

Vega *guides the way*



VRL-91 UNI-MEGA HIGH POWER LED RANGE LIGHT

RANGE DIVERGENCE FLEXIBILITY



VRL-91 Uni-Mega



ISO 9001

BUREAU VERITAS
Certification



VRL-91 UNI-MEGA HIGH POWER LED RANGE LIGHT

The VRL-91 Uni-Mega high power LED range light forms part of the Vega LED marine beacon family and is intended for applications requiring very high intensity. A single white Uni-Mega lens using a single LED produces an intensity of 400,000 candela on a vertical and horizontal divergence of 3 degrees. This is a day range over 5NM with a background light level of 10,000 candela/m² (bright sky next to the sun).

The VRL-91 Uni-Mega incorporates a modular design to allow the range light to be configured for a particular application. The main variants are the range required and the horizontal divergence (50% of peak intensity). The Uni-Mega incorporates the latest in LED lens technology. Multiple light sources are used to provide the necessary range and horizontal divergence.

The construction of the VRL-91 is a vertical array containing the number of light elements required for the specific application. The lenses are mounted on a large heat sink to control the operating temperatures of the LEDs. Multiple arrays can be mounted parallel to each other for increased intensity or horizontal divergence.

For lower range applications a spreader lens can be fitted to each Uni-Mega lens to increase the horizontal divergence.

Because of the modularity of the Uni-Mega lens array, the control electronics is supplied in a separate cabinet. The central control electronics provides a single point of programming, monitoring, and fault control. By having the control electronics close to the optical array any volt drop between the controller and the LEDs can be minimised.

To achieve sufficient intensity down turn for night operation, some LEDs may be turned off at night.

The VRL-91 Uni-Mega range light is tested in the Vega zero range light tunnel prior to shipment to ensure the light output meets the required specifications.

Standard colours are white, red, and green. For other colours please refer to Vega. All colours meet IALA chromaticity requirements.

The VRL-91 Uni-Mega contains all the programmable features that are normally found in Vega marine beacons.

PERFORMANCE AT A GLANCE (Depending On Configuration)

- Day range is depended on the number of lenses used. Greater than 10NM is possible at a transmissivity of 0.74T
- Night range of over 30NM at a transmissivity of 0.74T
- Vertical divergence of 3° at 50% of the peak intensity level
- Horizontal divergence depends on configuration (minimum is 3°)
- Lower range applications incorporates a spreader lens

INSTALLING THE VRL-91 UNI-MEGA

The Uni-Mega high power LED range light mounts on a vertical surface and must be supported top and bottom.

Do not restrict airflow across the heat sink.

Any horizontal and adjustment needs to be provided on the mounting surface.

OPERATION OF THE VRL-91 UNI-MEGA

The VRL-91 Uni-Mega is programmed as a single unit regardless on how many arrays are used in a particular application.

The operation of each array is monitored and options are provided on how the Uni-Mega should behave should any problem be detected. The normal fault condition will shut down all arrays, however, a "Best Effort" options will allow the unaffected arrays to continue to work on a fault condition. Operation with "Best Effort" would see the range light still operating with a lower intensity output.

Additional Options

- RS232 or RS485 Data Port
- GPS Synchronization using the VSU-29 GPS Sync Unit
- Alarm / Monitor output
- ON / OFF control input
- ON output

EASY PROGRAMMING

There are two methods of programming the VRL-91 Uni-Mega high power LED range light:

1. Using the Vega IR programmer (Remote-02). This allows the Uni-Mega to be programmed one feature at a time. The VRL-91 Uni-Mega confirms the settings by flashing the programming code back to the user.
2. Using a computer with the IRDA or RS232 data ports.
3. The VRL-91 Uni-Mega supports the standard features found on Vega marine LED beacons.

- Automatic Schmidt-Clausen intensity correction for short flashes
- Multiple effective intensity settings for both day and night operation
- Day/night transition level settings
- Programmable flash characters
- One programmable custom character
- Synchronisation control including master/slave options and sync delay
- Programmable sleep and test modes
- Programmable low voltage cut out
- Program control of the RS-232 data port.
- Program control on how the VRL-91 Uni-Mega responds to a unit failure
- Optional security code
- Read supply voltage
- Serial number, LED type etc, are stored in the range light

MONITORING

Monitoring of the VRL-91 Uni-Mega can be provided in a number of ways:

1. Using the Vega Mini VegaWeb internet monitoring unit.
2. Utilising the factory data port option. This can be RS-232 or RS-485.
3. Using the alarm/monitor connection.

