

Instruction Manual

Standard Flame Sensor

09.Sep.2024 r1
MAN-SKH-010
r1: First edition issued

SKH047MF

- This product is designed to quickly detect and report ultraviolet rays (UV-C) emitted from flames.
- Please read this manual carefully for safe use.
- Keep it in a safe place after reading.

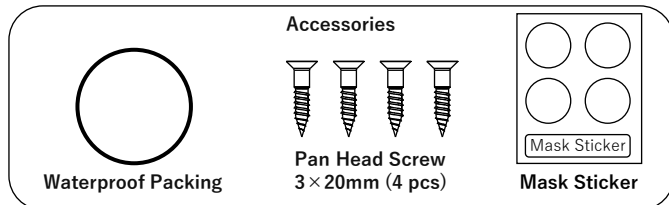
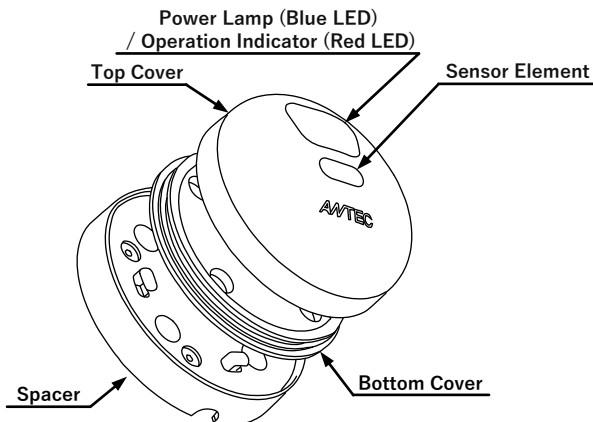
⚠ WARNING

- This product is a flame sensor that uses an ultraviolet detection method.
- Because this product detects ultraviolet rays with high sensitivity, it may detect ultraviolet radiation not emanating from flames.
- Since ultraviolet rays occurring outside of the sensor's field of view may be detected due to reflection, please ensure to check the surrounding environment thoroughly before installation.
- This product does not have vibration resistance. If there are vibrations in the mounting structure, please avoid installing it.

Other Sources of Ultraviolet Radiation (Potential Causes of False Alarms):

- Halogen lamp
- Germicidal and insecticidal lamps
- Sparks generated from the pantograph of trains
- Discharge phenomena such as lightning
- Sparks generated from brushed motors
- Discharge lamps such as mercury lamps
- Discharge occurring between electrodes
- Other sources that generate ultraviolet rays
- Arc discharge caused by welding or plasma cutting

Name/Model Number and Accessories



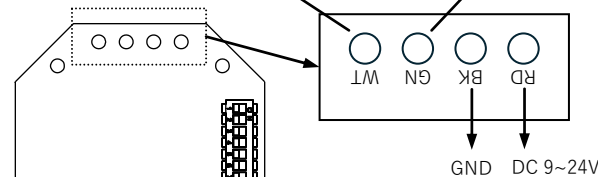
About the output

Flame detection Signal

- *Voltage output 5-0V
- *When flam is detected: 0V

Software error Signal

- *Open collector output
- *Software error: transistor turns OFF
- * Be sure to connect the relay.



*Regarding the Equivalent Circuit:
Please refer to the specifications for details.

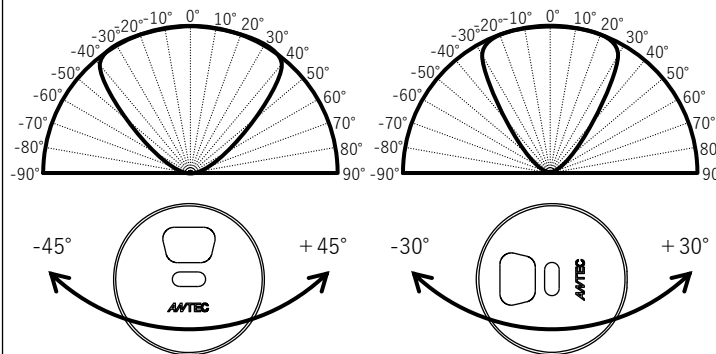
Wiring Method

- This product is waterproof, so the power and output cables are directly wired from the housing. (Cable length: 50 cm)
- Cut the cables to the required length and securely connect them to the wiring using crimping or soldering.



