UV FLAME SENSORS

Selection Manual

7 models | Product specifications | Dimensions & operating circuits

MODEL SELECTION AT A GLANCE

Compare the key operating parameters below, then open the model page for its complete specifications, connection diagrams and typical response curves.

Model	Spectral range (nm)	DC supply voltage (V)	Average current (mA)	Sensitivity typical (min^{-1})	Operating temperature (°C)	Page
SR1406	185-260	350 ± 25	0.3	8000	-40 / +125	**2**
SR08	185-260	325 ± 25	0.3	4000	-40 / +70	**3**
SR07	185-260	500 ± 50	0.3	480	-40 / +125	**4**
SR1309	185-260	400 ± 25	0.3	4000	-40 / +125	**5**
SR244	185-260	500 ± 50	0.3	480	-40 / +125	**6**
SR13192	185-260	325 ± 25	0.1	4000	-40 / +125	**7**
SR15P	185-300	310 ± 25	2	1200	-40 / +125	**8**

DC supply voltage and average current are recommended operating values. Sensitivity is a typical value; refer to each model page for its test conditions. min^{-1} denotes counts per minute.

BEFORE SELECTING A MODEL

Electrical fit
Check the recommended supply voltage, discharge current, quenching time and absolute maximum ratings.

Optical & mechanical fit
Check the spectral response, detection angle, package dimensions and anode/cathode connections.

Model references in the product pages are provided for comparison. Verify electrical and mechanical compatibility for the intended application.

SR1406

Analogous to R9533



Features

- No response to visible light
- End-on light reception
- Compact size

Applications

- Boiler combustion monitoring
- Hydrogen flame monitoring
- Fire detection in public transport and facilities

Specifications

Parameter			Value	Unit
Electrode material			Ni	-
Spectral response range			185 to 260	nm
Working parameters	Power supply voltage (DC)		350±25	V
	Average discharge current		0.3	mA
	Quenching time	Min.	1	ms
Characteristic (At 25 ℃)	Discharge starting voltage (DC)	Max.	325	V
	Continuous discharge voltage (DC)	Typ.	280	V
	Sensitivity	Typ.	8000	min^{-1} Ⓖ
	Background Ⓐ	Max.	10	min^{-1} Ⓖ
	Life		25000	h
Highest Rated value	Power supply voltage (DC)	Max.	400	V
	Average discharge current	Max.	1	mA
	Peak current	Max.	30	mA
	Ambient Temperature	Max.	-40/+125	℃
Weight			2.5	g
Applicable socket (sold separately)				-
Suitable driving circuit (sold separately)			-	-

Ⓐ When configuring an external quenching circuit, use a circuit constant to prolong the quenching time. When using a C · R pulse drive circuit, if the applied voltage is within the recommended range, the quenching time tq can be calculated by the following formula (refer to the recommended working circuit diagram).

$tq \fallingdotseq 0.5 \times C_1 \cdot R_1$

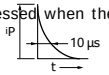
Ⓑ This is a typical value with a wavelength of 200nm and an optical input of 10PW/cm. Consider these values as relative sensitivity values. In practical use, sensitivity will vary with the wavelength of ultraviolet radiation and the driving circuit used.

Ⓒ Measure under indoor lighting (approximately 500lux) and recommended operating conditions. Attention: When used outdoors, these values may slightly increase due to external interference and other reasons.

Ⓓ The service life varies depending on the driving circuit and ambient temperature. These values are the values used for normal discharge of UV phototubes under recommended operating conditions. Due to the shortened service life caused by high ambient temperatures, cooling measures such as air cooling should be considered when high temperatures are expected to occur in applications such as burners and monitors. One year warranty.

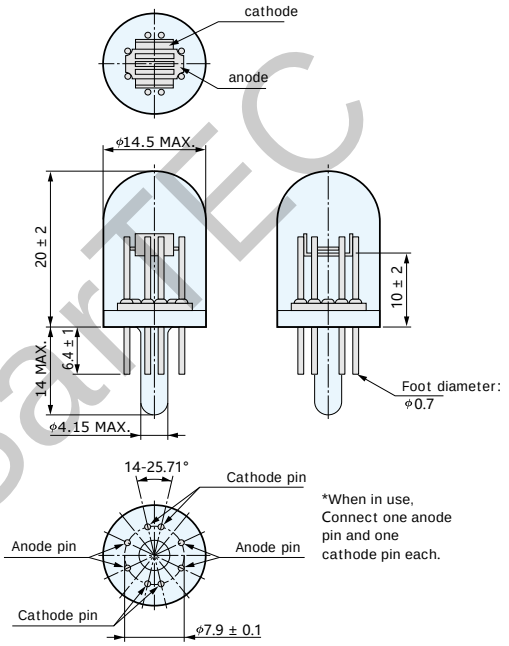
Ⓔ Even at these current values, the electrode will not be immediately consumed, but its service life is significantly shortened. Use photoelectric tubes within the recommended current range.

