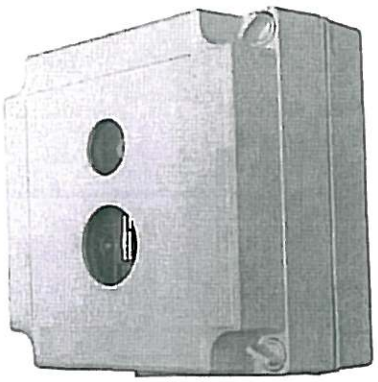
UV-IR Flame Detector

User's Guide



Model: VS-200PB

Zeta ALARM SYSTEMS

http://www.gltexports.com

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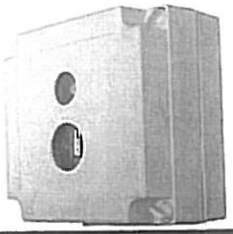
SPECIFICATION

UV/IR Flame Detector
VS-200PA-ST



DESCRIPTION

VS-200PA-ST is a smart "explosion-proof" UV/IR flame, combining two sensors for both the UV(Ultra-violet) and IR(Infrared) spectra.
This detector is well protected against the versatile false alarms, such as ARC welding, artificial light sources(halogen lamps, electronic flashes, etc) and other well-known spurious fires.

Typical Applications:

- Oil, gas and petrochemical refineries /production/storage/off loading/shipping
- Semiconductor chemical process areas
- Power Generation pumps,engine rooms and manned stations
- Automotive-manufacturing paint spray booths
- Paint-manufacturing facilities
- Printing industry-solvent handling, presses, drying process
- Chemical industry -production ,storage, transportation
- Trade centers, culture halls, any public commercial buildings
- Warehouses -storage facilities for flammable materials

FEATURES

FEATURES

- Dual Spectrum(UV/IR)
- Typical response time of 3 to 5 seconds
- Aluminium enclosures against hazardous areas
- Excellent false alarm immunity
- Silicon-molded electronic circuits against the spark ignitions, harsh environments, etc.
- User Programmable Configuration (selecting the sensitivity levels, etc)

TECHNICAL SPECIFICATIONS

Input Voltage DC24V(11 to 32Vdc)

Power Consumption Max. 40mA in standby
Max. 70mA in alarm

Outputs <Dry Contact Relays>
2A at 30Vdc
0.6A at 125Vac
Alarm:
-N.O.(Normally open contacts)
-N.C.(Normally closed contacts)
Fault :
-N.C.(Normally closed contacts)

<Optional outputs>
4-20mA current output
RS-485 output

Alarm Latching Latching/Non-latching selectable

Spectral Response UV : 0.185 to 0.260 microns
IR : 4.3 micron

Response Characteristics Typical Response Time:3 to 5 sec at 15m
(1 sq.ft n-Heptan at 50ft)

*Within 15 sec Response Time:

Fuel	Size	Distance(m)
n-Heptane	33×33cm	Nom. 36m

Sensitivity Selectable 4 modes
*Refer to the relevant DIP switch setting.

Field of View 90°(horizontal/vertical)

Electrical Connection PG13.5 or M20 cable gland
or on request

Temperature Range -40°C to +85°C

Humidity Range Up to 95% RH

Dimensions 130×130×78mm(w/o optional swivels)

Weight 0.5kg(w/o optional swivels)