Wiring size: 0.3 mm², 4-core cable, color-coded as specified above.

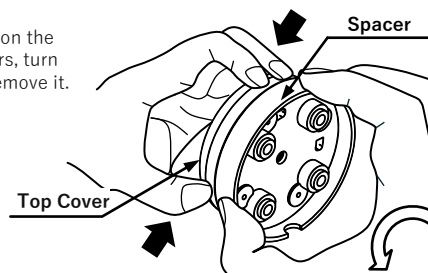
Illumination Characteristics



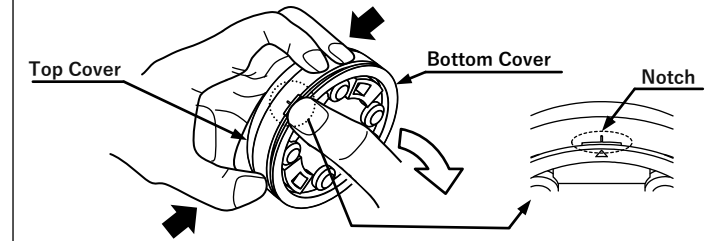
- The illumination characteristics are measured values in a dark room.
- The actual detection area may vary due to direct sunlight, reflected light, etc.
- Therefore, please conduct tests according to the environment before installation.

Mounting Method

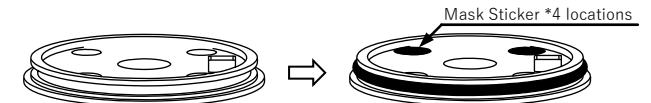
- While pressing down firmly on the upper cover with your fingers, turn the spacer to the left and remove it.



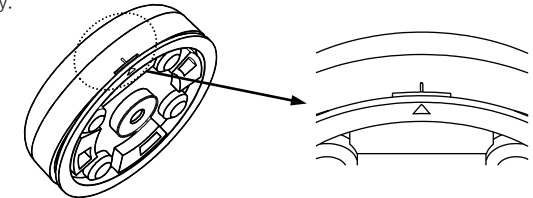
- While pressing down on the top cover with your fingers, hook your nails into the notch of the bottom cover and remove the cover.



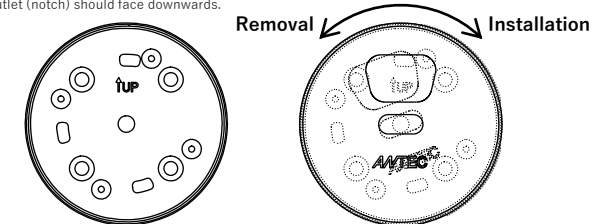
- Attach the waterproof packing included with the product to the bottom cover.
*If you are going to make a hole in the bottom cover and fix it with screws, apply the included Mask Sticker.
*Note that if the waterproof packing and Mask Sticker are not installed, waterproof performance will be impaired.



- Align the arrows on both the top and bottom covers and fit them together firmly.



- If using a spacer, ensure that "↑ UP" is facing upwards.
*The cable outlet (notch) should face downwards.



Operation Check

- Turn on the power.
- Confirm that the power lamp (blue LED) lights up.
- Expose UV light in the detection area. (from a lighter, floodlight, etc.)
- After 4 seconds, the operation check lamp (red LED) will light up, and the external output will turn ON.
- The output will be maintained for 30 seconds after detecting flame and during flame detection.

Disclaimer

Please understand that we cannot assume any responsibility for fire accident, personal injury, disaster accident. And we cannot also assume any responsibility for other damages which originated from incorrect use of the equipment, inadequate maintenance, or natural disaster.

