

## 1 Key features

### Functional:

- 6 diodes with wavelength in the spectral range of 265-285nm UV-C spectrum
- Power supply scheme
- Boost converter
- Cluster up to 9 boards
- Standard PLS 2.54 connector

### Electrical:

- Power supply: 3.5V

### Technical:

- Module size:  
*44mm x 30mm x 6.76mm*
- Module weight: 6g
- Operating temperature range:  
-30°C to +60°C

## 2 Description

UVC\_board – modular device for air and surface disinfection.

Connectors located at module edges allow combining up to 9 boards into a cluster

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### 3 Module specification

#### 3.1 Technical

Parameter	Value			Dimension
	Min	Operating	Max	
Power supply	3	-	5.5	V
Consumption 5V	-	-	0.3	A
Consumption 3.3V	-	-	0.5	A
Wavelength	265	-	285	nm
Radiation intensity	21	24	25	mW
Temperature range	-30	+20	+60	°C
Humidity range	0	60	98	%

*Table 1 (technical characteristics)*

#### 3.2 Dimensions

Module size: 44mm x 30mm x 6.76mm

Module weight: 6g

#### 3.3 Safety

***Be careful when handling any UV sources. UV light can be harmful to your eyes, do not look directly into the UV light source.***

***Use of a special glasses with UV protection is required.***

## 4 Control

The module circuit includes a MOSFET switch for power control. To turn the module on, it is necessary to send a high log level to the "ctrl" port.

Pins highlighted on the figure below are used for power supply connection and control.

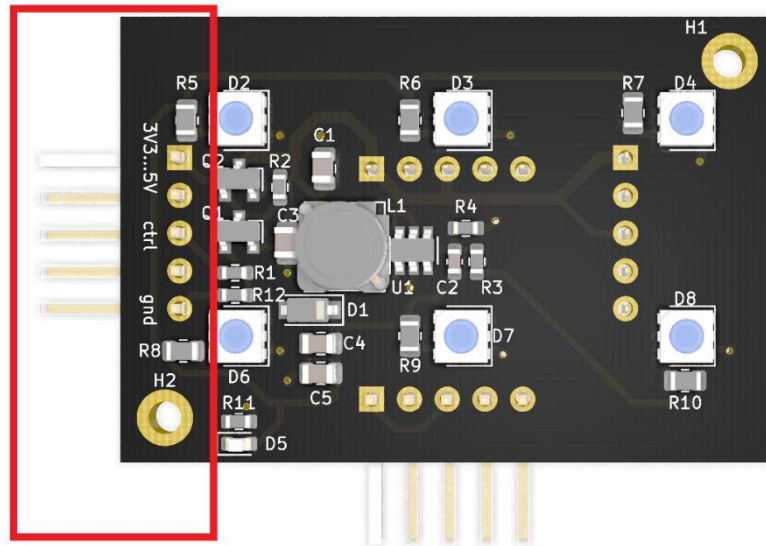


Figure 1 (controlling pins)

## 5 Connection socket

Contact	Name	Application
1	3v3-5v	Module supply circuit
2	-	reserve
3	CTRL	Module control line
4	-	reserve
5	GND	Generic output

Table 2 (pinout of connection socket)

## 6 Clustering

Connectors located at module edges allow combining up to 9 boards into a cluster. Control of an individual module within a cluster is not supported – only the entire cluster turn on/off is possible. Any pins highlighted on the Figure 1 can be used for power supply and cluster control.

Connecting more than one power source to a cluster or to a separate module is not recommended.

