Instruction Manual

Flame Detector
(UV / IR)

Model: RFD-2FT* (V1.1)

issued date : 2012.5.9

REZONTECH CO., LTD

- Contents -

Flame Detector (UV/IR)

• Model RFD-2FT*

Safety Information

⚠ WARNING

- AFTER DE-ENERGIZING, DELAY 15 MINUTES BEFORE OPENING.
- Never connect a supply of power 110Vac/220Vac to the supply inputs terminal.
- Before installing and operating the product, be sure to read this manual.
- Disassembly and assembly of the internal electrical parts of the product are not allowed to anyone, except the manufacturer. Unauthorized action within the internal electrical parts will expire the warranty.

- Caution

- Please refer to the diagrams and specifications on the user manual
- Do not open the product while the power supply is 'On', especially in dangerous area, further cautions are needed more.
- When trying to detached the product from its installed place (including full system), advanced checking for interrelation with related system must be placed to avoid malfunction.
- Please use caution in polarity.
- Separated 24V DC is recommended from Alarm Panel.
- Please handle products carefully to avoid life and property losses.
- Dust-free environment at all times, or dust should be removed while the product is in use.
- Use fasteners with yield stress ≧ 600 N/㎟.
- The cable should be used more than 85℃.

- Qualified person

commissioning and installation of a device may only be performed by qualified personnel of ATEX 137 standard.

- Safety Certification

- ATEX CE 1725 Ex II2 GD
  Ex d IIC T6 Gb (-40℃≦Ta≦+65℃)
  Ex d IIC T5 Gb (-40℃≦Ta≦+75℃)
  Ex t IIIC T85℃ Db IP66/IP67
  Ex t IIIC T95℃ Db IP66/IP67
- ATEX EC Type Examination Certificate No.: DNV 12 ATEX 1338X
- CE ATEX QAN : FM11ATEXQ0042

Flame Detector (UV/IR)

- **Model RFD-2FT***

ATEX MARKING

No1 No2 No3 No4 No5 No6 No8 No9 No10 No11 No12 No13

CE 1725 Ex II 2 GD Ex d IIC T6 Gb, -40℃≦Ta≦+65℃

No14 No15 No16 No17 No18

Ex t IIIC T85℃ Db IP66/IP67

EC-Type Examination Certificate

No19 No20

DNV 12 ATEX 1338X

No1. CE Marking: Compliant with European Directives
No2. Notified Body Number: FM Approval
No3. European Commission mark for Ex-equipment
No4. Equipment group II, Electrical apparatus for places with an explosive gas atmosphere other than mines.
No5. Category 2. Equipment in this category is intended for use in areas in which explosive atmospheres caused by gases, vapors and mists mixtures are likely to occur. Must not be used in zone 0.
No6. For equipment-group II, the letter "GD" (Concerning explosive atmospheres caused by gases, vapors and mists, combustible dusts)
No8. Explosion protection
No9. Type of protection – Flame proof enclosure "d"
No10. Gas Group See details to Table a.
No11. Classification of maximum surface temperature. See details to page Table b.
No12. Equipment protection level : Zone1
No13. Ambient Temperature
No14. Type of protection – Dust General&Enclosure "t"
No15. Dust Group : Conductive dust
No16. Maximum surface temperature : dust-free status
No17. Equipment protection level : Zone21
No18. Ingress Protection.
No19. EC type examination certificate
No20. Special Conditions for Safe Use (X)
The X in the certificate number means that there are special conditions for safe use and that the user should check the ATEX certificate.