Ⓕ This is the maximum instantaneous current that can be processed when the maximum current pulse width is less than 10us.

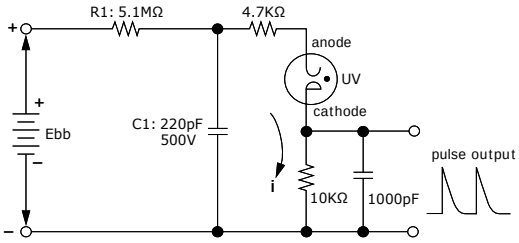


Ⓖ min^{-1} represents count/minute

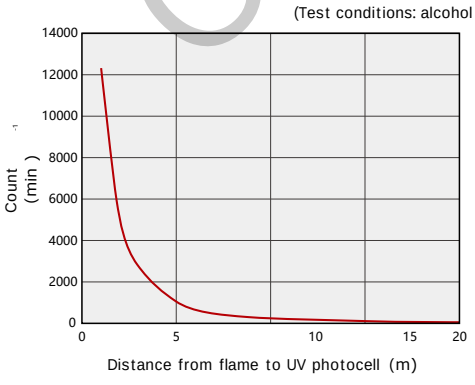
External dimensions (unit: mm)



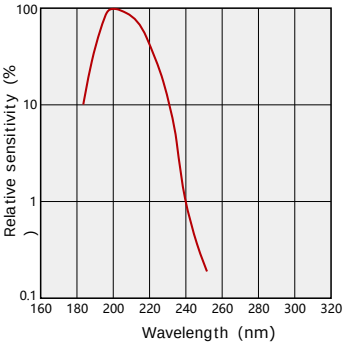
Recommended working circuit diagram



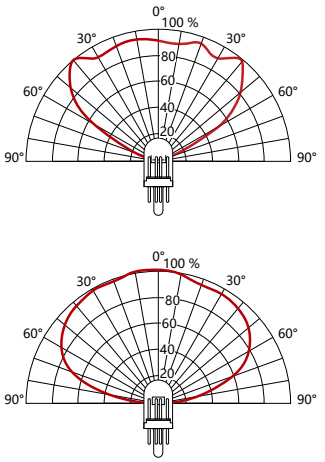
Sensitivity (typical value)



Spectral response



Detection angle (typical value)



Created by SarTEC

SR08

Analogous to R2868



Features

- No response to visible light
- Side-on light reception
- Compact size

Applications

- Firefighting water monitors
- Facility fire detection
- Boiler combustion monitoring

Specifications

Parameter			Value	Unit
Electrode material			Ni	-
Spectral response range			185 to 260	nm
Working parameters	Power supply voltage (DC)		325±25	V
	Average discharge current		0.3	mA
	Quenching time	Min.	1	ms
Characteristic (At 25 ℃)	Discharge starting voltage (DC)	Max.	280	V
	Continuous discharge voltage (DC)	Typ.	240	V
	Sensitivity	Typ.	4000	min^{-1} G
	Background	Max.	10	min^{-1} G
	Life		25000	h
Highest Rated value	Power supply voltage (DC)	Max.	400	V
	Average discharge current	Max.	1	mA
	Peak current	Max.	30	mA
	Ambient Temperature	Max.	-40/+70	℃
Weight			1.5	g
Applicable socket (sold separately)			-	-
Suitable driving circuit (sold separately)			-	-

A When configuring an external quenching circuit, use a circuit constant to prolong the quenching time. When using a C · R pulse drive circuit, if the applied voltage is within the recommended range, the quenching time tq can be calculated by the following formula (refer to the recommended working circuit diagram).

$tq \fallingdotseq 0.5 \times C_1 \cdot R_1$

B This is a typical value with a wavelength of 200nm and an optical input of 10PW/cm. Consider these values as relative sensitivity values. In practical use, sensitivity will vary with the wavelength of ultraviolet radiation and the driving circuit used.

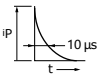
C Measure under indoor lighting (approximately 500lux) and recommended operating conditions. Attention: When used outdoors, these values may slightly increase due to external interference and other reasons

D The service life varies depending on the driving circuit and ambient temperature. These values are the values used for normal discharge of UV phototubes under recommended operating conditions. Due to the shortened service life caused by high ambient temperatures, cooling measures such as air cooling should be considered when high temperatures are expected to occur in applications such as burners and monitors. One year warranty.

