

## Flame sensor module

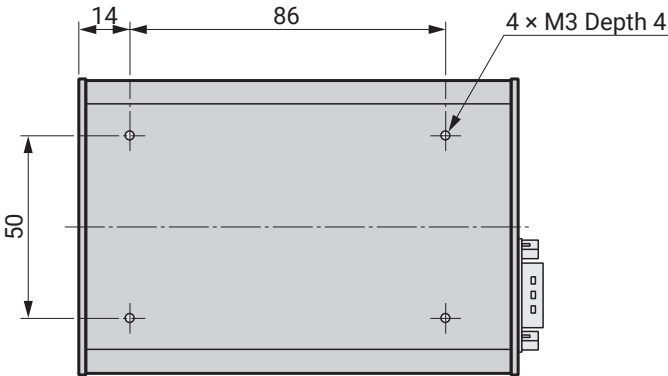
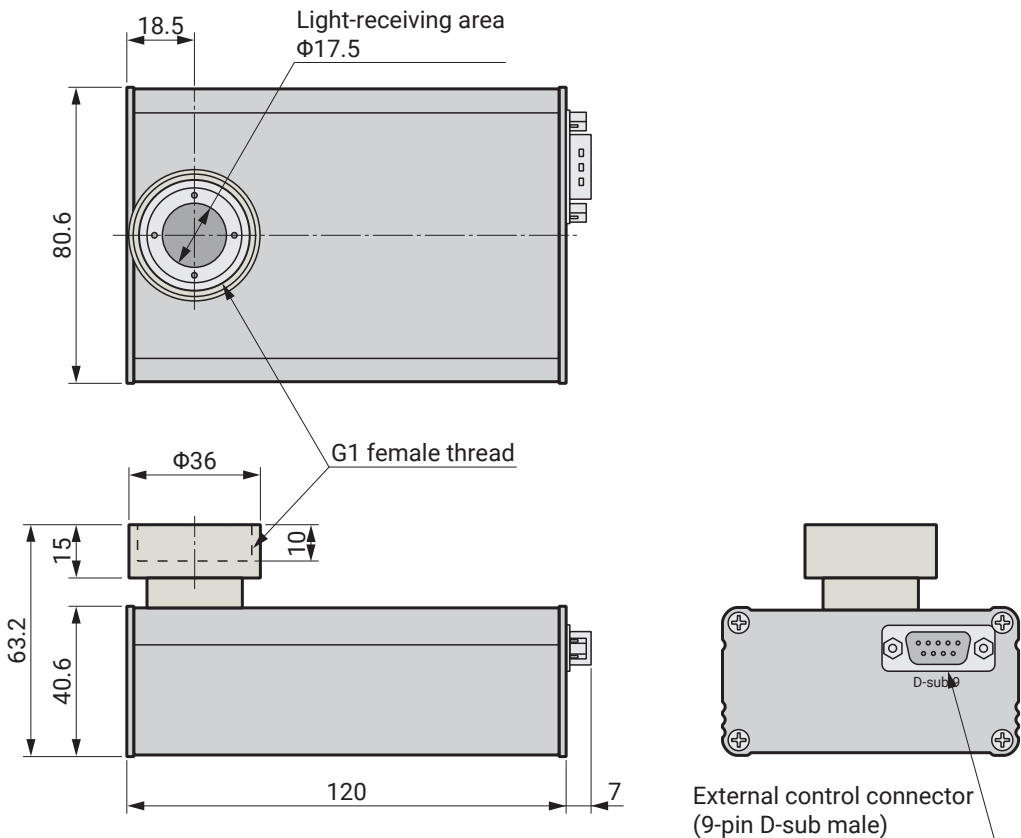


# Flame sensor module

This flame sensor module consists of a UVTRON® discharge / flame sensor integrated with a driver circuit and a signal processing circuit such as for processing of background noise. Just supplying a DC voltage to this module will start to detect UV light. Besides acquiring information such as UV detection signals and sensitivity (detection count), this module allows checking the UVTRON® operation with the internal UV-LED. The light-receiving section of this module has a G1 female thread for easy connection to combustion equipment.