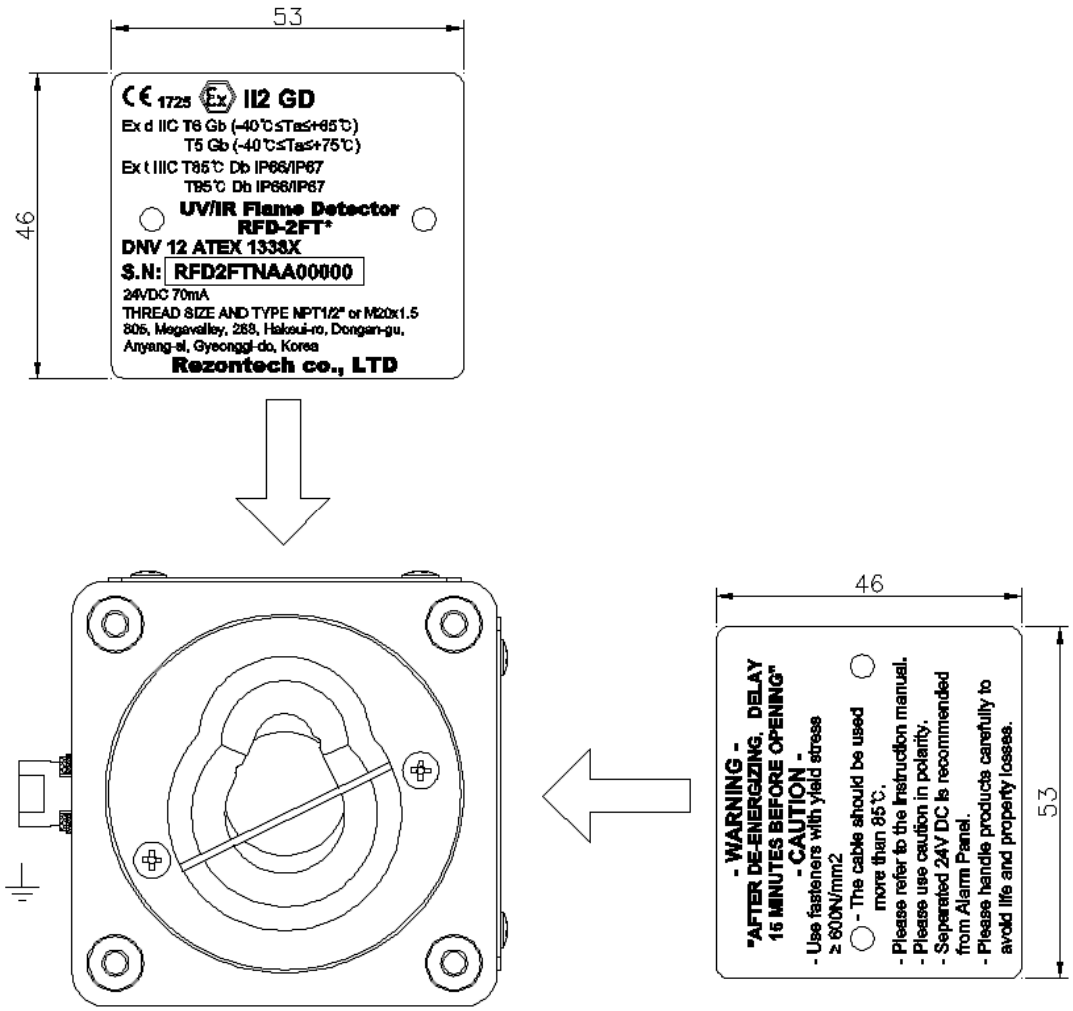
Table a.

Gas Group:	Representative gas:
II A	Propane
II B	Ethylene
II C	Hydrogen
	Acetylene

Table b.