Ingress Protection IP66/IP67

Certifications Designed to meet EN54-10/FM3260

Enclosure

Classification

Optional Accessories Swivels

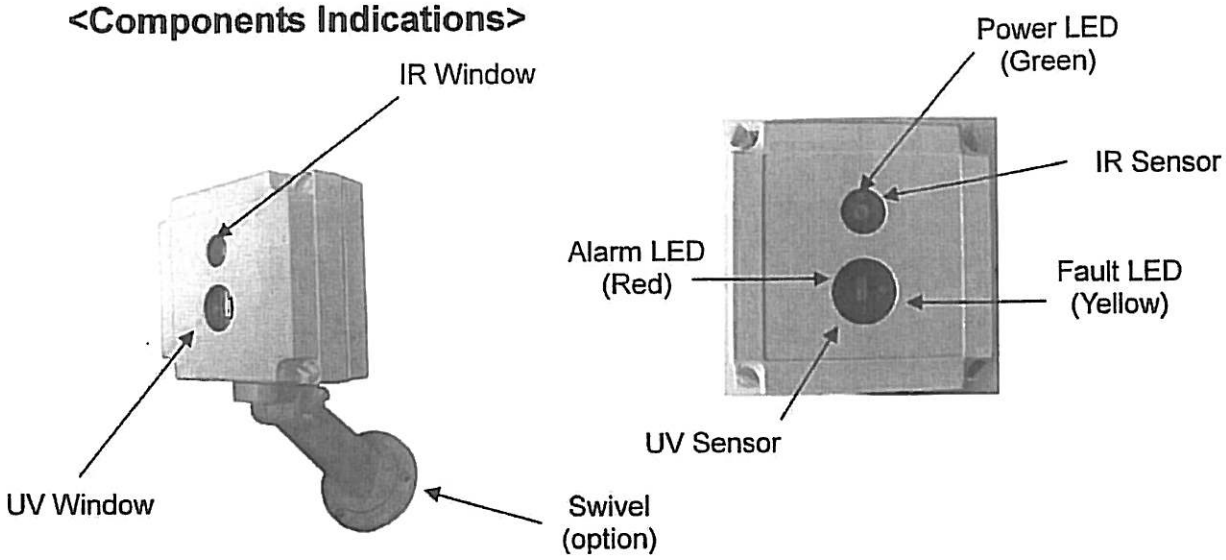
FALSE ALARM IMMUNITY

False Alarm Source	Distance	Modulated /Unmodulated Response
Arc welding, 4mm rod / 200A	3m	No alarm
500W quartz halogen lamp (w/o, with protective window)	IAD	No alarm
1500W electric quartz heater	IAD	No alarm
Fluorescent Light, 40W	IAD	No alarm
Incandescent Light	IAD	No alarm
Sunlights(direct/indirect) Others		No alarm

*Notes: IAD=Immune at any distance

Field Installation

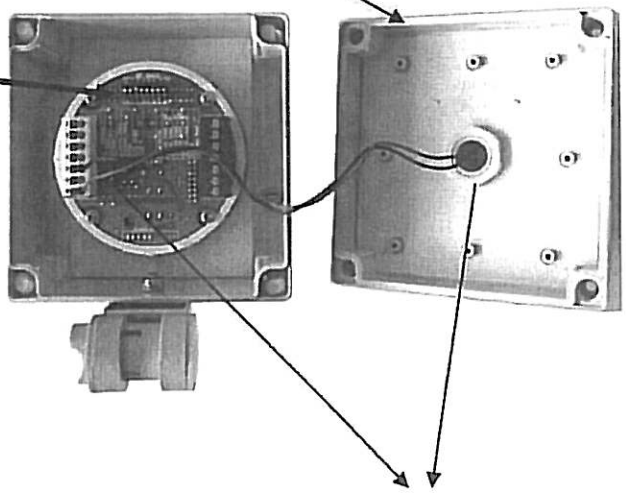
<Components Indications>



<Installing>

① Unscrew the Front Cover to open the enclosure.

② **Set the DIP switch as you need (refer to "DIP Switch Setting" at appendix A)**

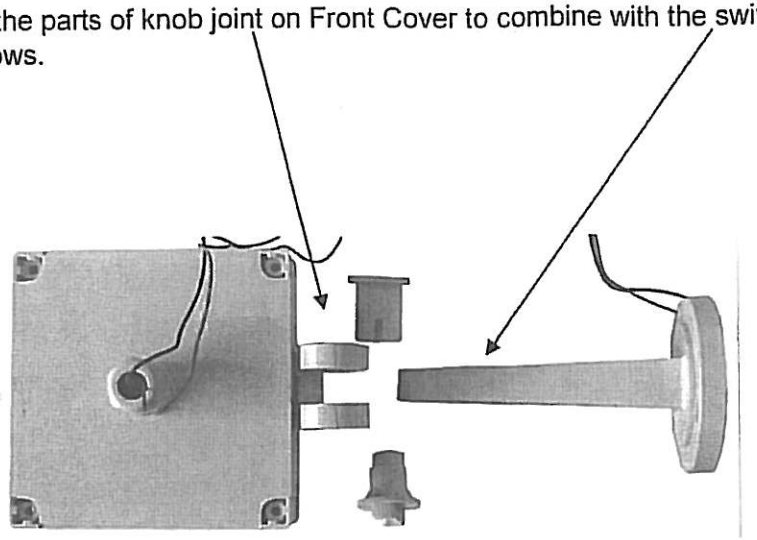


③ Let the applicable wires go through the cable gland of Back Cover and connect them to the terminal blocks