Dimensional outlines (Unit: mm)



External control connector (9-pin D-sub) connection

Pin No.	Signal	
1	Input voltage (12 V to 24 V)	Input
2	Sensitivity (detection count)	Output
3	UV detection signal	Output
4	Internal UV-LED control signal	Input
5	RS-485 (B+)	—
6	Ground	—
7	Ready signal	Output
8	Temperature alarm signal	Output
9	RS-485 (A-)	—

## Specifications

### ●Flame sensor module C16956-02

Parameter		Description / Value	Unit
Installed UVTRON®		R14388	—
Spectral response range		185 to 260	nm
Sensitivity *1	Typ.	10 000	min <sup>-1</sup> *4
Background noise *2	Max.	5	min <sup>-1</sup> *4
Quenching time		2 to 20	ms
Estimated life *3		25 000	h
Input voltage (DC)		12 to 24	V
Power consumption	Max.	1.2	W
Cooling method		Not required	—
Operating temperature range		-10 °C to +60 °C	—
Storage temperature range		-10 °C to +80 °C (no freezing)	—
Operating humidity range		20 % to 80 % (no condensation)	—
Storage humidity range		Below 80 % (no condensation)	—
External control		Ready signal, UV detection signal, sensitivity (detection count) output, temperature alarm signal	—
Applicable standards	EMC standards	IEC 61326-1 Emission limits: CISPR 11 Group 1 Class A Immunity requirements: Table 2	—
	Safety standards	IEC 61010-1	
	Environmental standards (RoHS)	EN 63000	
Shock resistance		1000 m/s <sup>2</sup> , 11 ms	—

\*1: Typical value measured with a light intensity of 10 pW/cm<sup>2</sup> at a wavelength of 200 nm. In actual use, sensitivity varies depending on the wavelength and intensity of the incident UV light.  
\*2: Measured under room lighting (approximately 500 lx) and recommended operating conditions.  
\*3: Estimated life of the R14388 operated at room temperature when UV light is continuously incident under recommended operating conditions. The life varies with the ambient temperature, etc.  
\*4: min<sup>-1</sup> indicates counts per minute.

### Precautions and notes on this product

<https://www.hamamatsu.com/all/en/support/disclaimer.html>

### Precautions for using flame sensor module

[https://www.hamamatsu.com/content/dam/hamamatsu-photonics/sites/documents/99\\_SALES\\_LIBRARY/etd/UVtron\\_TPT1038E.pdf](https://www.hamamatsu.com/content/dam/hamamatsu-photonics/sites/documents/99_SALES_LIBRARY/etd/UVtron_TPT1038E.pdf)

- Hamamatsu Photonics makes constant efforts to improve product quality and reliability, but this does not guarantee the product integrity of the product.  
Please implement a design providing ample safety (redundant design, fire spread prevention design, malfunction prevention design, etc.) within customer's equipment manufactured using the product in order to avoid personal injury, fire and damage to society that might possibly occur in the unlikely event of a failure of the product. In particular, when the product is used in an equipment or an environment where the malfunction or failure of the UVTRON could result in personal injury, death or serious damage to property (hereinafter referred to as the "particular application"), the safety design must take into account the possible failures. We will not be liable for any use in such particular application unless we give our prior written consent by way of specification sheets, etc.
- Since the durability of the product varies depending on the operating environment and conditions, be sure to evaluate and confirm the operation of UVTRON in the condition in which it is installed in the customer's equipment and in the actual operating environment. If any doubt arises about the safety of the product, please notify us as soon as possible and also be sure to implement technical measures for the above stated safety design (redundant design, fire spread prevention design, malfunction prevention design, etc.).
- When exporting the product (including cases when providing technology), please comply with export-related laws and regulations in your country, such as the Foreign Exchange and Foreign Trade Law of Japan, and be sure to obtain an export license or a service transaction license if necessary. Please contact our sales office for information on whether or not the product is subject to these export-related laws and regulations.
- The application examples described in our product literature are not intended to guarantee suitability for any particular application or the success or failure of any commercial use. No guarantee or license is granted for the enforcement of any intellectual property rights. We will not be held liable for any intellectual property rights issues that may arise with third parties as a result of using this information.
- When disposing of the product, take appropriate measures in compliance with applicable regulations regarding waste disposal, and correctly dispose of it yourself or entrust proper disposal to a licensed industrial waste disposal company. In any case, be sure to comply with the regulations in your country or state to ensure correct disposal.
- Avoid using the product in special environments such as in liquids, excessive dust, and corrosive gases.
- The product may mistakenly detect extraneous UV light such as from arc welding sparks and sterilization lamps. Be aware of the surrounding environment when using the product.
- When storing or transporting the product, keep it in the packing box. The product has passed the shock test IEC 60068-2-27, however, if the packing box is dropped or bumped during storage or transportation, an excessive mechanical stress may be applied, causing damage or degradation of characteristics. Handle with care and take adequate measures to avoid dropping and bumping. The product should be stored indoors at low humidity and stable room temperature where no corrosive gases are present and no condensation occurs.
- If the product fails due to manufacturing defects within one year after delivery, we will replace it free of charge. The scope of the warranty is limited to replacement of the product. The product will be out of warranty in case of use in particular application without our prior consent.

\* UVTRON is a registered trademark of Hamamatsu Photonics K.K.

Subject to local technical requirements and regulations, availability of products included in this promotional material may vary. Please consult with our sales office.

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