Additional Notes:

- Regular inspections at a specialty store are recommended.
- Functions and specifications are subject to change without notice

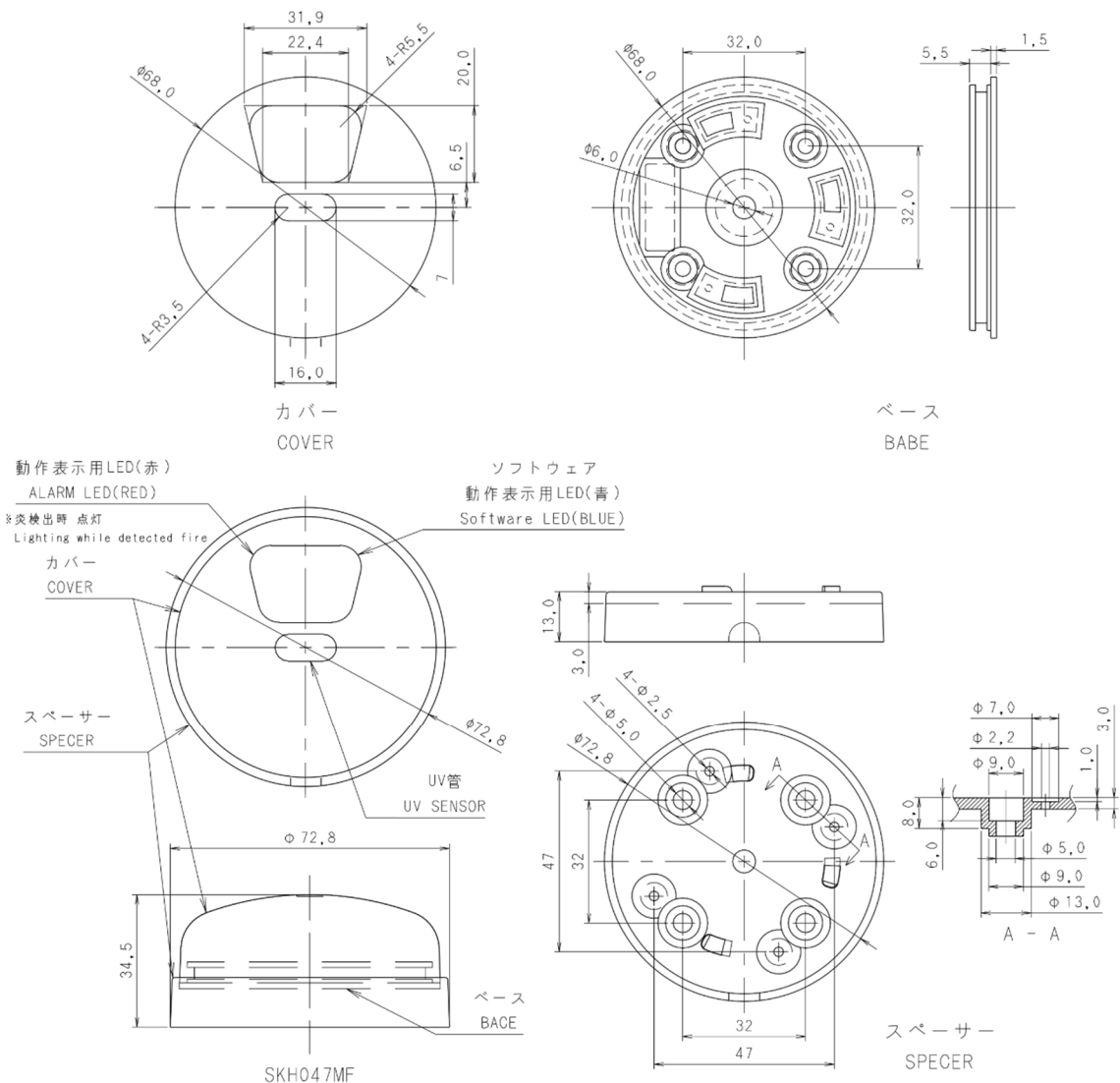
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商品仕様書

Specification Sheet

Model	SKH047MF
Date	09.Sep.2024
Number	SPEC-SKH-010
Revision	r1
株式会社アンテック ANTEC CO., LTD.	