Temperature class	Maximum surface temperature
T1	≤450℃
T2	≤300℃
T3	≤200℃
T4	≤135℃
T5	≤100℃
T6	≤85℃

ATEX Label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CE 1725 Ex II2 GD
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Ex t IIIC T85℃ Db IP66/IP67
T95℃ Db IP66/IP67
UV/IR Flame Detector
RFD-2FT*
DNV 12 ATEX 1338X
S.N: RFD2FTNAA00000
24VDC 70mA
THREAD SIZE AND TYPE NPT1/2" or M20x1.5
805, Megavalley, 288, Hakeui-ro, Dongan-gu,
Anyang-si, Gyeonggi-do, Korea
Rezontech co., LTD
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- WARNING -
"AFTER DE-ENERGIZING, DELAY
15 MINUTES BEFORE OPENING"
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- Use fasteners with yield stress
≥ 600N/mm2
- The cable should be used
more than 85℃.
- Please refer to the Instruction manual.
- Please use caution in polarity.
- Separated 24V DC is recommended
from Alarm Panel.
- Please handle products carefully to
avoid life and property losses.
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1. Scope

1.1 Product Overview

Model RFD-2FT* from Rezontech Co., Ltd. is UV/IR type flame detector. It activates alarm signal or fire extinguishing system via fire or flame detection. This function is available directly on output terminal of detector or via connected control circuit. In order to analyze dynamic characteristics of fire, innovative technologies using improved digital signal processing are opted.

Its detection function is microprocessor controlled, which accepts all application environments, application methods and other related requirements. It is a flame detector with highest-sensitivity which has very low possibility of false alarming.

1.2 Overview of Manual

This handling manual describes on detector and its features. Installation and maintenance information is included as well. It is composed of several parts and each part has following contents.

Part	Title	Contents
1	Scope	general introduction, products overview, brief introduction on each part
2	Features	technical features and functions of detector
3	Function	theoretical description of detector
4	Operation	operation mode and user interface display
5	Technical Specification	electrical, mechanical and environmental specifications
6	Installation	wiring, mode select, proper installation
7	Maintenance	maintenance and technical support procedure

Appendix A. General Wiring Diagram
- Electrical Wiring for P Type Receiver, R Type Receiver
- Diagram for Electrical Output

B. Bracket & Light Trap Usage

C. Grounding for Detector

1.3 Revision of User Manual

Version	Date of Revision	Content	Remarks
1.0	9, May, 2012	Registration of document	
1.1	6, Dec, 2012	Table1 modification Table2 modification	50m → 30m 10m → 7m

2. Technical Characteristics

- Sensitivity Range : Class 1 (Over 25m)
- Sensing Angle(Cone of vision) : 90 degrees, Max 100 degrees.
- Self Diagnosis : problem diagnosis at sensor and circuits
- Very high credibility on fault alarm
- Digital processing of dynamic characteristics of fire
- Dual Spectrum
- Solar blind
- Microprocessor controlled
- Electrical Output
  a. Relay
  b. RS485 communication
  c. 4-20mA

2.1 Operation Principle

The flame detector, RFD-2FT* as an electrical apparatus, detects fire or flame occurrence and gives out alarming signal or initiates operation of fire extinguishing system. This function is available directly on output terminal of a detector or via connected control circuit.
The signals from three frequencies are inputted in corresponding detection pulses and multi-analyzed for frequency, intensity and duration time, etc.

2.2 Detection Factor

IR sensor is sensitive to radiation in the scope where its central wave is 4.3㎛. It sends out detection signal in fire flickering and/or when it is revealed to stronger flame in intensity than pre-set during longer time than pre-set.
UV sensor is sensitive to radiation in the scope where its wave is between 185~260 nm. With special logic circuits, UV ray signals block signals from sunlight and other UV light sources. Moreover, UV signal sensitivity is stable in the operation temperatures of the detector.

2.3 Detection Level

When both IR ray and UV ray signals continuously exceed pre-set alarm values for pre-set time, alarming signals are emitted. Regardless of values set in detector mode,

alarming signals are transmitted, if both IR ray and UV ray signals exceed flash-fire values. Fire features the three radiation domains set in advance, signal level and flickering pattern. So, as other radiation sources far from real fire are not detected, false alarm is avoided.