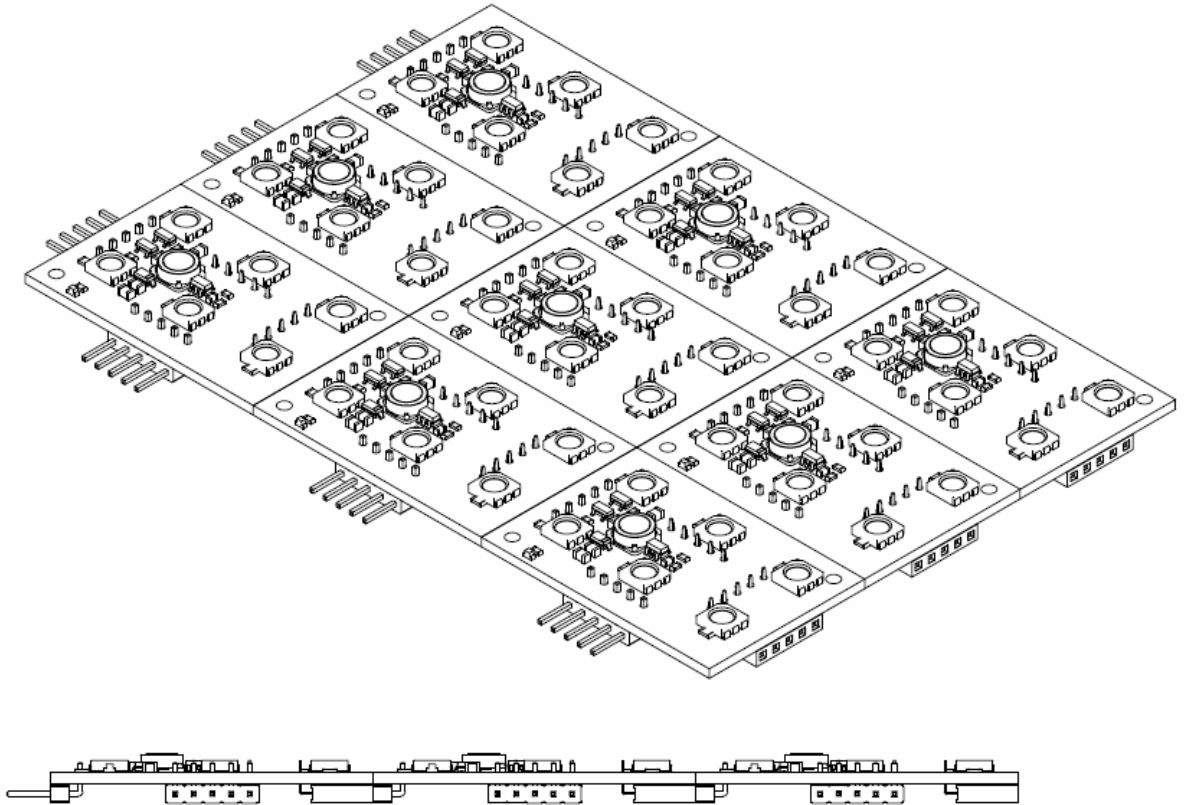


Figure 2 (clustering scheme)

## 7 Disinfection time

A dose of  $67 \text{ J/m}^2$  of ultraviolet radiation with a wavelength of less than  $280 \text{ nm}$  is required to destroy viruses with single-stranded RNA, such as coronaviruses, which insures 90% air disinfection.