INFORMATION REQUIRED FOR A VRL-91 UNI-MEGA

1. Range for both day and night operation
2. Colour
3. Flash character, including flash period and duty cycle
4. Horizontal divergence at 50% of peak intensity

SPECIFICATIONS

Optical Performance

- Peak intensity depends on the number of arrays used, flash character, and duty cycle
- Vertical divergence at 50% of peak intensity better than 3 degrees
- LEDs monitored for excess temperature
- Individual arrays monitored
- Automatic Schmidt-Clausen intensity correction for flash character
- Colours meet IALA chromaticity requirement

Electrical Performance

- Supply Voltage 24VDC
- Operating Voltage 18 to 30VDC
- Night on / average current depends on number of arrays, range of the range light, flash character, and duty cycle
- Day current 50mA
- For specific current usage refer to Vega with application details
- Digital inputs – compatible with 12V and 24V operation
- Digital outputs – solid state relay type with one side connected to battery negative
- Sync outputs – compatible with 12V and 24V sync sources, positive to negative transition

Environmental

Temperature -30° to 50° Celsius
Intrusion IP67

Cooling	Convection cooling heat sink
Pressure	
Equalisation	fully sealed
Salt	Continuous exposure to saltwater and spray
Wind	100Kt
Ice Loading	20kg/m ²
Shock / Vibration	Shock 10g in 3 axes; vibration 2g

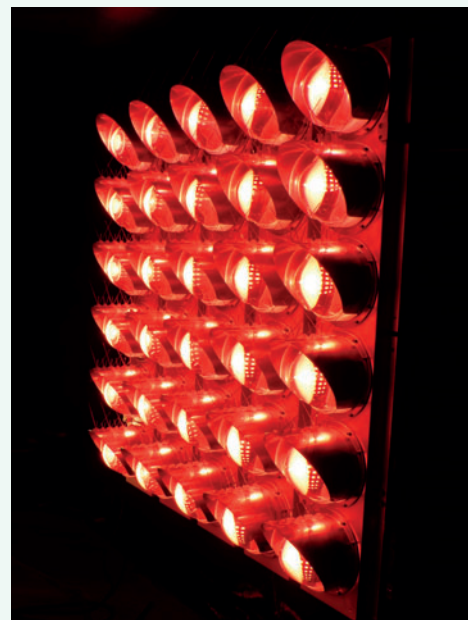
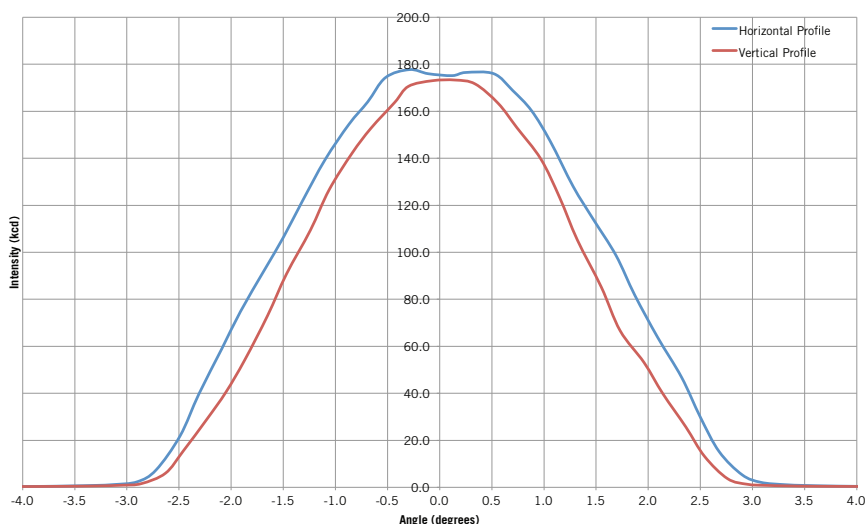
Material for Sector Light

Lenses	Machined cast acrylic
Heatsink	DT 5008 Marine Grade Aluminium, anodized to 25µm
Frame	316 stainless steel
Lens Covers	316 stainless steel
Sealing	O-ring
Bird Spikes	316 stainless steel
Mounting	Mounts on vertical surface
Weight & Dimensions	See drawings
Service Life	12 years
Warranty	1 year. Refer to Vega warranty conditions