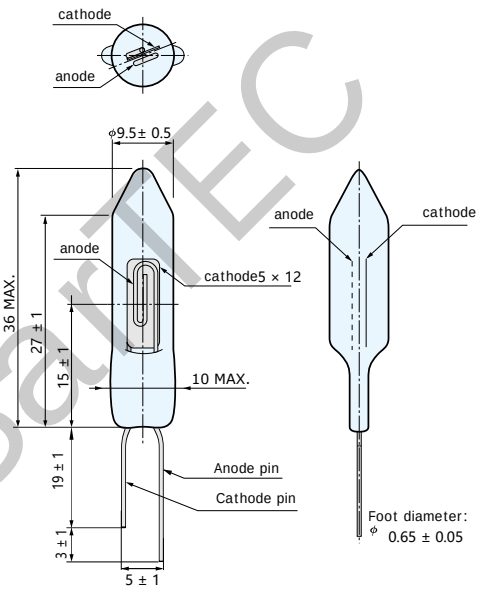
E Even at these current values, the electrode will not be immediately consumed, but its service life is significantly shortened. Use photoelectric tubes within the recommended current range.

F This is the maximum instantaneous current that can be processed when the maximum current pulse width is less than 10us.

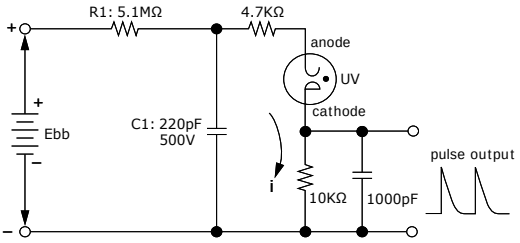
G min $^{-1}$ represents count/minute



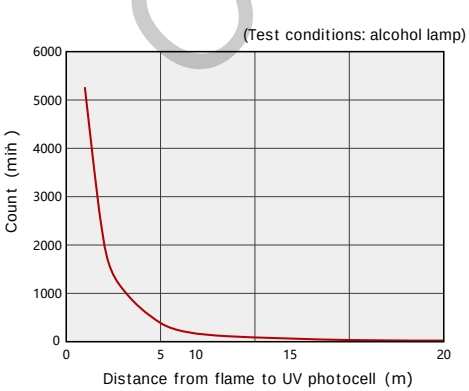
External dimensions (unit: mm)



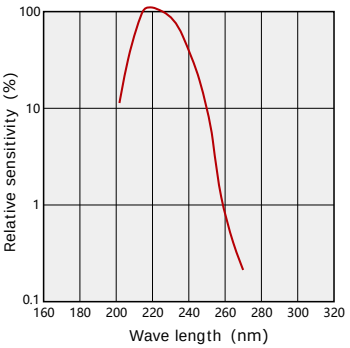
Recommended working circuit diagram



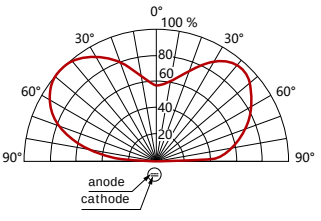
Sensitivity (typical value)

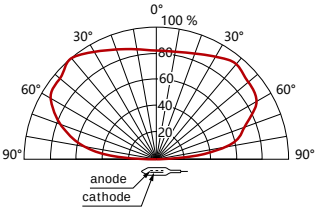


Spectral response



Detection angle (typical value)





Created by SarTEC

SR07

Analogous to R259



Features

- No response to visible light
- Side-on light reception

Applications

- Boiler combustion monitoring
- Facility fire detection

Specifications

Parameter			Value	Unit
Electrode material			Ni	-
Spectral response range			185 to 260	nm
Working parameters	Power supply voltage (DC)		500±50	V
	Average discharge current		0.3	mA
	Quenching time	Min.	1	ms
Characteristic (At 25 ℃)	Discharge starting voltage (DC)	Max.	440	V
	Continuous discharge voltage (DC)	Typ.	330	V
	Sensitivity	Typ.	480	min^{-1} Ⓖ
	Background	Max.	5	min^{-1} Ⓖ
	Life		25000	h
Highest Rated value	Power supply voltage (DC)	Max.	575	V
	Average discharge current	Max.	1	mA
	Peak current	Max.	30	mA
	Ambient Temperature	Max.	-40/+125	℃
Weight			2.7	g
Applicable socket (sold separately)			-	-
Suitable driving circuit (sold separately)			-	-

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$tq \fallingdotseq 0.5 \times C_1 \cdot R_1$

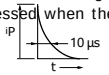
Ⓑ This is a typical value with a wavelength of 200nm and an optical input of 10PW/cm. Consider these values as relative sensitivity values. In practical use, sensitivity will vary with the wavelength of ultraviolet radiation and the driving circuit used.

Ⓒ Measure under indoor lighting (approximately 500lux) and recommended operating conditions.
Attention: When used outdoors, these values may slightly increase due to external interference and other reasons

Ⓓ The service life varies depending on the driving circuit and ambient temperature. These values are the values used for normal discharge of UV phototubes under recommended operating conditions. Due to the shortened service life caused by high ambient temperatures, cooling measures such as air cooling should be considered when high temperatures are expected to occur in applications such as burners and monitors. One year warranty.

