



Infrared Three-Wavelength Flame Detector

Type	Infrared Three-Wavelength Flame Detector
Model	PDCJ002-E
Explosion Proof Number	Exde II CT5 (Body: Explosion proof type, Terminal: Increased safety)
Explosion-proof-type approval number	TC21359
Detection wavelength band	Three wavelength bands between 4.0 μm and 5.0 μm
Detection sensitivity	33 cm Normal Heptane Flame Detection at 60m Front Distance (Supports 15 m, 30 m, and 45 m depending on the setting)
Detection viewing angle	Horizontal and vertical 90° (The angle at which the monitoring distance is 1/2 to the front direction)
Rated voltage	24 VDC ±20% (19.2~28.8 VDC) full direct current
Consumption current (monitoring)	90 mA or less
Consumption current (alarm)	130 mA or less
Delay time	Approximately 3 seconds (default), Changeable by setting
Indicator light	Green 1 Hz Blinking: Normal Yellow 4 Hz Blinking: Trouble Red 2 Hz Blinking: Pre-alarm *2 Red constant: Alarm *2) A pre-alarm occurs when infrared energy is about 80% of the alarm level.
Test function	The contamination of the light-receiving window and the operating status of the internal circuit are checked by the pseudo-fire light, and a trouble signal is sent in case of an abnormality.
Contamination detection function	When the contamination of the light-receiving window is detected during the test and the permissible value is exceeded, a trouble signal is transmitted.
Power supply voltage monitoring function	When the power supply voltage drops below about 18.5 V, a trouble signal is transmitted.
Connecting terminal	Screw-type terminal (2 m pre-wired at the factory)
Connection cable specifications	Heat-resistant shielded cable (HPS-1.2 / 0.9-5P)
Lead wire	Approx. 2 m (ends soldered)
IP rating	IP66 equivalent
Operating temperature range	-20 to 60°C (The window heater will turn on when the temperature falls below 5°C.)
Storage temperature range	-30~70°C
Main material	Aluminum alloy
Dimensions	H117×W101.6×D156mm
Weight	Detector: Approximately 1.3 kg
Control panel	FPI012A-1~5L InfrexEye dedicated control panel (1unit/circuit)
Peripherals	ZPDJ018-R tilt mount: For adjusting the installation angle of the detector ZADJ018-R weather cover (SUS): For outdoor use ZADJ019-R detector cover (ABS resin): For use in dusty areas (included in the detector's shipping box)

Note) The detector may operate in response to sparks of arc welding. This product is explosion proof. Please contact us for non-explosion-proof products.

⚠ Safety cautions

- For safety purposes, carefully read the instruction manual before use and properly maintain the system.
- This product is different from the fire detection system defined in the Fire Service Act.
- This product is a fire detection device. Do not use it for any other purpose.

- The appearance and specifications of this product are subject to change without notice.
- The color of the product in this brochure may be slightly different from the actual product color due to printing concerns.
- For maintenance of your important fire detection system, please contact our authorized distributor.
- The contents of this brochure are correct as of March 2019.

Dedicated control panel

Type	Dedicated control panel	
Model	For AC power supply FPI012B-1L~5L-A	For DC power supply FPI012B-1L~5L-D
Number of circuits	1 2 3 4 5	1 2 3 4 5
Mounting type	Wall mounting type	
Main power supply	AC100V±10%,50/60Hz	DC24V±10%
Circuit voltage	[Power for the detector, signal-receiving circuit, and display circuit] 24 VDC (constant voltage) [IC circuit] 3.3 VDC (constant voltage)	
Power consumption	Monitoring (VA) 6 11 16 21 26 4 8 12 16 20 Alarm in 2 circuits (VA) 11 21 26 31 36 8 16 20 24 28	
Maximum number of devices	PDCJ001-D, PDCJ002-E Infrared Three-Wavelength Flame Detector: 1unit/circuit	
Panel sound	Built-in electronic buzzer (Alarm: Constant, Trouble: Intermittent)	
Test & maintenance function	Detector operation test: Manual operation test of the detector (by the test switch) Reset: Reset of detectors and signal-receiving circuits (by the reset switch) Signal cut-off: Cut-off of alarm and trouble output signals (by the signal cut-off switch) Alarm silence: Silence of the control panel (by the alarm silence switch)	
Trouble notice function	Automatic open-circuit notice function: Monitors the detector status and the open circuit between the control panel and the detector (The alarm LED blinks when the circuit is open and there is a detector problem)	
Signal output	Alarm (latch): All points, 30 VDC, 1 A or less Trouble: 1 point (all points available as an option), 30 VDC, 1 A or less	
Alarm detection	Verification: After 2 seconds of detector operation, reset the detector / signal-receiving circuit of the control panel for 1 second. If the detector detects fire between 13 seconds to 63 seconds, the control panel expresses it as fire. (13 seconds is given to reset the detector.) Non-verification: The control panel judges it as fire as soon as the alarm signal is received by the detector.	
Environmental condition	Operating temperature: 0~40°C Operating humidity: 20~85%(RH), No condensation	
Maximum cable length	PDCJ002-E: 330 m (when the cable size is φ0.9), 590 m (when the cable size is φ1.2) PDCJ001-D: 560 m (when the cable size is φ0.9), 990 m (when the cable size is φ1.2)	
End-of-line resistor	10 kΩ, 1/2 W (Connected to the terminal in the detector)	
Main material	Steel plate t1.2	
Finish	Melamine baking finishing	
Dimensions	H400×W350×D170(mm)	
Weight	Max. 15 kg	Max. 14 kg