- 商品名 標準型炎センサー
Product Name Standard flame sensor
- 型式 SKH047MF
Model Number
- 使用目的 本製品は炎から放射される特定波長の紫外線を検知するために使用します。
Product Description This product is used to detect UV rays of specific wavelengths emitted from flames.
- 外観
Visual



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ANTEC CO., LTD.

5. 定格および性能

Rating and Performance

5-1) 一般仕様

General specifications

定格操作電圧 Rated Voltage	DC 9~24V
許容操作電圧範囲 Allowable Voltage Range	定格操作電圧の 85%~110% 85%~110% from Rated voltage
配線 Wiring	4 線 (電源 2 線、出力 2 線) 4wire (power supply 2 wires, output 2 wires)
定格消費電力 Rated Power Consumption	待機時 Standby 35mA 以下 (12V DC、常温にて) Under 35mA
	検出時 On detection 60mA 以下 (12V DC、常温にて) Under 60mA
使用周囲温度 Operating Temperature Range	-10°C~+60°C
保存温度範囲 Storage Temperature Range	-15°C~+70°C
使用周囲湿度 Operating Humidity Range	10% RH~96% RH (常温にて)、結露なきこと 10% RH to 96% RH (at room temperature), without condensation
保存周囲湿度 Storage Humidity Range	10% RH~96% RH (常温にて)、結露なきこと 10% RH to 96% RH (at room temperature), without condensation
検出方法 Detection Method	紫外線検出方式 (検出波長: 185nm~260nm) Ultraviolet detection method (detection wavelength: 185nm to 260nm)
検出距離 Detection Distance	50m先、4 秒 ※1 50m, 4 seconds *1

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5. 定格および性能

Ratings and Performance

5-1) 一般仕様

General Specification

検出角度 Detection Angle	左右 90° 上下 30° (センサー正面から±45°、±15°) Left and right 90°, up and down 30° (±45°, ±15° from the sensor front)
検出タイマー機能 Detection Timer Function	0.5s, 1s~31s まで 1 秒単位 (本体 DIP スイッチで切替可) ※2 ※FM 規格で承認されているタイマー設定は 4 秒のみです。4 秒以外に設定した場合は FM 規格に適合しません。 0.5s, 1s to 31s in 1-second increments (switchable with the DIP switch on the main body) *2 * The timer setting approved by the FM standard is 4 seconds only; setting other than 4 seconds will not comply with the FM standard.
炎検知出力 (白ケーブル) Flame Detection Output (White cable)	電圧出力 5-0V (炎検出時: 0V) Voltage output 5-0V (When flame is detected: 0V)
ソフトウェア警報出力 (緑ケーブル) Software Error Output (Green cable)	オープンコレクタ出力 (ソフトウェア異常時: トランジスタ OFF) ※必ずリレーを接続してください Open collector output (Software error: transistor turns OFF) *Be sure to connect the relay
警報出力保持機能 Alarm Output Holding Function	出力保持時間: 約 30s ※3 Output holding time: approximately 30s *3
監視場所 Monitoring Location	屋内 Indoor
動作表示灯 (本体 LED) Operation Indicator Light (built-in LED)	青色 LED 点灯、赤色 LED 消灯: 待機時 青色 LED 消灯、赤色 LED 点灯: 炎検出時 青色 LED 消灯、赤色 LED 消灯: ソフトウェア異常時 Blue LED ON, Red LED OFF: Standby Blue LED OFF, Red LED ON: Flame detection Blue LED OFF, Red LED OFF: Software error

