
1	Plastic shell 2	11.9"x2.4", 1/4" CNC plate. BPS-LL-12
1	Plastic shell 3	11.9"x2.4", 1/8" CNC plate. BPS-LL-13
1	Window cover plate	1/8" PC, clear Lexan window
1	Wire strain relief	7/16" wire strain relief
6	LED cover plate spacer	#4 x1/8" plastic spacers
6	LED cover plate mounting	4-40 x3/8" pan head phillips drive
28	LED mounting	2-56 x 1/4" flat head phillips drive
12	Plastic shells (1/2/3) and window plate mounting (LED lens option)	4-40 x 7/8" pan head phillips drive
12	Plastic shells (1/3) and window plate mounting (no LED lens option)	4-40 x 5/8" pan head phillips drive
28	LED mounting	2-56 x 1/4" flat head phillips drive
2	Plastic shells (1/2) mounting	4-40 x 5/8" flat head phillips drive
2	Plastic shells (1/3) mounting	4-40 x 1/2" flat head phillips drive
4	Plastic shells (1/2/3) and window plate mounting. Outer edge mounting.	4-40 nuts.
4	Bracket mounting	¼-20 x1/2" hex bolt
4	Bracket mounting washer	¼" flat washer
1	AR45 mounting	¼-20 x3/4" hex bolt
1	AR45 mounting washer	¼" fender washer
4	AR45 side cover (optional part)	4-40 x3/8" flat head phillips drive
4	Side cover plate spacer	#4 x3/16" plastic spacers

Equipment Required:

Parts for machining and assembly.

QTY	Application	Description
1	Drill holes, threading	Drill press, electric drill
1	4-40, ¼-20 thread holes	4-40, ¼-20 thread tap
1	Holes	Drill bit set
1	Screw assembly	Screw driver set
1	Counter-sunk holes	¼" counter-sunk bit
1	LED connection	24-22 AWG wires
1	Soldering	Soldering iron and solder
1	Holes marker	Pencil
1	Power leads and connector	22-18AWG cable. Locking connector set
1	Hole alignment	Hole center punch
1	LED driver	LED power supply. Constant current
1	Tools, DMM, power supply	General electronics assembly and testing tools

Optional Accessories/Parts:

Optional materials (not supplied) for LLK-AR45 LED lighting unit.
LEDs, LED lens and holder, LED driver

Part	QTY	Application	Description
Star-PCB LED	14	high brightness star-type white LED.	Star-type or similar.
Power cable	1	LED power cable, 2 conductor	Power cable, 2 conductor, 22AWG
LED driver	1	Provide constant current to LEDs	LED driver and regulator
Collimator	14	Plastic holder for lens collimator	Lens holder
LED lenses	14	Various lens for different beam angles	20mm Lens collimator
AR45 cover plate	2	Heatsink side cover plate	1/16" plastic heatsink cover plate
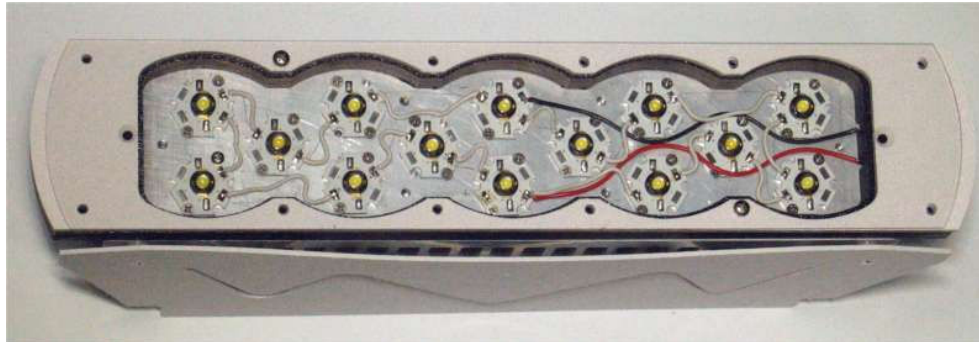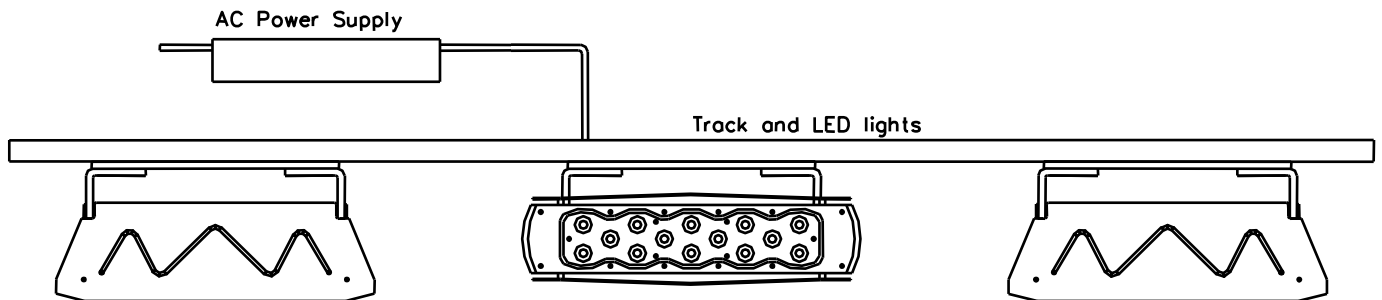
AR45 with side cover plate.

Warranty:

Onstate Technologies warranties its products to be free of defects in materials and workmanship for a period of two (2) years. All products are sold as-is. Onstate technologies assumes no liabilities or obligations due to consequential damages caused by the product directly or indirectly with respect to loss of property, revenue, or cost of removal, installation or reinstallation. Modifications or improper use will void warranty.