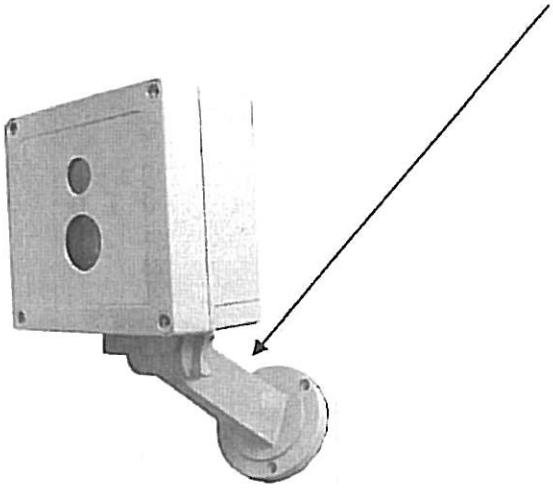
WARNING:⚠ Do not disassembly or touch internal components other than DIP switches/Terminal blocks against possible any damages inside.

- to be continued

④Disassembly the parts of knob joint on Front Cover to combine with the swivel mount and fasten them tightly, as follows.



⑤ Adjust the tilting angles of completed detector for your application situation/purpose.



Installation Considerations

The followings should be considered when installing flame detectors.

- Point detector toward where the flame is expected.
- Ensure an unobstructed view of the area to be monitored.
- Employ more than one detector to ensure the hazard is fully covered.
- Mount the detector about 1 meter below the ceiling so it can respond before being blocked by smoke accumulation at the ceiling.(in case of ceiling installation)
- Tilt detector down a minimum of 10 degree or 20 degree(most desirable at 45 degree) to reduce dirt and dust accumulation which could obscure the detector's viewing window.
- The detector should be accessible for cleaning the windows.
- Securely mount detector so as to reduce vibration,impact as much as possible.
- Consider adjusting the sensitivity modes(detection speeds) against the false alarms/potential inhibitors below in surroundings below ,which may prevent detector from detecting a fire or reduce its sensitivity to fire;
  - Solid objects such as machinery, glass or plexglass between the detector and potential fire source
  - Water, fog, rain, dirt or dust on the detector window or heavy smoke between the detector and potential fire.

Start up procedure

Once powered up, VS-200PA-HS will begin appr. 20 sec start up routine. During this time, the Green(power) LED will be Flashing. Once the start up procedure has finished and no faults are present, the detector will begin Normal operation (Green LED will remain on).

LED Status	Green LED (Power)	Red LED (Alarm)	Yellow LED (Fault)	Current Output <Optional>
Power up – 20 second start delay	Blinking	Off	Off	2 mA
Internal Power Fault or system power out of range / Fault	Off	Off	Blinking	0 mA
Normal Operation	Solid	Off	Off	4 mA
UV Detection	Solid	Off	Off	12 mA
IR Detection	Solid	Off	Off	8 mA
Fire Detection(Warning)	Off	Solid	Off	16 mA
Fire confirmed	Blinking	Blinking	Blinking	20 mA

WARNING: ⚠ **During Start up procedure, ensure all external equipments are disabled to prevent unwanted activation until its procedure completion..**

Detector Maintenance

Perform the following maintenances on a regular basis.

- Clean the windows.
  -Use a cleaner (solvent) that completely vaporizes such as Ethanol.

  WARNING:⚠ Do not clean the windows with a cleaner that contains silicon, making the windows shinning, resulting in absorbing UV radiation.

- Tighten the mounting nuts/swivel/cable gland
- Check for un-obstructed view
- Check for possible spurious alarm items in the Field of View
- Grounding of detector/panel and its cable shielding
- Ingress protection at cable gland, etc.

Warranty

One-Tear Limited Warranty

Unless mutually agreed for specific dealings, GLT EXPORTS LTD. warrants our flame detectors against defects
in materials and workmanship for a period of one year from receipt by the end user. During the warranty period, GLT EXPORTS LTD. will, at its option, either or replace products that prove to be defective. Replacement products may be new or refurbished at GLT Exports Ltd.'s discretion.

