LEDengine-V

50 Watt LEDengine-V
Up to 5400 lumens

Fig.1 LEDengines use Sharp MegaZeni LEDs

Description

The Lumotrix LEDengine is a compact high power LED light module with integrated miniature heat-sink, fan and control electronics. The light source of the LEDengine is a Lumotrix LEDisk which is available in a choice of color temperature and CRI with a nominal 50W power rating. LEDengine -V is designed with a round LEDisk for front mounting behind an aluminium panel, with the LED looking through a hole in the panel. It requires a 24Vdc constant voltage supply. This makes it easy to connect several of these LEDengines in parallel across a single supply and mount them on a single panel with a hole for each LED. This makes a high-power LED array.

The LEDengine-V can be dimmed using a 0-10V signal applied to a pair of solder terminals on the pcb. Contact Lumotrix for more details.

An IP rated version is available for outdoor luminaires.

An on-board slide switch allows a choice of maximum power settings to suit the final application/location.

There is another type of LEDengine – type C. It requires a constant current supply and has a separate datasheet.

Features:

- High Power LED light source with heat-sink, fan and control electronics.
- Over-temperature protection keeping LED Tc max below specified value.
- Three power settings, with on-board slide switch. For 50W LED: 48, 34 or 23W.
- Standard power supply: 24Vdc
- Designed for arrays.
- Low profile flat surface to fit most reflectors.
- Uses world class Sharp LEDs.
- User supplies own reflector.

LUMOTRIX Ltd Oakendene Estate, Cowfold, West Sussex, RH13 8AZ United Kingdom +44 1403 865914 sales@lumotrix.com

LEDengine-V

Specification:

Operating Temperature Range: -10ºC ~ +52ºC

Storage Temperature Range: -40ºC ~ +70ºC Humidity: 95% RH max

LED life expectancy: 40,000 hours with light output reduced to 70%

Fan life expectancy: 50,000 hours @70ºC

LED supply: 24VDC +/- 1.2V, 2.2A

LED power nominal 50W, 4300 to 5400 lm depending on CRI and colour temperature

Recommended connection wire: 24awg, 7/0.2mm, 5A rated

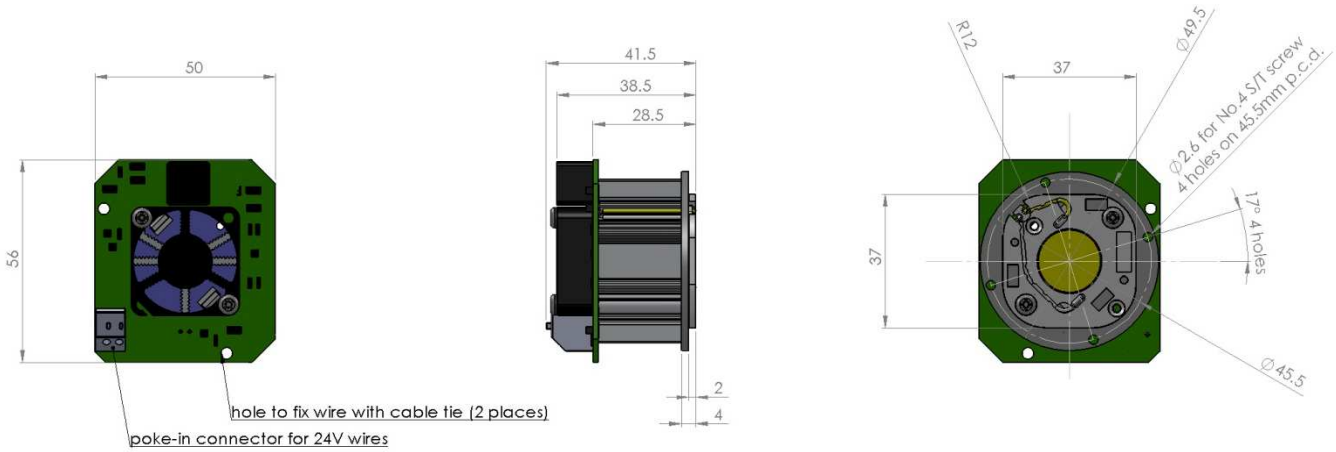


Fig.2 LEDengine-V dimensions

Dimensions: L x W x H: 56 x 50 x 41.5 mm Weight: 55g

LEDengine-V Selection:

					Light Output	Max LED temp	Maximum Ambient	Typ. Supply Voltage	Typ. Supply Current		
Power (W)	LEDengine	LES (mm)	CRI	CCT (K)	Lumen	ºC	ºC	V dc	Amps	Sharp LED inside	Recommended Power Supply
50	LE-50-827-V	17	83	2700	4300	100	52	24	2.2	GW6DME27NFC	PS-SNP75-24VL
50	LE-50-830-V	17	83	3000	4350	100	52	24	2.2	GW6DME30NFC	PS-SNP75-24VL
50	LE-50-840-V	17	82	4000	4650	100	52	24	2.2	GW6DME40NFC	PS-SNP75-24VL
50	LE-50-860-V	17	82	6000	4780	100	52	24	2.2	GW6DME60NFC	PS-SNP75-24VL
50	LE-50-750-V	17	70	5000	5400	100	52	24	2.2	GW6DAE50NFC	PS-SNP75-24VL