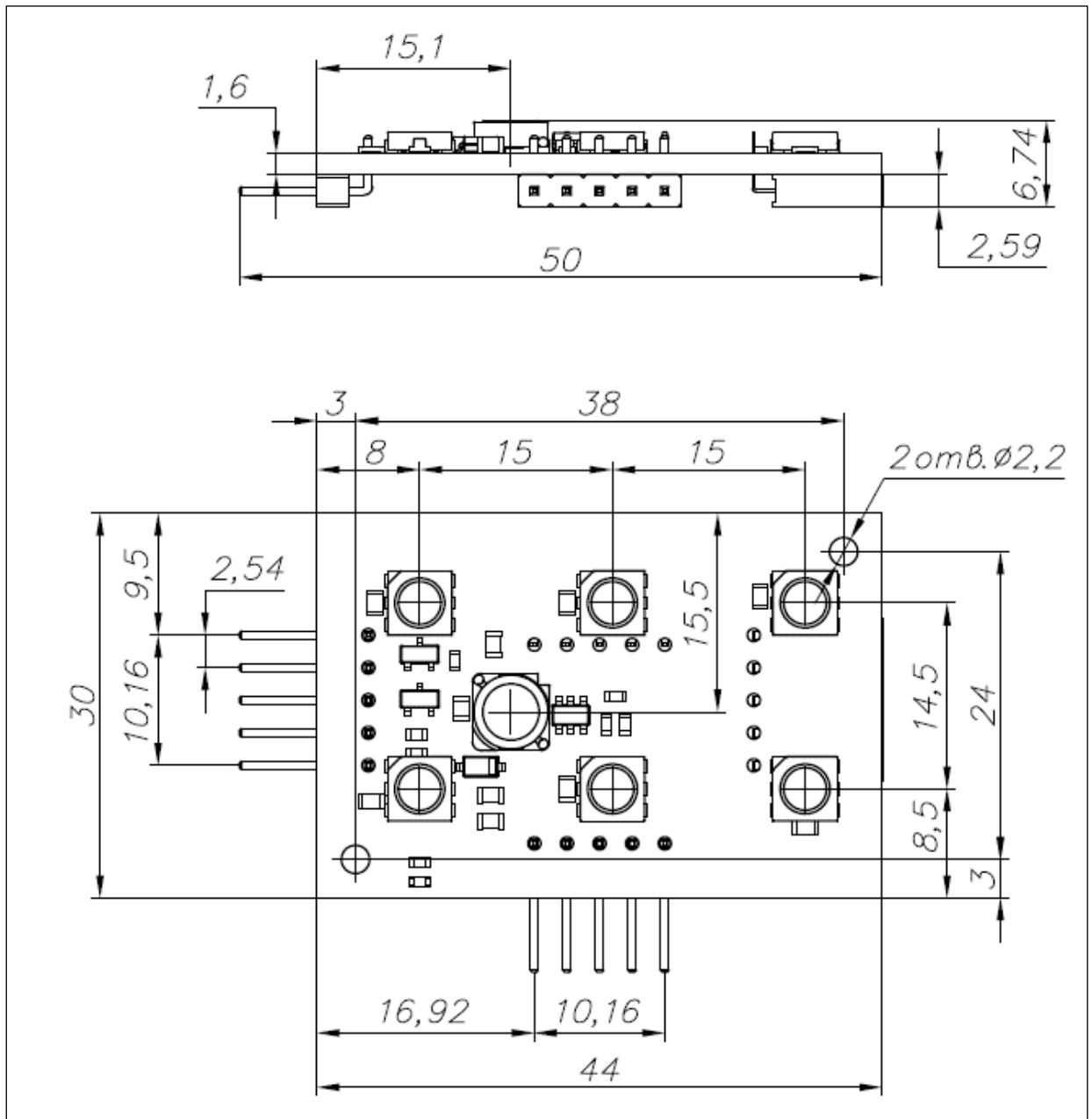
$$t_{flr} = \frac{67000 * \tan(60)^2 * \pi * h^2}{24}$$

where  $t_{flr}$  – time of flare, *sec*;  $h$  - board height above the surface, *m*;  $\pi = 3.14$ .

