CERBERUS PYROTRONICS

Model S-2406 Infrared Flame Detector

ENGINEER AND ARCHITECT SPECIFICATIONS

Features

- Dual Sensors Discriminate Between Hydrocarbon Flames and Sources of Inference
- Four Stage Sensitivity Selection Includes a Very Sensitive Setting
- Wide Temperature Range of 13°F to 158°F

Introduction

The Cerberus Pyrotronics Selective Dual-Sensor Infrared Flame Detector, Model S-2406 has been developed to meet the strictest requirements for reliability, response sensitivity and durability over a wide range of environments. The four stage sensitivity selection includes a very high sensitivity setting which will respond to a one square foot gasoline fire at a distance of 75 feet. The housing is impact-resistant, waterproof and immune to corrosion, dust and salt spray. Electronics are encapsulated and sensors are protected behind scratch-proof sapphire windows. Operation is unaffected by high frequency interference, and all elements are highly resistant to vibration.

Because the S-2406 dual element infrared detector has been designed to perform under severe environmental conditions, there are four user selectable sensitivity settings and dual element discrimination. You can expect superior performance, simplified installation and minimal amounts of maintenance from this design.

Description

The S-2406 detector has two pyro-electric sensors which are sensitive in two different light wave lengths. The first sensor reacts to the infrared energy in the spectral range from 4.1 to 4.7 mm which is emitted by heated carbon dioxide produced by combustion of materials containing carbon such as wood, alcohol, oil products, plastics. The second sensor reacts to infrared energy in the spectral range 5 to 6 mm emitted by typical interference sources such as artificial light, heaters and hot vibrating surfaces.

Signals having a typical flame flicker frequency from 2 to 20Hz are amplified and checked for amplitude and phase. When IR-energy is emitted by flames, the signal amplitude in the first sensor is larger than that from the second sensor and an alarm is triggered. If, however, the infrared energy is emitted by an interference source, like a hot vibrating surface, the signal from the second sensor will be the same or larger and an alarm is not triggered.

For flexibility in project application, the sensitivity and response integration time can each be set in two levels by a small built-in switch.

Application

The S-2406 has been designed for detecting fires where rapid development of flames can be expected, as with highly flammable liquids and gases. The detector reacts to all burning materials which contain carbon. In addition, the detector has two pyro-electric sensors and a sophisticated electronic circuit which gives the detector immunity to interference sources. The S-2406 is, therefore, suitable for applications even in extreme environments.

The infrared flame detector cannot be used for applications with phosphor, sodium, magnesium or hydrogen fires.

Engineer and Architect Specifications

The infrared flame detector shall be a Cerberus Pyrotronics model S-2406. The infrared flame detector, model S-2406 shall have a four stage sensitivity selection. The infrared flame detector shall have dual sensors for the purpose of discriminating between infrared energy in the characteristic carbon dioxide spectral range (4.1 to 4.7 mM) and other infrared energy typically emitted by interference sources in the 5 to 6 mM spectral range. The detector housing must be impact resistant, waterproof and immune to corrosion, dust and salt spray. The detectors electronics must be encapsulated. The sensors must be protected behind scratch-proof sapphire windows. The detectors sensitivity and response integration time shall be set in either of two levels by use of a built-in switch. The S-2406 shall not be used for applications with phosphor, sodium, magnesium or hydrogen fires.

Electrical Information

Charcteristic	MIN.	TYP.	MAX.
Operating Voltage	18V	20V	26V
Operating Current	150mA	200mA	250mA
Switch on Current	1mA	1.5mA	2mA
Alarm Voltage (when iA 15 mA)	5V	6V	8.5V
Alarm Current (limited externally)			100mA
Reset Voltage	0.4V	1V	2V
Reset Current	30mA	100mA	180mA
Reset Time			2 sec.
Viewing Angle			100°
Response sensitivity at radiated temperature 1700K and 8Hz "Sensitivity" switch at setting			
4 and 2	15mW/cm2		
1 and 3	40mW/cm2		
Response integrating time (in seconds): "Sensitivity" switch at setting			
4 and 2	2	3	5
1 and 3	6	8	10
Ambient Temperature Range	-25°C (-13°F)		+70°C (158°F)
Storage Temperature Range	-40°C (-40°F)		+80°C (176°F)
Relative Humidity (30 days/year)			≤ 95%

NOTICE: The use of other than Cerberus Pyrotonics detectors and bases with Cerberus Pyrotronics control equipment will be considered a misapplication of Cerberus Pyrotronics equipment and as such void all warranties either expressed or implied with regards to loss, damage, liabilities and/or service problems.

System Capability

The S-2406 is designed to operate with the following listed Cerberus Pyrotronics Control Panels:

System 3	- ZU-35 Module
CP-2HR	- Zone Circuits
INS-2	- CZI-H2S (Style B, Class B)
	CZI-H4S (Style D, Class A)
MXL	- CZM-4, CZM-1*

Due to power requirements, a maximum of twelve S-2406 detectors can be connected to a zone.

*CZM-1, due to power requirements, a maximum of six S-2406 detectors can be connected to a zone.

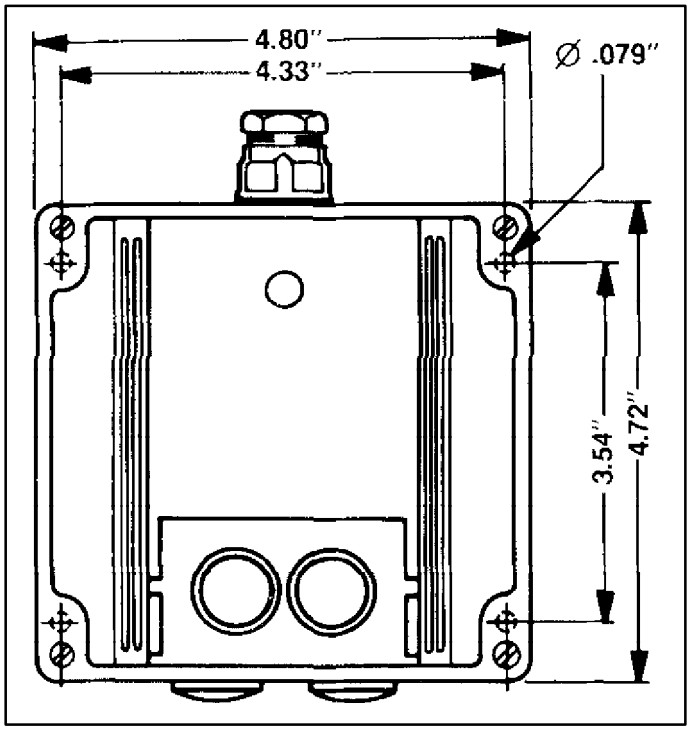
Installation

The S-2406 Flame Detector must be installed in accordance with N.E.C. 760 and N.F.P.A. 72 guidelines. Cerberus Pyrotronics installation and maintenance manual should be referenced for detector spacing and sensitivity for each particular application. The S-2406 is normally wall mounted on an MWV1 swivel bracket at a 45° angle with respect to the area being monitored.

Ordering Information

Part Number	Model Number	Description
500-089951	S-2406	Dual Infrared Detector
500-690048	Z2406	Backbox for S-2406 (required)
500-690049	MWV1	Ball Joint Mounting Bracket (recommended)

Dimensions:



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