2.4 Alarming Signal Display

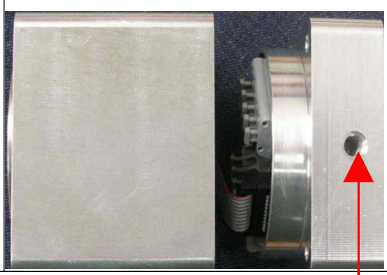
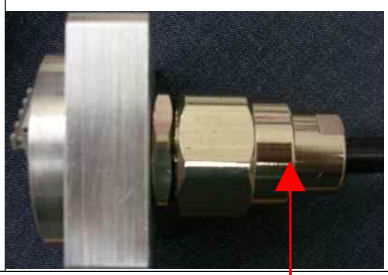
The detector is equipped with alarming time delay setting function with which users can set the delay time between 3-20 seconds in specific applications. If conditions for signal alarming are created, internal delay time begins according to pre-set switch values. For this time period, if the alarming signal level maintains, alarming signal is activated. And if the alarming signal level does not maintain, alarming delay time is initialized.

2.5 Self Diagnosis Function

RFD-2FT* detector opts self diagnosis function. Self-diagnosis is done with pre-set interval of 60 seconds. With this function, detection sensor and internal electronic circuits are to be wholly tested. Through this procedure, detection function and/or errors are checked.

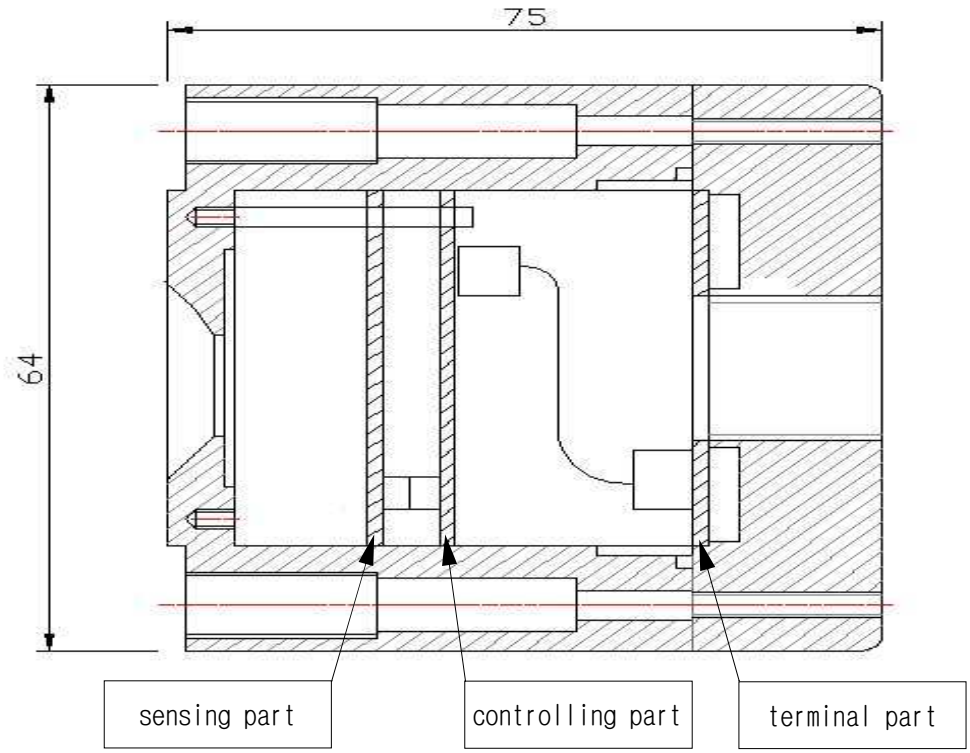
2.6 Detector Structure

The following is figures for detector.

Front	Side	Rear
		

sensor & sensor window — **M4 screw** — **M6 screw (BODY & BASE connection)** — Cable gland(NPT1/2“ or M20*1.5) **(swivel mount, screw for bracket)**

See below for dimensions for detector and connecting parts.