Exclusions

The warranty on GLT EXPORTS LTD.'s flame detectors shall not apply to defects resulting from the following;

- Improper or inadequate maintenance by the customer
- Unauthorized modification or misuse
- Operation outside of the environmental specification for the product

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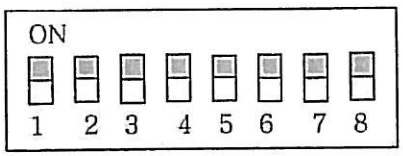
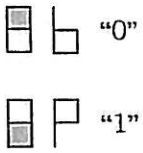
Appendix A: <DIP Switch Setting>

DIP SWITCH SETTING

Refer to the wiring connection(Appendix C).

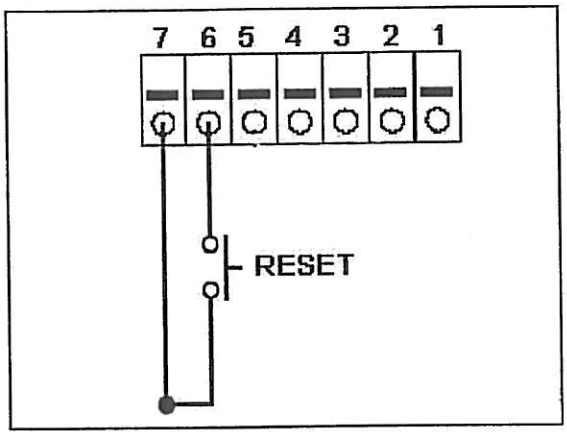




DIP SWITCH								Function Descriptions	Remarks
1	2	3	4	5	6	7	8		
b1	b2	*	*	*	*	*	*	Sensitivity Setting 0 0 : Highest <Factory Setting> 0 1 : High 1 0 : Medium 1 1 : Low	
*	*	b1	b2	*	*	*	*	Alarm Delay Time Setting 0 0 : 0 sec(No delay) 0 1 : 3 sec after alarm output<Factory Setting> 1 0 : 7 sec after alarm output 1 1 : 20 sec after alarm output	
*	*	*	*	b1	b2	*	*	Alarm Latch On/Off Setting 0 0 : Reset after 5 sec <Factory Setting> 0 1 : Reset after 10 sec 1 0 : Reset after 20 sec 1 1 : Latch until external reset	
*	*	*	*	*	*	b	b	Reserved (for future requests)	

Appendix B: <Manual Reset>

Manual Reset (for VS-200 series)



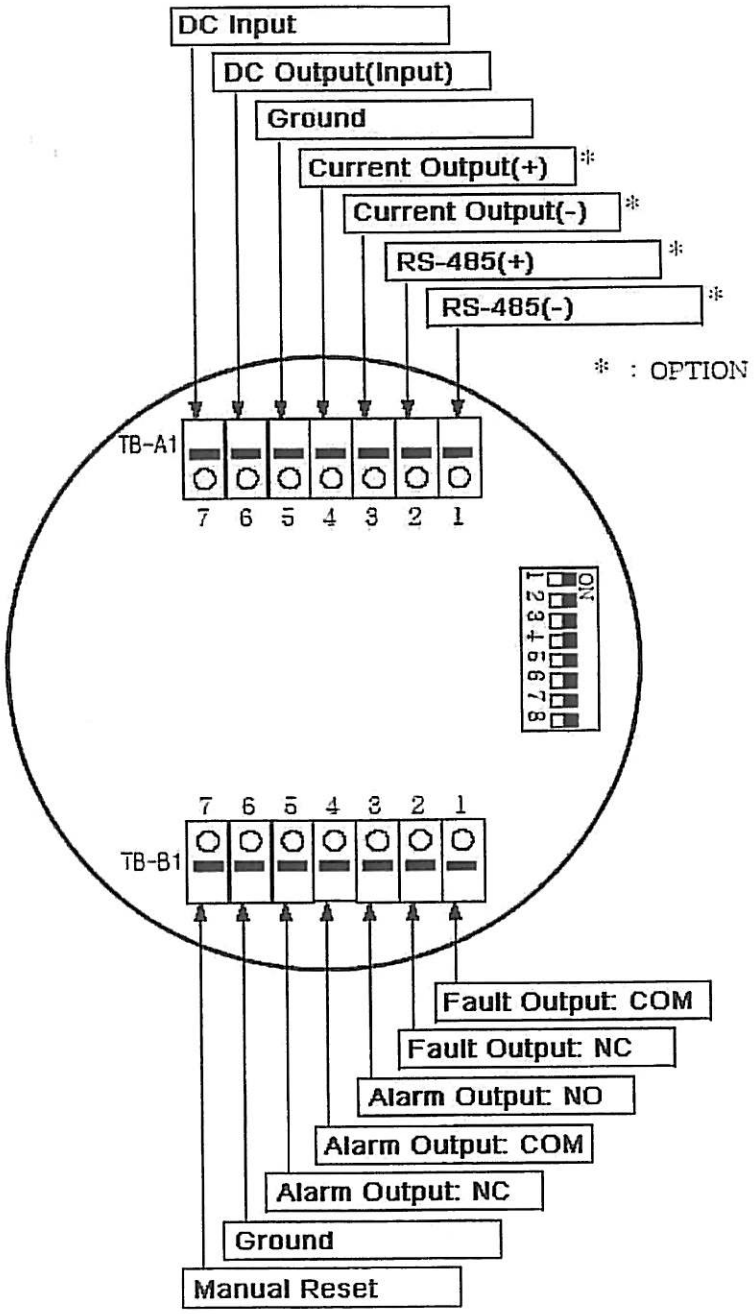
(For "Manual Reset" position in the "BLACK" terminal block)
When shorting as indicated(or pushing the "user-installed" reset switch) over 1.5sec , its manual reset will be done.