- *1: The alarm in one circuit when the control panel is the one-zone type
- A dedicated control panel with a battery (1 L to 16 L) is also available. Please contact us for details.

Tilt mount

Model	ZPDJ018-R
Dimensions	H100×W100×D127(mm)
Weight	0.9 kg



Shading cover

Model	ZADJ018-R
Main material	SUS
Dimensions	H106×W123×D200.5(mm)
Weight	0.7 kg



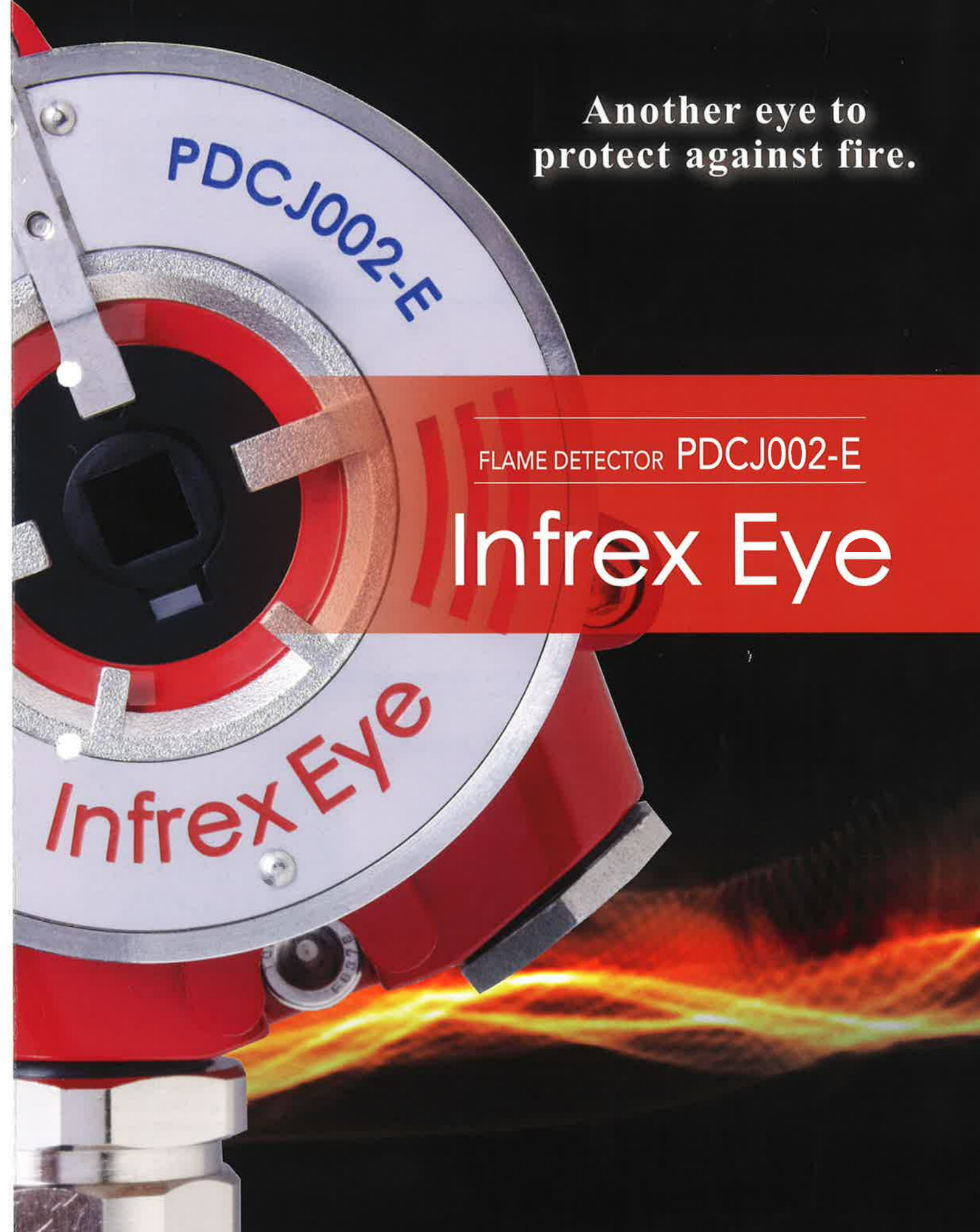
Detector cover

Model	ZADJ019-R
Main material	ABS resin
Dimensions	H107×W123×D219(mm)
Weight	0.15 kg

NOHMI

Explosion-Proof-Type
Infrared Three-Wavelength Flame Detector

Another eye to
protect against fire.



FLAME DETECTOR PDCJ002-E

Inflex Eye

Infrex Eye

The PDCJ002-E detects the CO₂ resonance radiation and flicker that are unique characteristics of flames. Despite its high sensitivity, the PDCJ002-E has fewer false alarm performance and can be installed under direct sunlight or artificial lighting such as sodium lamp, mercury lamp, fluorescent lamp, germicidal lamp, halogen lamp, etc.

Nohmi's infrared three-wavelength flame detector (PDCJ002-E) is designed to detect the presence of fire from the radiant energy produced by flames (CO₂ resonance radiation) and flame flicker. The PDCJ002-E quickly detects fire even in places with ventilation flow, external air, or high ceilings where detection is often difficult for the ordinary detectors. This high-sensitivity detector is also suitable for fire detection in explosion-proof areas.

Features

Explosion proof

This can be used in explosion-proof areas.

High sensitivity

Catches the flame of 33 cm² normal heptane fire tray at a distance of 60 m.

Reliable fire detection

The energy intensity of the three wavelength bands in the CO₂ resonance radiation band and the flicker of the flame are judged as "fire" by an advanced algorithm to suppress false alarms.

Outdoor use

This can be installed outdoors because of dustproof and waterproof performance equivalent to IP 66.

Main application

Suitable for the following applications:

Thermal power plants

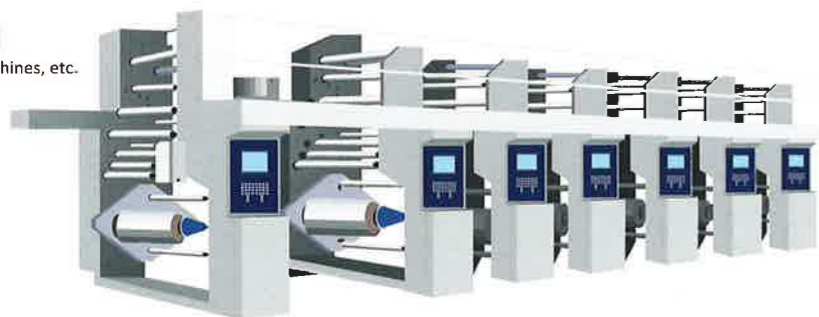


Painting booths



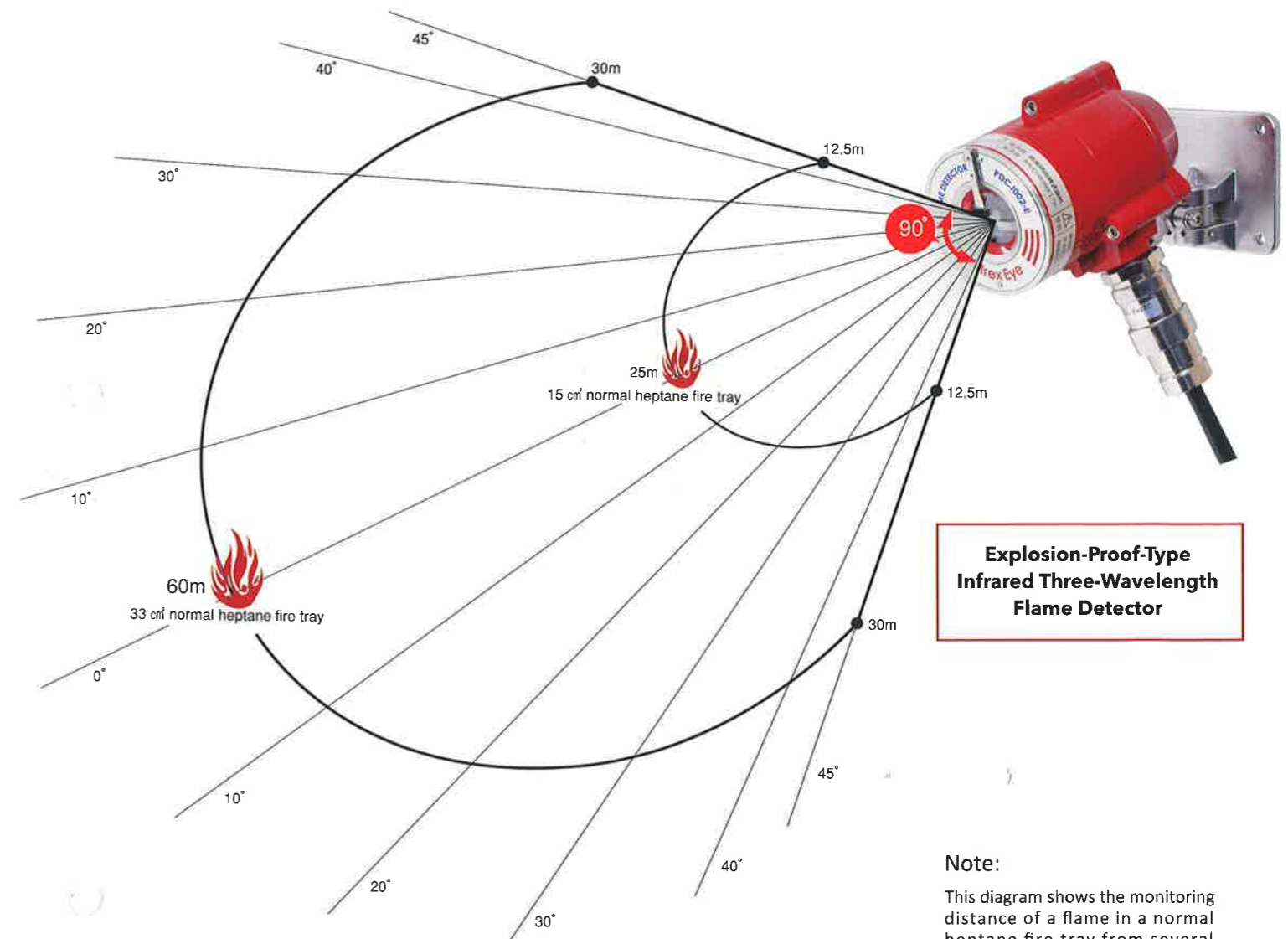
Print shops

Gravure printing machines, etc.



Others

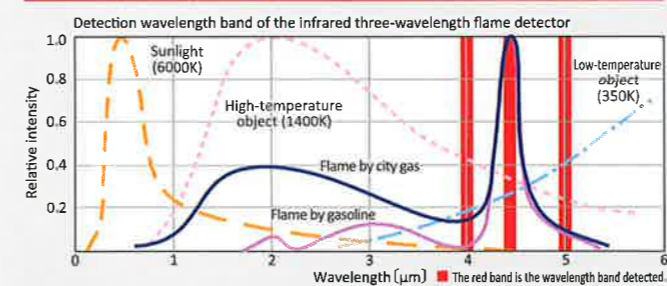
Hazardous-material-handling facilities such as combustible storage and oil plants



Note:

This diagram shows the monitoring distance of a flame in a normal heptane fire tray from several angles. The monitoring distance varies depending on the type, size, and form of combustibles.

Detection of CO₂ resonance radiation and flicker that are unique to flame.



The infrared energy emitted from flames has the spectral characteristics of a peak in the wavelength of the 4.4 μm band. This is called CO₂ resonance radiation. As shown above, this feature is quite different from the spectral characteristics of infrared rays emitted by objects other than flames. Another characteristic is that the infrared energy emitted by the flame flickers at a frequency of 1 to 15 Hz. Furthermore, the respiratory action of the flame always causes fluctuation of the amount of radiation. Nohmi's infrared three-wavelength flame detector monitors the three wavelength bands of CO₂ resonance radiation. It is able to accurately detect fire by recognising the unique property of flames in terms of their energy intensity, ratio, etc., CO₂ resonance and flicker.

Block diagram