2.7 System Configuration

RFD-2FT*, an optical flame detector that functions as a stand-alone unit, is to be connected to an alarming system and an automatic extinguishing system. With same sorts of detectors and other devices, a multi-system can be configured at one control panel.

2.8 Product Category

- Model Name & Case Color

Color / Model	Body	Cover	Remark
2FTN	Metal	Metal	Anodizing
2FTN-I	Gold	Gold	
2FT5-I	Blue	Blue	

※ The joint surface is not plated.

※ Flamepath must be not anodized.

3. Function

3.1 Detection Sensitivity

Detection sensitivity is defined as detection distance on a specified size of fire, on a specified fuel and in given time.

Standard fire source

N-Heptane fire in a fire tray of 33 cm x 33cm size

Ethyl Alcohol fire in a fire tray of 33 cm x 33cm size

Sensitivity Range

Detector has two kinds of response levels.

1. Alarm
2. Flash-Fire

Response time

Response time is 3~20 sec. on N-heptane fire of 33cm × 33cm in size

Other fuels

It(table 1) describes response in testing with other fuels for max 30 sec. under the standard fire source conditions. Detection range depends on fuels. On the basis of sensitivity to standard fire source, relative sensitivity to fuels is shown in %.

Table.1 Range for Response Sensitivity, 100% is 30m

Fuels	Max. relative detection range (%)
Gasoline	100%
N-Heptane	100%
Ethyl Alcohol	50%
Methyl Alcohol	25%
Kerosene	70%
Diesel fuel	55%

3.2 Cone of Vision

Cone of vision is as following.

Horizontal : 90 degrees, (Max 100 degree)

Vertical : 90 degrees, (Max 100 degree)

3.3 False Alarm

Detectors do not cause alarming signal to light sources described in table 2.

Note) IAD = Immune at Any Distance

Table 2. Immunity to different light sources

Light Source	Immune distance(m)
sunshine	IAD
indirect _ or reflective light source to sunshine	IAD
car headlight in accordance with MS53023-1(low beam)	IAD
incandescent lamp with frosted glass, 100W	IAD
incandescent lamp with clear glass, 100W	IAD
white fluorescent lamp for offices and stores, 40W(2x20W)	IAD
light-colored clothes(red and security-orange)	IAD
electrical flash(min. output:180W)	IAD
red dome-type bulb in accordance with M251073-1	IAD
bluish green dome-type bulb in accordance with M251073-1	IAD
flash(Mx 991/U)	IAD
radiator heater, 1500W	IAD
radiator heater with a fan, 1000W	1AD
arc welding(4mm shaft: 240A)	7M※
metal grinding	1.5M※

※ Detectors do not respond to general arc welding and metal grinding, regardless of distances from sites. But artificial handling for operation could lead into real operation. So, please take distances of more than 5M from detectors when in arc welding and more than 1M when in metal grinding.

※ UV alone or "IR or UV" mode when using the arc due to the exclusion of false alarm is not possible, "IR & UV" mode should be used.

4. Operation

4.1 LED Display

There are two LEDs on the front of a detector.

Status		Green	Red	Others
Initialization		OFF	OFF	cross-blink for 3 sec.
Normal		ON	-	-
Error	low Voltage	OFF	-	less than 16V
	self-diagnosis	OFF	OFF	-
Fire		-	ON	-

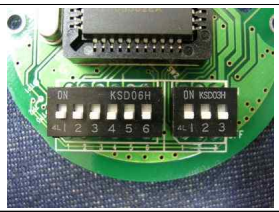
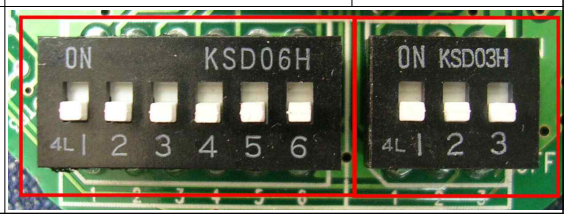
4.2 Output Signal

Detectors transmit outputs as following.