For the detailed wiring diagrams of each models,
Please refer to the next pages.

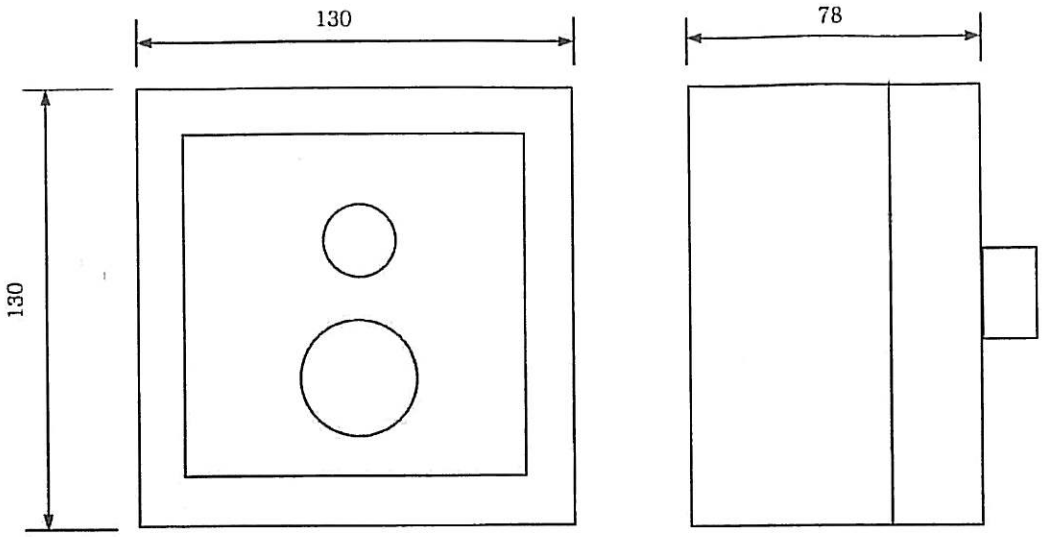
Appendix C: <Wiring Connections>

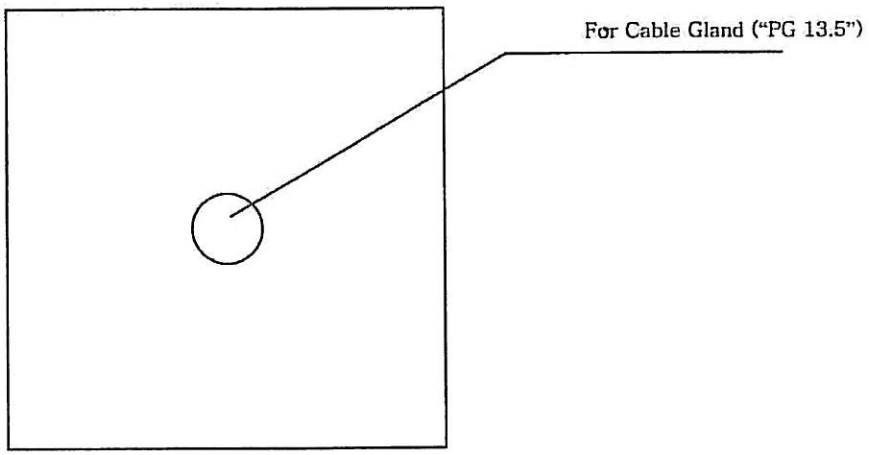
Wiring Diagram for VS-200 series

※Applicable Wires: AWG 26~16
Stripped Length: 10mm



Appendix D: <Mechanical Dimensions>





Appendix E:<Recommendations in installing inside the buildings>

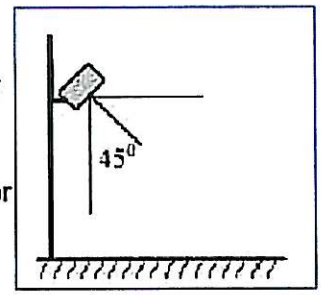
2-1. Mounting

The detector can be mounted using the two mounting holes on the detector housing or the included swivel. It is preferred that the cable gland is pointing down. Leave a loop of spare cable with a diameter of apr. 10 cm (4 inch).

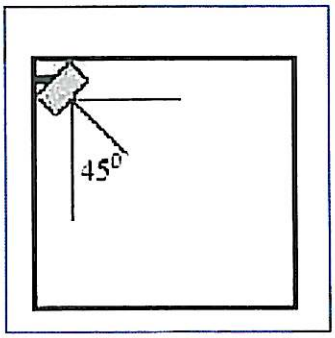
2.1.2 Weather Protection

In dirty or wet environments you should consider to mount a hood over the detector. That kind of hood can be mounted directly above the detector without effecting the Field of View of the detector.

2.1.3 Field of View

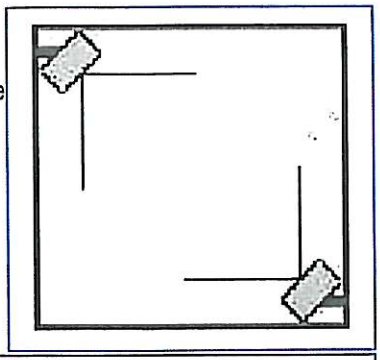


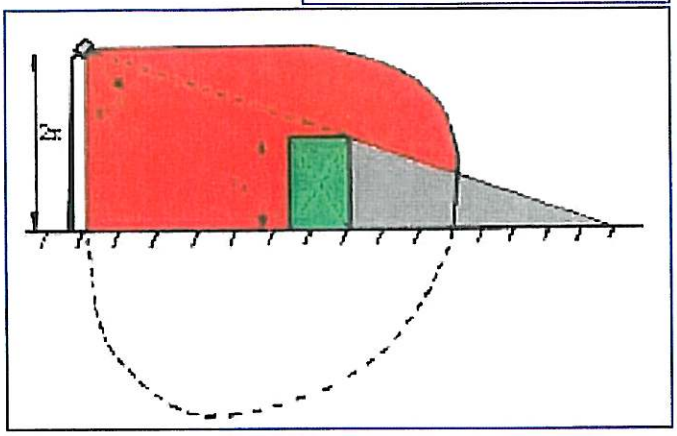
Keep in mind that the detector has a Cone of Vision f more than 90°.