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5.定格および性能

Ratings and Performance

5-1)一般仕様

General Specification

耐電圧 Withstand Voltage	1500V AC/1 分間 (検知電流 10mA) 1500V AC/1 minute (detection current 10mA)
絶縁抵抗 Insulation Resistance	100MΩ 以上 (500V DC メガー) 100MΩ or more (500V DC megger)
外観色 Appearance Color	ホワイト White
外形寸法 Dimensions	Φ72.8mm×34.5mm (スペーサーを含む) Φ72.8mm x 34.5mm (including spacer)
質量 Weight	約 75g (標準ケーブル含む) Approximately 75g (including standard cable)
付属 Included	防水用パッキン・・・1本 Waterproof packing ... 1 pc 取付用皿ネジ・マスクシール・・・4セット Mounting plate screws, mask seals ... 4 sets 取扱説明書・・・1部 Instruction manual ... 1 copy

※1 33×33×5 (H) cm 【Water 21mm (2.3L)、N-heptane 9mm (0.9L)】

※2 設定によって一定時間、紫外線検出時の出力を無効にすることが出来ます。初期値は 4 秒となっておりスイッチ設定にて検出時間を変更出来ます。

You can disable the output during UV detection for a certain period of time depending on the setting. The initial value is 4 seconds, and the detection time can be changed by switch setting.

※3 警報出力は紫外線の検出が無くなると、約 30 秒後に出力が OFF します。5-3)参照

The alarm output will turn off approximately 30 seconds after the UV detection is lost. Please refer to section 5-3 for more information.

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5-2)検出特性

Detection Characteristics

以下に本製品の検出距離・検出角度の代表特性例を示します。

<条件>光源：ライター火 高さ約4cm、場所：反射影響の無い屋内環境

The representative characteristic examples of the detection distance and detection accuracy of this product are shown below.

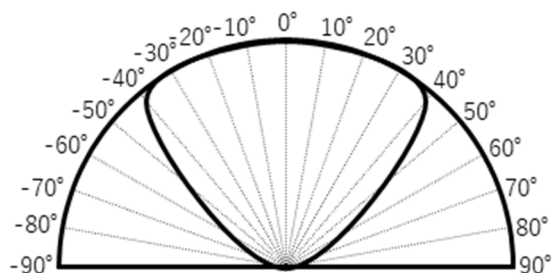
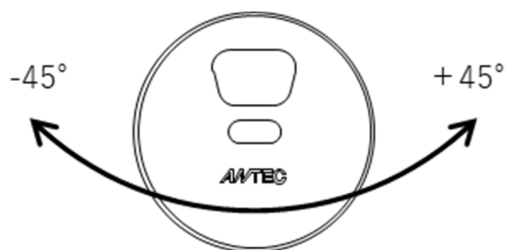
<Conditions>: Light source: lighter fire, height of about 4cm, location: indoor environment without reflective influence.