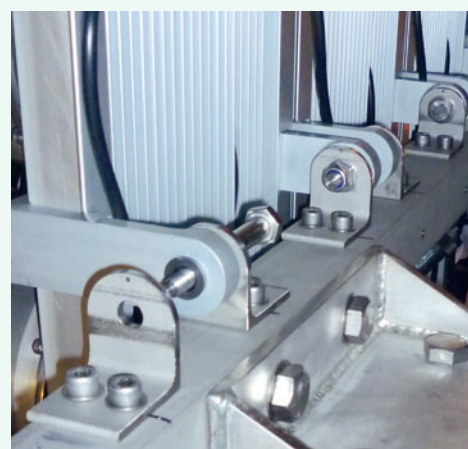
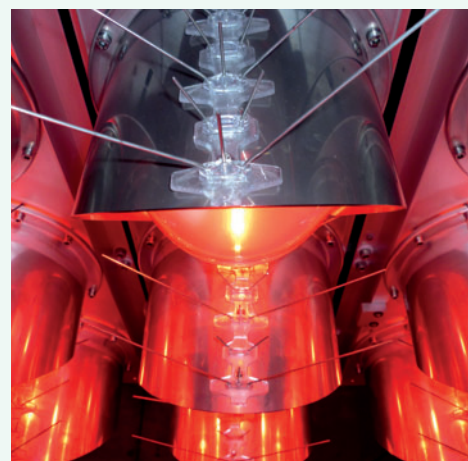
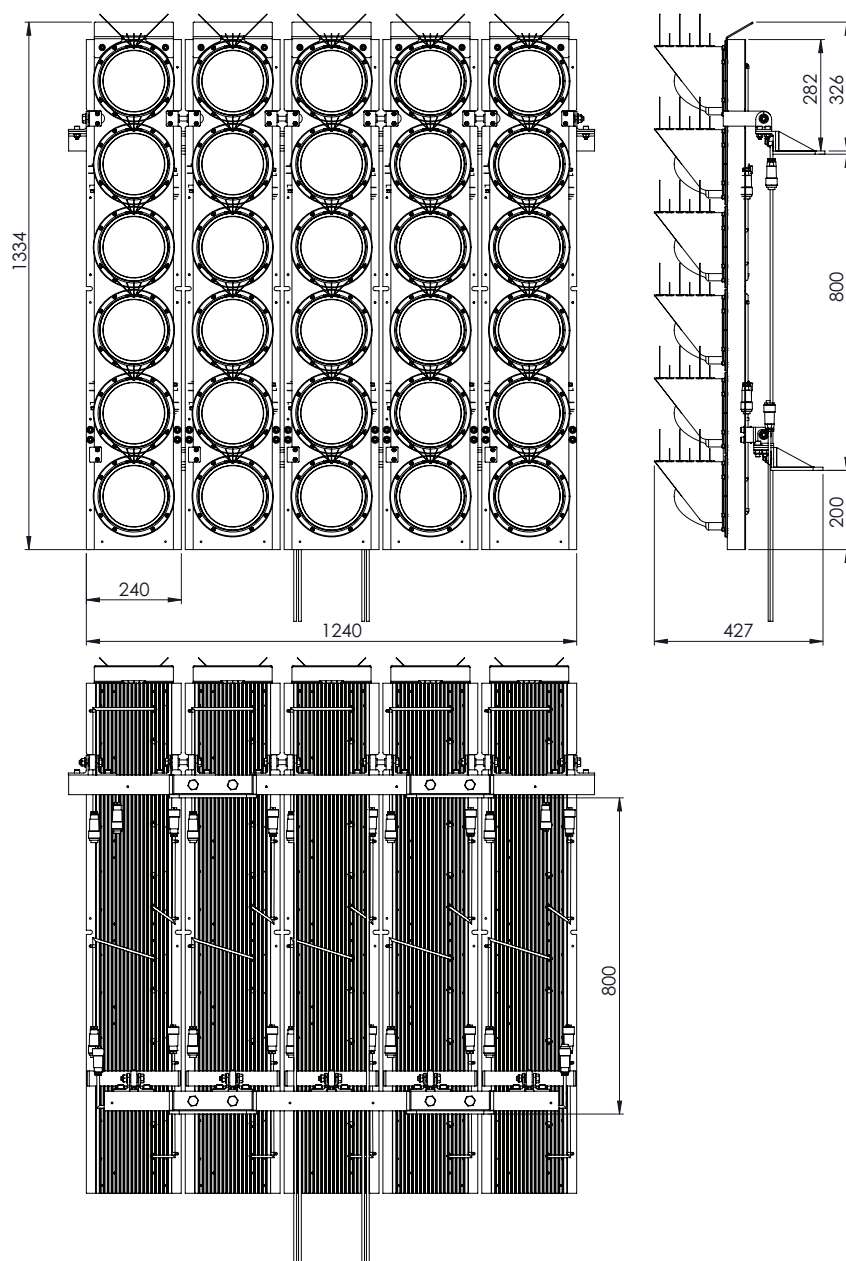
Standards

EMI/EMC	EN55015:2006 radiated and conducted emissions EN61000-4-2:2001 Electrostatic Discharge Immunity Level 4 EN61000-4-3:2002 Radiation Immunity Class 1 EN61000-4-5:1995 Class 3 Surge Immunity, 0.5KV lead to lead FCC 47 CFR Section 15 Class A IALA Recommendation E-122(2001) and E-200-3 Part 3 (2008) IALA Recommendation E-200-1 Part 1 IALA Recommendation 1038
Optical Test	IEC60945 Section 7 normal and peak voltage, and reverse polarity protection
Colour	IP67 to EN60529
Daylight	MIL-STD-202G Method 213B Cond H
Power Supply	MIL-STD-202G Method 204D Cond B
Ingress	
Shock	
Vibration	

VRL-91 Uni-Mega Red Optical Profiles



DIMENSIONS (EXAMPLE OF 30 LENSES ARRAY)



PARTS FOR ORDERING

DESCRIPTION

VRL-91 Uni-Mega high power LED range light

- Sync signal inverter module
- Vega TVIR Programmer
- Computer Programmer

Note: Where U is the number of lenses required.

Information required with order is (1) Day and night range at specified transmittivity; (2) Colour; (3) Flash character; (4) Horizontal divergence at 50% of peak intensity.

CODE

VRL-91-U
136-600
Remote-02
Prog-03

DISTRIBUTOR

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