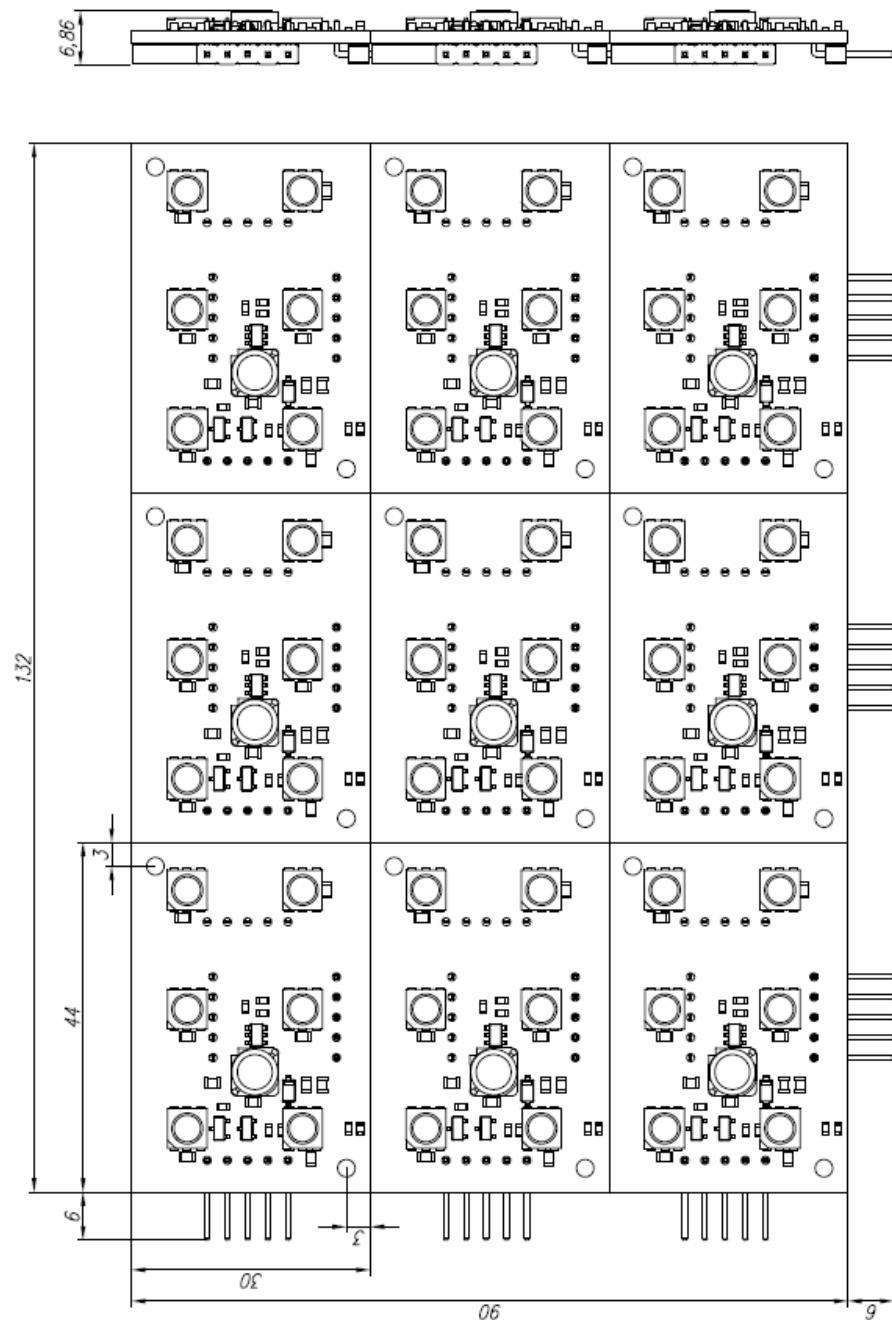
To achieve 99% disinfection must be exposed twice as long.

## 8 Drawings

### 8.1 Module



## 8.2 Cluster



## 9 Reference

Description	Link
Manufacturer website	<a href="http://climateguard.ru/">http://climateguard.ru/</a>
Module library	<a href="https://github.com/climateguard/UVC_board">https://github.com/climateguard/UVC_board</a>
Telegram community	<a href="https://t.me/climateguard_community">https://t.me/climateguard_community</a>

Table 3 (reference materials)