Make sure that detector is not directly looking into potential false alarm sources or friendly fires. By pointing the detector down in an angle of 45° it allows you to fully utilize the Field of View. In this case one side of the Cone of Vision will cover the area horizontally and the other side of the Cone of Vision will cover the area vertically.



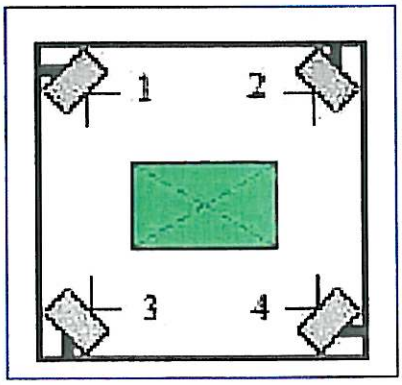
When the detector is also mounted in a diagonal way at 45° it will cover a volume.

In order to avoid shadow area's that can not be seen by the flame detector it is advised to put another detector in the opposite corner.





As a rule of thumb the detector is mounted twice as high as the highest object in the protected area.



Warning:
Smoke absorbs flame radiation. This could effect the sensitivity of the detector.
Mount the UV/IR detector at least 150 cm (5 feet) from the ceiling.

Warning:
Cold CO2 absorbs 4.4 µ radiation from a fire. When used in combination with a CO2 extinguishing system, be aware of the fact that re-ignition of the fire when CO2 gas is present may not be detected by the IR sensor.

-END