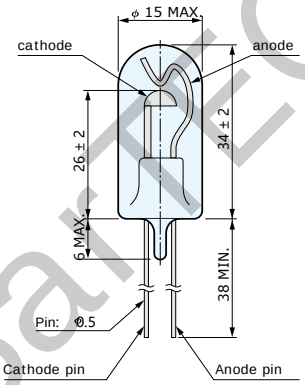
Ⓔ Even at these current values, the electrode will not be immediately consumed, but its service life is significantly shortened. Use photoelectric tubes within the recommended current range.

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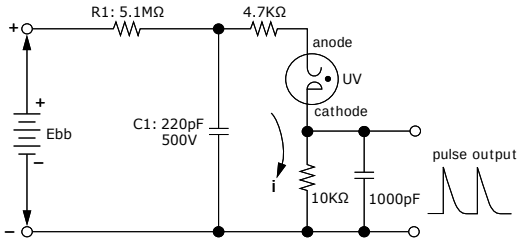


Ⓖ min^{-1} represents count/minute

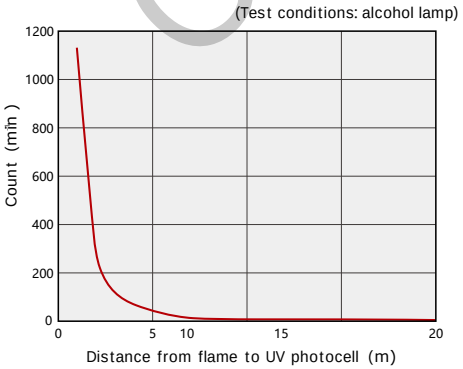
External dimensions (unit: mm)



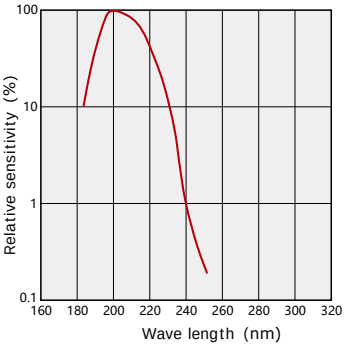
Recommended working circuit diagram



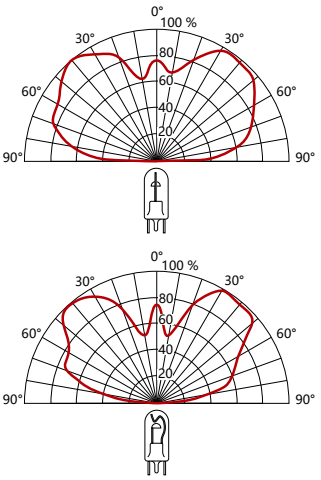
Sensitivity (typical value)



Spectral response



Detection angle (typical value)



Created by SarTEC

SR1309

Analogous to R9454



Features

- No response to visible light
- Side-on light reception
- Better impact resistance than SR08

Applications

- Boiler combustion monitoring
- Facility fire detection

Specifications

Parameter			Value	Unit
Electrode material			Ni	-
Spectral response range			185 to 260	nm
Working parameters	Power supply voltage (DC)		400±25	V
	Average discharge current		0.3	mA
	Quenching time	Min.	1	ms
Characteristic (At 25 ℃)	Discharge starting voltage (DC)	Max.	360	V
	Continuous discharge voltage (DC)	Typ.	300	V
	Sensitivity	Typ.	4000	min^{-1} Ⓖ
	Background	Max.	10	min^{-1} Ⓖ
	Life		25000	h
Highest Rated value	Power supply voltage (DC)	Max.	500	V
	Average discharge current	Max.	1	mA
	Peak current	Max.	30	mA
	Ambient Temperature	Max.	-40/+125	℃
Weight			1.5	g
Applicable socket (sold separately)			-	-
Suitable driving circuit (sold separately)			-	-

Ⓐ When configuring an external quenching circuit, use a circuit constant to prolong the quenching time. When using a C · R pulse drive circuit, if the applied voltage is within the recommended range, the quenching time tq can be calculated by the following formula (refer to the recommended working circuit diagram).

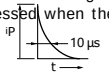
$tq \fallingdotseq 0.5 \times C_1 \cdot R_1$

Ⓑ This is a typical value with a wavelength of 200nm and an optical input of 10PW/cm. Consider these values as relative sensitivity values. In practical use, sensitivity will vary with the wavelength of ultraviolet radiation and the driving circuit used.