- Fire RELAY: informs of fire occurrence by connecting COM, N.C/N.O terminals on relay.
- Fault RELAY: informs of fault occurrence by connecting COM, N.C/N.O terminals on relay.
- RS485 communication : transmits detector status and event logging to a computer
- 4-20mA current output

4.3 Mode Selection

It makes possible sensitivity, time delay and function selection using dip switches on PCB of detector casing.

Control Board S/W	SW 1	SW 2
		

4.3.1. Sensitivity Setting - sensitivity means sensitivity to fire detection.

Sensitivity setting	switch SW1-1	switch SW1-2
Lowest sensitivity	on	on
Low sensitivity	off	on
Medium sensitivity	on	off
High sensitivity	**off**	**off**

4.3.2. Delay Time Setting- Time required for fire detection

Delay time setting(in sec.) UV&IR / Other modes	switch SW1-3	switch SW1-4
10 / 20	on	on
5 / 15	off	on
3 / 10	**on**	**off**
1 / 5	off	off

4.3.3. Signal Maintaining Setting (Latching/ Non Latching)

- Latching or Non Latching for fire detection signals,

signal maintaining	switch SW1-5
latching	on
non-latching	**off**

4.3.4. Self Test Setting - Tested every 1 hour

Self Test	switch SW1-6
Self test set	on
Self test	**off**

4.3.5. Detection mode Setting

Fire signal mode	switch SW2-1	switch SW2-2
IR detection only	off	off
UV detection only	on	off
UV/IR simultaneous detection	off	on
UV or IR detection	**on**	**on**

4.3.6. Fault Relay On/Off Control(Energized)

Fault output display	switch SW2-3
normally open	on
normally closed	**off**

4.4 Detector Status

The detector shows one of following status.

- · Normal : The detector is on normal operation.
- · Self-test : The detector is on self-test.
- · Fire : The detector goes to alarming mode after fire recognition
- · Maintaining fire output : maintains fire output signal even after fire extinguishing.
- . Fault : For errors or low voltage found in self-test, outputs are as following.

Table.3 Detector status and output signals

Detector status		Switch	LED	Fire Relay	Fault Relay	4-20mA	RS485
Fault	low voltage	-	Green blinks	Open	Open	0mA	events occurrence notification
	self test	No. 6 ON	Green blinks Red blinks	Open	Open	0mA	events occurrence notification
Normal		-	Green ON	Open	Closed	4mA	events occurrence notification
Fire		-	Red ON	Closed	Closed	20mA	events occurrence notification
Fire Output maintaining		No.5 ON	Red ON	Closed	Closed	20mA	events occurrence notification

※ Fire signal precedes all other signals.

4.5 Self-diagnosis

4.5.1. Test for sensor and detection circuits

a. Tested parts

- UV Tron
- IR Sensor
- UV,IR signal receipt and processing circuit

b. Principle

Internal UV & IR sources transmit optical signals to sensors, through which sensor fault or life span are diagnosed.

When passing self-test, it keeps 'normal' status. For errors found in self-test, error signals are caused.

c. Note:

For self-test, switch 6 must be on 'ON' position.

(It is delivered on 'Off' mode.)