Fig.3 LEDengine selection chart

LUMOTRIX Ltd Oakendene Estate, Cowfold, West Sussex, RH13 8AZ United Kingdom +44 1403 865914 sales@lumotrix.com

Standard operating current and light output in the chart are based on the datasheets of the Sharp LEDs inside, as is the maximum LED temperature. The maximum ambient temperature is based on the expected temperature rise of the LED. For LEDengine-V the expected temperature rise over ambient is 48ºC (measured experimentally). The absolute maximum temperature allowed for the LED is 100ºC. This means that the maximum allowable ambient temperature (shown in the selection chart Fig.3) is 52ºC (i.e.100ºC - 48ºC). All the V type LEDengines incorporate 50W LEDisks, but lower power LEDisks could be used for special applications.

The LEDengine incorporates thermistor and control electronics to give temperature feedback control of fan speed. This reduces the fan noise and power consumption. Also, in the event of the fan being stalled the LEDengine control electronics which will reduce the LED power keeping the LED temperature within the Sharp specification. This function overrides any dimming control or power setting.

Power supplies

LEDengine-V can be powered by a standard 24VDC supply because it generates its own fan voltage internally. Connections to LEDengines are via loose wires into poke-in connectors. The wiring of the LEDengine poke-in connectors is negative to the left hand side and positive to the right hand side, see Fig.2. Reverse connection will not destroy the LEDengine. Preferred wire size is 24 awg e.g. 7/0.2 (7 strands of 0.2mm diameter wire). The choice of power supply depends on the power requirement of the LEDengine or array.

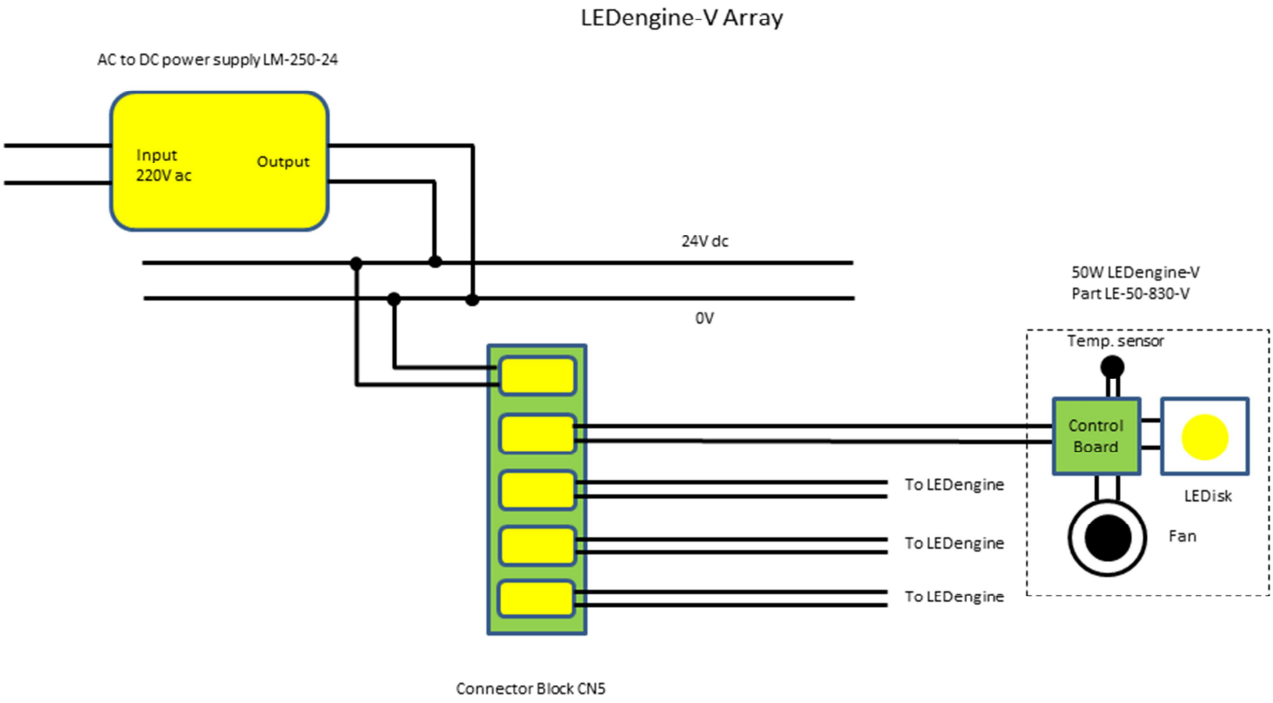


Fig.4 Constant Voltage power supply feeds LEDengine-V array

Floodlight and Streetlight Application

LEDengine-V is particularly suited to high power applications such as street lights and flood lights. In the case of street lights it has been found that many operators like the option to reduce the light output in certain locations and therefore make energy savings. The 3-way switch on the control board gives a full power and two reduced power settings for enhanced energy saving. Furthermore the LED itself will become slightly more efficient at lower power settings

LEDengine-V is available in a rugged IP rated version called LEDengine-VR which will operate in high humidity environments found in outdoor lighting applications.