配光特性

Light distribution characteristics

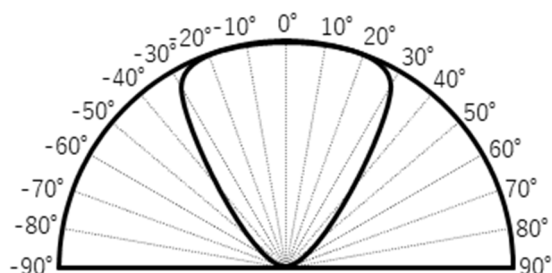
左右方向

Left and right direction



上下方向

Up and Down direction



商品仕様書

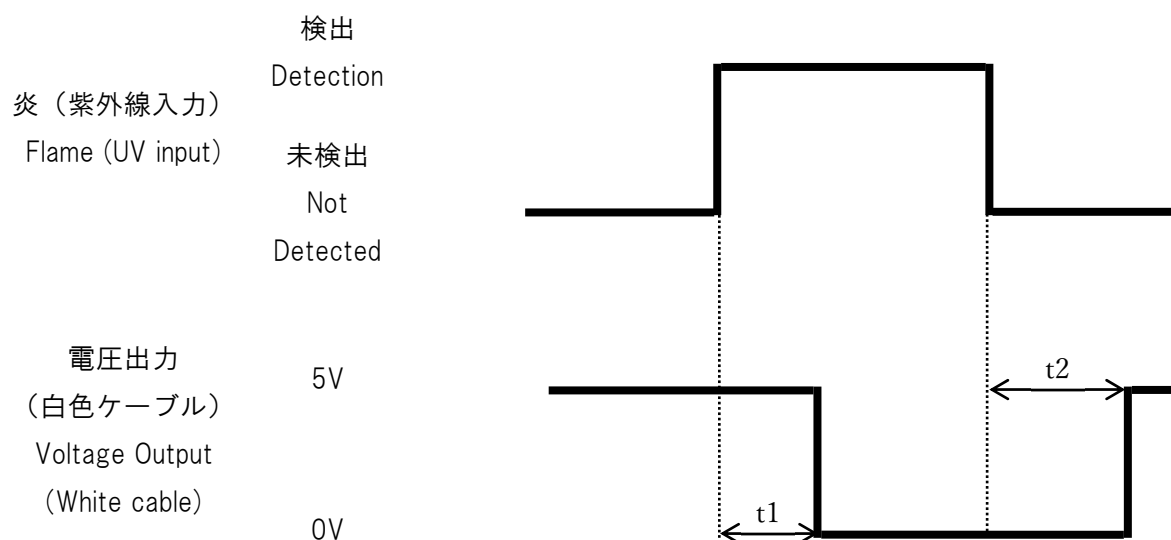
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5-3) タイムチャート

Time Chart



t1 : 検出時間 (0.5s, 1s~31s まで 1s 単位で設定可能)

Detection time (can be set from 0.5s, 1s to 31s in 1s increments)

t2 : 出力保持時間 (約 30s 固定)

Output holding time (about 30s fixed)

商品仕様書

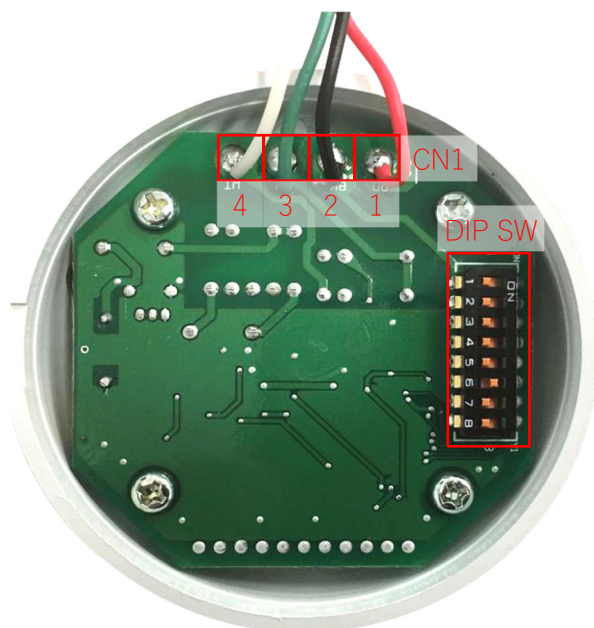
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5-4)内部構造および配線図

Internal structure and wiring diagram.



配線端子

Wiring terminals

No.	内容 (Contents)
CN1-1	DC 9~24V
CN1-2	GND
CN1-3	Open collector (Software error)
CN1-4	Voltage output (Flame detection)

DIP スイッチ 設定例

DIP switch setting example

No.4	No.5	No.6	No.7	No.8	検出時間 Detection time
OFF	OFF	OFF	OFF	OFF	0.5s
ON	OFF	OFF	OFF	OFF	1s
OFF	ON	OFF	OFF	OFF	2s
ON	ON	OFF	OFF	OFF	3s
OFF	OFF	ON	OFF	OFF	4s
ON	OFF	ON	OFF	OFF	5s
OFF	ON	ON	OFF	OFF	6s
ON	ON	ON	OFF	OFF	7s
OFF	OFF	OFF	ON	OFF	8s
ON	OFF	OFF	ON	OFF	9s
OFF	ON	OFF	ON	OFF	10s
ON	ON	OFF	ON	OFF	11s
OFF	OFF	ON	ON	OFF	12s
OFF	OFF	OFF	OFF	ON	16s
ON	ON	ON	ON	ON	31s

※DIP スイッチの設定は電源投入時に反映されます。

電源投入中に設定変更しても反映されません。

DIP switch settings are reflected when the power is turned on. Even if the setting is changed while the power is on, it will not be reflected.