Ⓒ Measure under indoor lighting (approximately 500lux) and recommended operating conditions. Attention: When used outdoors, these values may slightly increase due to external interference and other reasons

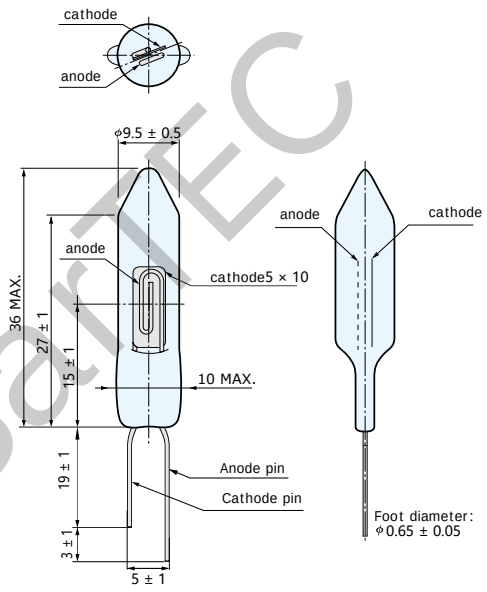
Ⓓ The service life varies depending on the driving circuit and ambient temperature. These values are the values used for normal discharge of UV phototubes under recommended operating conditions. Due to the shortened service life caused by high ambient temperatures, cooling measures such as air cooling should be considered when high temperatures are expected to occur in applications such as burners and monitors. One year warranty.

Ⓔ Even at these current values, the electrode will not be immediately consumed, but its service life is significantly shortened. Use photoelectric tubes within the recommended current range. This is the maximum instantaneous current that can be processed when the maximum current pulse width is less than 10us.

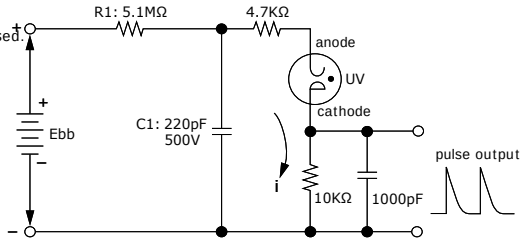


Ⓖ min^{-1} represents count/minute

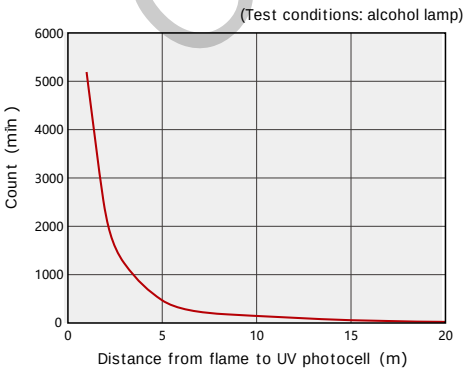
External dimensions (unit: mm)



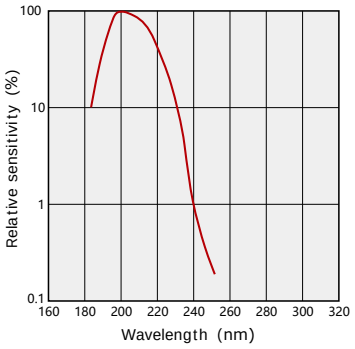
Recommended working circuit diagram



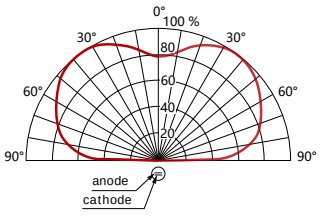
Sensitivity (typical value)

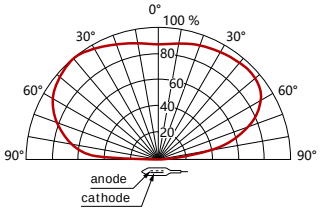


Spectral response)



Detection angle (typical value)





Created by SarTEC

SR244

Analogous to R244



Features

- No response to visible light
- Top and surrounding light reception

Applications

- Boiler combustion monitoring
- Facility fire detection

Specification

Parameter			Value	Unit
Electrode Material			Ni	-
Spectral Response Range			185 to 260	nm
Operating Parameter	Power Supply Voltage (DC)		500±50	V
	Average Discharge Current		0.3	mA
	Quenching Time Ⓐ	Min.	1	ms
Characteristics (25)	Discharge Starting Voltage (DC)	Max.	440	V
	Discharge Sustaining Voltage (DC)	Typ.	330	V
	Sensitivity Ⓑ	Typ.	480	min^{-1} Ⓖ
	Ambient Ⓒ	Max.	5	min^{-1} Ⓖ
	Estimated Lifetime Ⓓ		25000	h
Maximum Rated Value	Power Supply Voltage (DC)	Max.	575	V
	Average Discharge Current Ⓔ	Max.	1	mA
	Peak Current Ⓕ	Max.	30	mA
	Operating Ambient Temperature	Max.	-40/+125	℃
Weight			2.7	g
Applicable Socket (Sold Separately)			-	-
Suitable Driving Circuit (Sold Separately)			-	-

Ⓐ When configuring an external quenching circuit, use the circuit constants so that the quenching time is longer. When using a C-R pulse driving circuit, if the applied voltage is within the recommended range, the quenching time t q can be calculated using the following formula (refer to the recommended operating circuit diagram).

$$tq \fallingdotseq 0.5 \times C_1 \cdot R_1$$

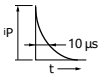
Ⓑ These are typical values for a wavelength of 200nm with a light input of 10pW/cm². Treat these values as relative sensitivity values. In actual use, the sensitivity may vary depending on the wavelength of the UV radiation and the driving circuit employed.