The ability to mount LEDengine V on a flat plate makes it easy to design the unit into an outdoor light fitting. See below for mounting information.

Mounting

LEDengine-V is mounted behind a plate using four No.4 x ¼" self-tapping screws which pass from the front through clearance holes in the plate and bite into the holes on the LEDisk at the front of the LEDengine. Recommended plate thickness is 2mm because this makes the plastic of the LEDisk on the front of the LEDengine lie flush with the front surface, but thicknesses 1.2mm to 3 mm are fine (see Fig.5). Power distribution is aided by Lumotrix connector block CN-5 which has one input and four outputs, all in parallel. Distribution is via pairs of wires poked-in to the connectors on the LEDengines and the connector block. Cable ties can be used to secure the loose wires to holes placed near the edge of the LEDengine-V control boards (see Fig.6).

Fig.5 Mounting of 2x2 LEDengine array on aluminium plate using self-tapping screws

LUMOTRIX Ltd Oakendene Estate, Cowfold, West Sussex, RH13 8AZ United Kingdom +44 1403 865914 sales@lumotrix.com

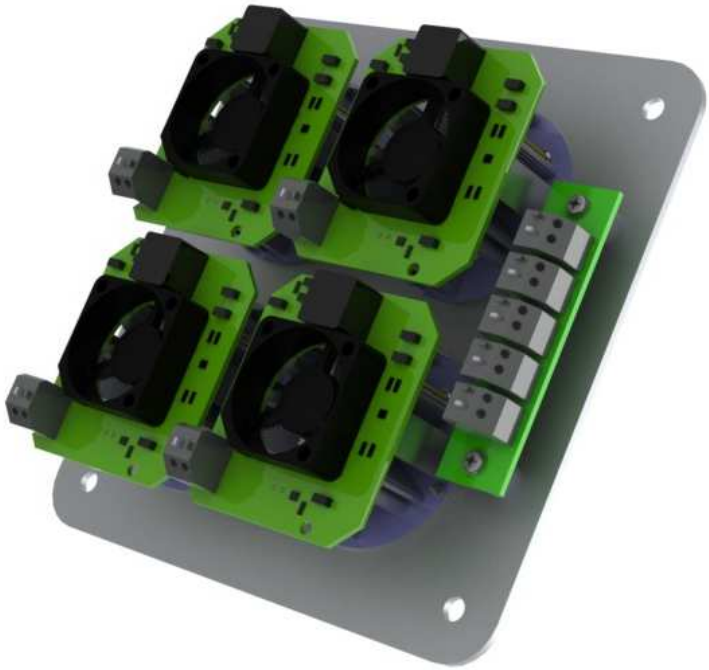
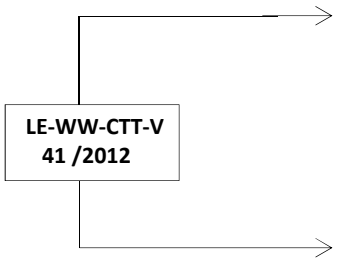


Fig.6 Rear of Array 2x2 showing connector block CN-5 for power distribution (wires not shown)

LUMOTRIX Ltd Oakendene Estate, Cowfold, West Sussex, RH13 8AZ United Kingdom +44 1403 865914 sales@lumotrix.com

LEDengine Label information

Located on side of fan. Format:



LE = LEDengine
WW = Power e.g. 50 Watt =50
CTT = **C**RI + Colour **T**emperature e.g. CRI 82 and CCT 3000K = 830
V = 24VDC Constant **V**oltage supply required
So LEDengine detailed above has code LE-50-830-V

Week /Year

The LEDisk used in the LEDengine will have its own separate label.

Packing information

Individually boxed.

Resellers:

Germany/Switzerland/Austria:

POWER SYSTEMS

Power Systems GmbH+Co.KG
Hauptstr. 48
74360 Ilsfeld/Germany
Tel: +49 (0) 7062 6759-6
Fax: +49 (0) 7062 6759-800
www.power-systems.de

UK:

LUMOTRIX

Lumotrix Ltd
Oakendene Estate
Cowfold/West Sussex
RH13 8AZ England
Tel: +44 (0) 1403 865486
www.lumotrix.com