4.5.2. Breakdown Diagnosis with Detector- BIT(Built In Test)

a. Diagnosis Range

- Power
- UV Tron, IR Sensor
- UV, IR signal receipt and processing circuit
- Fire Signal Output(Relay, 4-20mA, RS485)
- Fault Signal Output(Relay, 4-20mA, RS485)

b. Principle

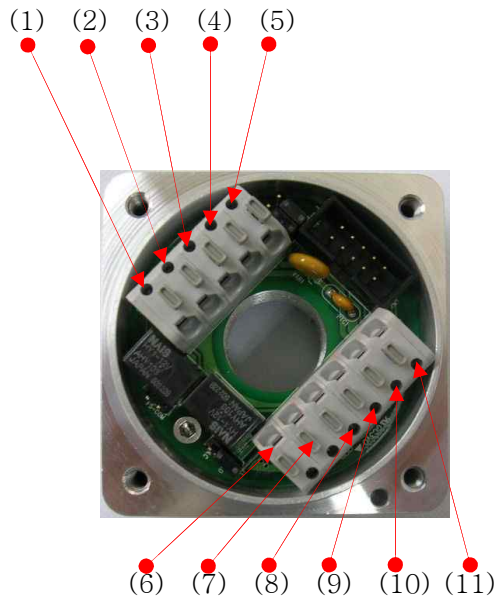
Besides self test on 4.5.1 above, detector functions including input power, fire and fault signals are tested. Real signals for fire and fault are outputed, which enables to check easily disconnection and default.

c. Note:

For testing with built-in test(BIT), BIT line needs to be connected between a detector and a receiver(a transmitter). BIT is located in the terminal block of a detector. **When +24V is at least 5 seconds, BIT functions are tested**. When not in use, connect it to terminals with less noise impact like GND(-) or COM terminals, which is to avoid malfunctions caused by abnormal signals.

After BIT operating, a detector goes back to normal operation with +24 V input disconnected.

5. Technical Specifications



5.1 Electrical

a. Operation Voltage: 17~32VDC

b. Power Consumption

Normal : Max. 70mA
Fire : Max. 100mA
Inrush : Max. 180mA

c. Wiring

Terminal	Function	Description
1	24V(+)	Power for detector, +24VDC
2	F-COM	COM for fire signal
3	F-N.C	for fire signal(normal)
4	F-N.O	Fire signal(at fire)
5	GND(-)	COM for detector
6	BIT	for detector test
7	RS485-	RS485-
8	RS485+	RS485+
9	S-N.C/N.O	Output for error signal
10	S-COM	COM for error signal
11	4-20mA	4-20mA electrical output

d. Electrical output

- 4~20mA output level

Status	Output(mA)	Accuracy
Error	0	+0.5mA
Normal	4	±0.5mA
IR detected	8	±0.5mA
UV detected	12	±0.5mA
Warning	16	±0.5mA
Fire	20	±0.5mA

4-20mA is current source type and connected to No. 5 on terminal block. Max. resistance for output terminal is 500Ω.

- RELAY output

For fire signal, max. 1A(30VDC) signal is transmitted via COM & N.O. terminal.

Status	Output status(COM, N.O)	Rating
Normal	Open	Min: 500MΩ at 500VDC
Fire	Closed	Max: 1A(30VDC)

※ Note: Constant voltage should be supplied with. Voltage for circuit, lamps and etc. from a receiver is not allowed. Therefore, it should be connected to 24V power supply via a rectifier at a receiver.

5.2 Mechanical

a. Enclosure
- aluminium, anodizing process, IP66/IP67

b. Detector type
- UV/IR compatible

c. Electrical connection
- lead wire inlet : sheath cable wire coating diameter; 8 -10mm
- terminal block : strip wire coating to 10 mm in spiral length.
- wire standard : KS C 3330

	size
Nominal cross section	0.13-1.5
outer diameter(Ø)	0.12-1.6
example of wires available	600 TFR-CVVSB, TFR-3, TFR-8, 600 HKIV

※ The size above is for internal block of detector, and outer connections is followed by fire related laws and regulations and designed capacity.