Ⓒ Measured under indoor lighting (approximately 500lux) and recommended operating conditions. Note: When used outdoors, these values may slightly increase due to external interference and other factors.

Ⓓ The lifetime varies depending on the driving circuit and ambient temperature. These values apply when the UV phototube operates under recommended conditions with normal discharge. High ambient temperatures can shorten the lifetime, so in applications such as burners or monitors where high temperatures are expected, cooling measures such as air cooling should be considered.

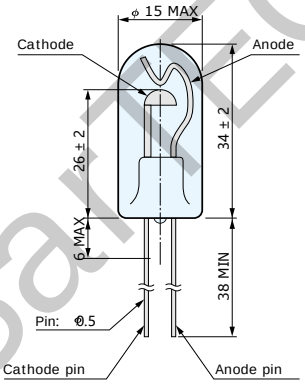
Ⓔ Even at these current values, the electrodes will not be consumed immediately, but the lifetime will be significantly shortened. Use the phototube within the recommended current range.

Ⓕ This is the maximum instantaneous current that can be handled when the maximum current pulse width is less than 10μs.

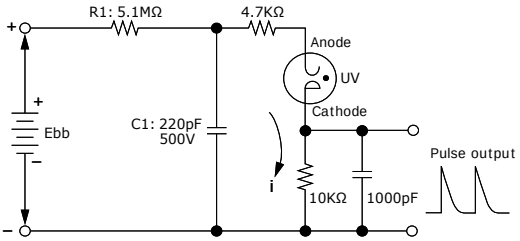


Ⓖ min^{-1} Indicates counts per minute.

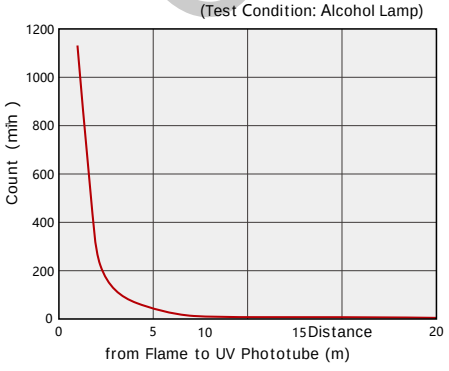
Dimensions (Unit: mm)



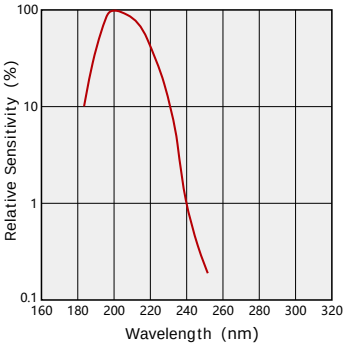
Operating Circuit Diagram



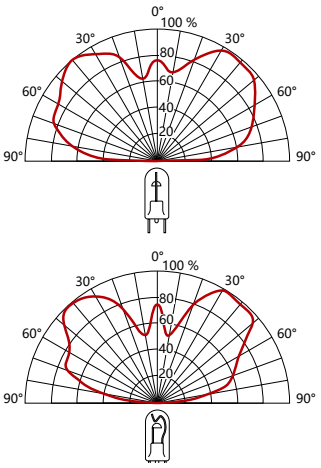
Sensitivity (Typical Value)



Spectral Response (Typical Value)



Detection Angle (Typical Value)



Created by SarTEC

SR13192

UV FLAME SENSOR

Features

- No response to visible light
- End-on light reception
- Compact size

Applications

- Boiler combustion monitoring
- Hydrogen flame monitoring
- Fire detection in public transport and facilities



Specifications

Parameter		Value	Unit
Electrode material		Ni	-
Spectral response range		185 to 260	nm
Recommended operating conditions	Supply voltage, DC	325 ± 25	V
	Average discharge current	0.1	mA
	Quenching time [A]	Min. 1	ms
Characteristics at 25°C	Discharge starting voltage, DC	Max. 325	V
	Discharge sustaining voltage, DC	Typ. 280	V
	Sensitivity [B, G]	Typ. 4000	min^{-1}
	Background [C, G]	Max. 10	min^{-1}
	Estimated life [D]	25000	h
Absolute maximum ratings	Supply voltage, DC	Max. 400	V
	Average discharge current [E]	Max. 1	mA
	Peak current [F]	Max. 30	mA
	Operating ambient temperature	-40 / +125	°C
Weight		2.5	g
Applicable socket (sold separately)		-	-
Suitable drive circuit (sold separately)		-	-

A With an external quenching circuit, select circuit constants for a longer quenching time. For a C-R pulse drive circuit with the applied voltage within the recommended range, calculate quenching time using: $t_q \approx 0.5 \times C_1 \times R_1$ (see recommended circuit).