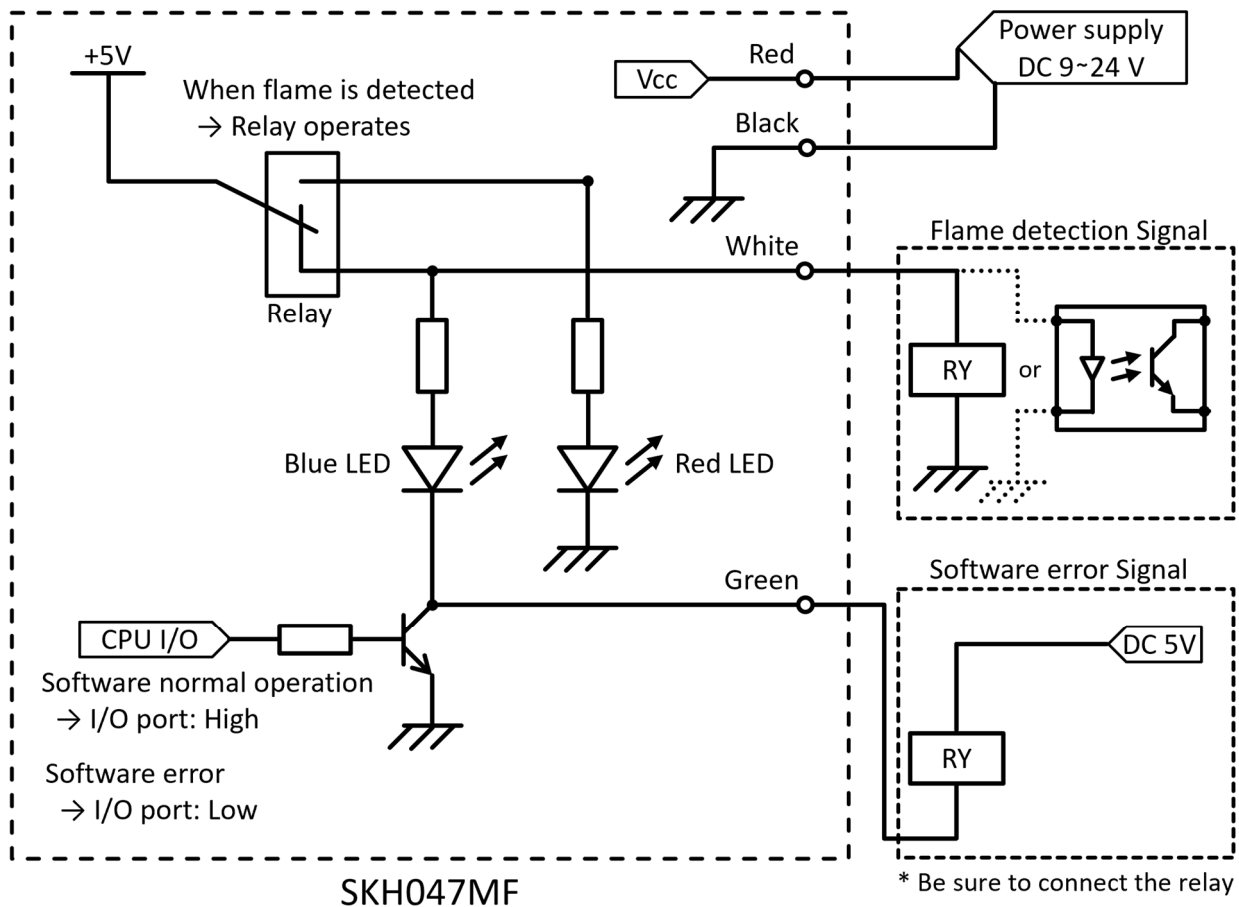
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5-5)接続例 Connecting Example



改訂記録 Revision history

r1 09.Sep.2024 初版発行 First edition issued