B Typical value at 200 nm with a light input of 10 PW/cm^2. Treat this as a relative sensitivity value. Actual sensitivity varies with UV wavelength and the drive circuit used.

C Measured under indoor lighting (approx. 500 lux) and recommended operating conditions. Values may increase slightly outdoors due to external interference and other factors.

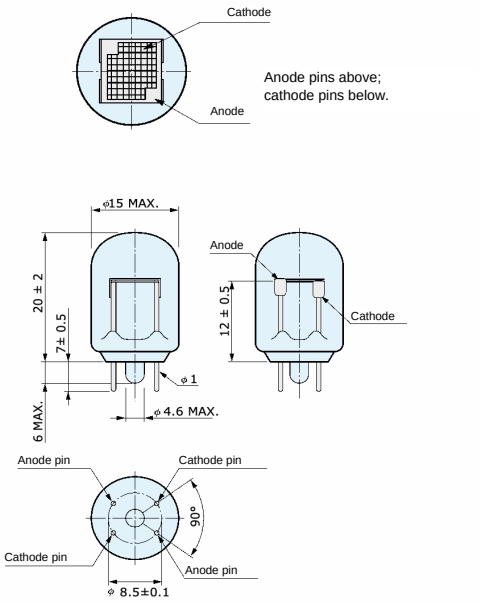
D Service life varies with drive circuit and ambient temperature. Values apply to normal discharge under recommended operating conditions. High ambient temperature reduces service life; consider cooling, such as forced air, for burner monitoring and other high-temperature applications. Warranty: one year from delivery.

E These currents do not immediately consume the electrodes, but significantly shorten service life. Operate within the recommended current range.

F Maximum instantaneous current for a current pulse width of less than 10 µs.

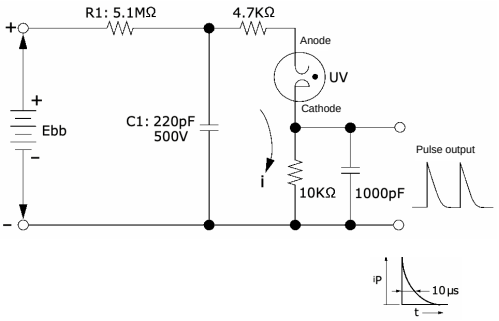
G min^{-1} denotes counts per minute. Sensitivity is classified into grades A, B and C; contact the manufacturer for details.

Dimensions (Unit: mm)



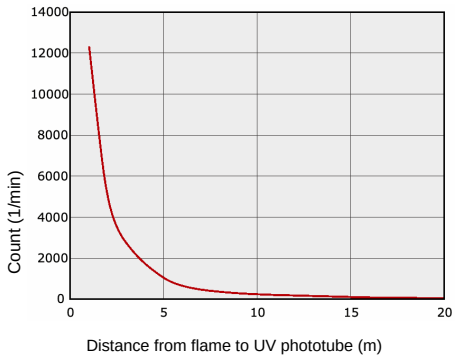
Connect one anode pin and one cathode pin in use.

Recommended Operating Circuit



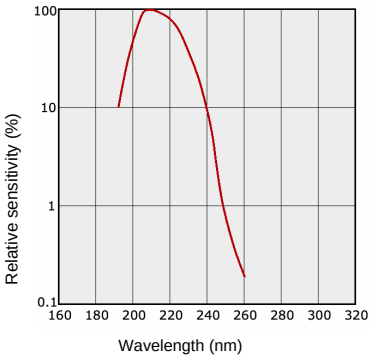
Sensitivity

Typical value • Test condition: alcohol lamp



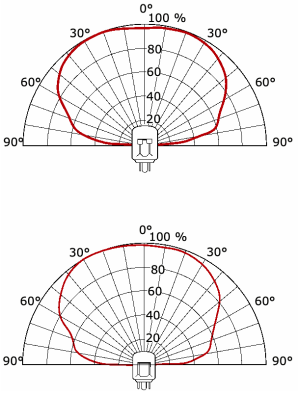
Spectral Response

Typical value



Directional Characteristics

Typical value



SR15P

UV FLAME SENSOR



Features

- No response to visible light
- End-on / side-on light reception (window type)

Applications

- Boiler combustion monitoring
- Facility fire detection

Specifications

Parameter			Description/Value	Unit
Electrode Material			Mo	-
Spectral Response Range			185 to 300	nm
Operating Conditions	Supply Voltage, DC		310±25	V
	Average Discharge Current		2	mA
	Quenching Time, Min.	Min.	1	ms
Charact eristics at 25°C	Discharge Starting Voltage, DC	Max.	240	V
	Discharge Sustaining Voltage, DC	Typ.	170	V
	Sensitivity	Typ.	1200	min^{-1} ⑥
	Background	Max.	10	min^{-1} ⑥
	Estimated Life		10000	h
Absolute Maximum Ratings	Supply Voltage, DC	Max.	400	V
	Average Discharge Current	Max.	10	mA
	Peak Current	Max.	50	mA
	Operating Temperature	Max.	-40/+125	℃
Weight			5	g
Applicable Socket (sold separately)			-	-
Suitable Drive Circuit (sold separately)			-	-

When an external quenching circuit is configured, use the circuit constant to extend the quenching time. When using a C-R pulse drive circuit, if the applied voltage is within the recommended range, the quenching time tq can be calculated using the following formula (refer to the recommended operating circuit diagram):

$$tq \fallingdotseq 0.5 \times C_1 \cdot R_1$$

This is a typical value at a wavelength of 200nm with a light input of 10PW/cm². Consider these values as relative sensitivity values. In actual use, sensitivity will vary with the wavelength of UV radiation and the drive circuit used.

Measured under indoor lighting (approx. 500 lux) and recommended operating conditions. Note: When used outdoors, these values may increase slightly due to external interference and other factors.

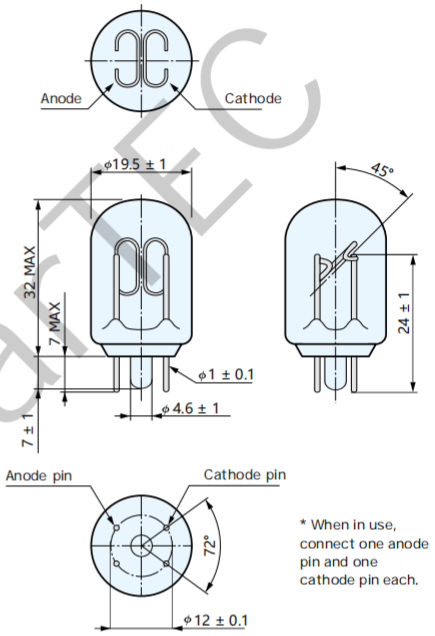
Service life varies depending on the drive circuit and ambient temperature. These values apply when the UV tube is operated under the recommended conditions with normal discharge. Since high ambient temperature will shorten the service life, cooling measures such as forced air cooling should be considered for applications such as burners and monitors where high temperatures are expected. The UV phototube warranty is one year from delivery.

Even at these current values, the electrodes will not be immediately consumed, but the service life will be significantly shortened. Use the phototube within the recommended current value range.

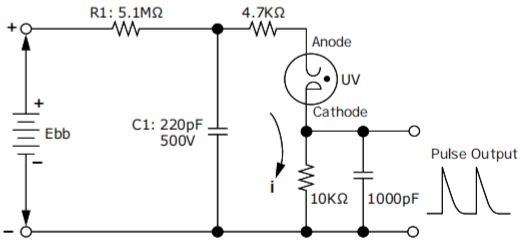
This is the maximum instantaneous current that can be handled when the maximum current pulse width is less than 10μs.

min^{-1} denotes counts per minute.

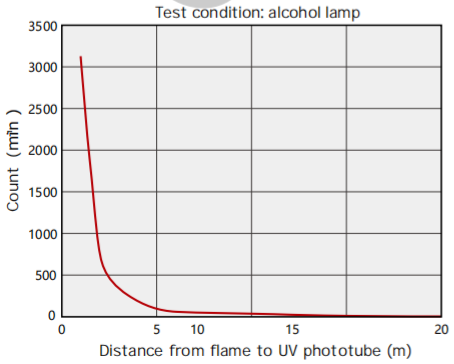
Dimensions (Unit: mm)



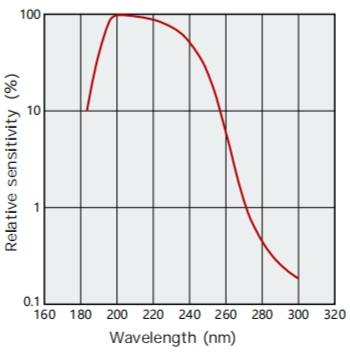
Recommended Operating Circuit Diagram



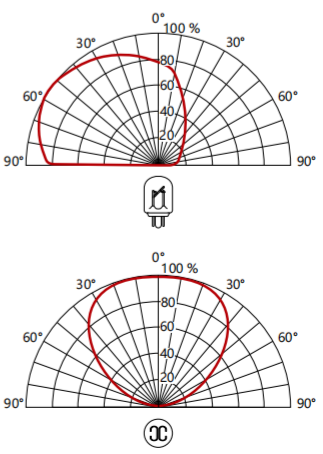
Sensitivity (Typical Value)



Spectral Response (Typical Value)



Directional Characteristics (Typical Value)



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