d. Dimension
- Base : 64mm in diameter, 30mm in length, wire inlet: NPT 1/2" or M20*1.5, PF 1/2"(ATEX not Approved)
- Enclosure : 64mm in diameter, 55mm in length

e. Cable gland
- internal pressure explosion proof type : safety proven by acquisition of certifications from ATEX, IECEX or KC
- rigid metal conduit screw : NPT 1/2" or M20*1.5, PF 1/2"(ATEX not Approved)

f. Weight
- about 0.53kg

5.3 Environmental

a. Temperature
- Operation temperature : -40℃ ~ +65/75℃
- Keeping temperature : -50℃ ~ +90℃

b. Humidity
- Relative humidity 95%

6. Installation

6.1 Introduction

Here are mentioned special considerations for installation and more detailed information for professionals. It does not include all the information about standard method for installation. Specific attentions are required with applied places.

6.2 Handling Notes

Important:
A detector should be installed with its front to the center of detected target. And there should be no visual obstacles on sensing area.

If possible, take a detector with its front side a bit downward, which is to avoid possible accumulation of dust and other substances on the detection window.
Before installation, take all other details including detector location into consideration.
And for optimal functioning and effective maintenance, especially consider the followings.

a. Detection Range and Location
Fire related law simply recommends installation in accordance with nominal sensing range. And for quantity and installation location of detectors connected, the following points should be considered as well.
- protected area space
- detector sensitivity
- detection obstacles
- sensing angles of detector

b. Environment
Dust, snow, rain and oil could weaken sensitivity of a detector. More maintenance is needed in each case.

6.3 Preparations for installation

Installation is possible using tools and devices of general purpose.

1	Check with wire. Write down parts. no, serial no. and installation date on installation diary.
2	Before installation, take the detector from a case and make a visual check!
3	Check all needed parts before installation. If installation fails in the first trial, measures for safety and water proof should be taken for detectors and connected pipes.
4	For right wiring, use colored wires or mark each wire. You can use 16~26 AWG wire for terminal lug. For wire size, consider quantity of detectors connected on a line and distance from a controller. Refer to appendix A for more details.

6.4 Piping

1	To avoid condensation in the detector, let the pipes downward and get a drain.
2	When using a swivel mount(an option), use flexible pipes in the joining parts to a detector.
3	When putting wires into pipes, it gets possibly entangled. In this case, do not pull them too strong. Get wires around 30 cm longer than normal in the backside before installation.
4	Make electric current applying test after wiring.

6.5 Detector Mounting

For holding detectors, a bracket or a swivel mount is used with site.

A swivel mount makes possible flexible angle adjustment up to 180 degree in any direction(vertical & horizontal).

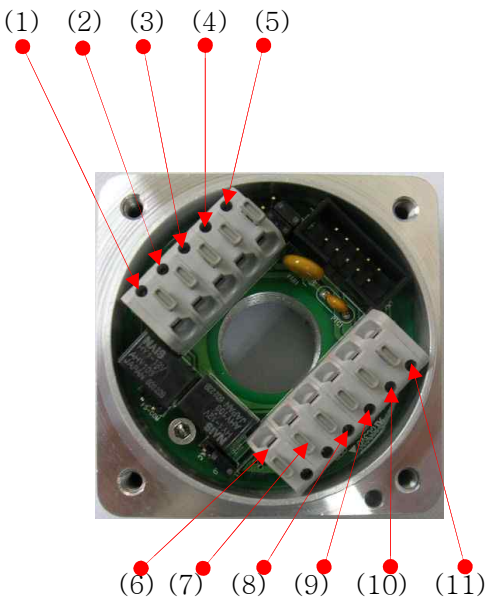
6.6 Wiring Procedure

1	Power OFF
2	Unscrew M4 screws on the rear of detector.
3	Separate detector body and base with care. Body part and base are connected through wires. Please pay attention.
4	Unplug terminal board on the base.
5	Connect wires to terminal block in accordance with wiring diagram.
6	Check with connection. Wrong connection can damage detectors.
7	Reconnect plug to the terminal board and join the detector body and base in the screwing holes. Do not put too much strength in screwing.

6.7 Terminal Wiring

6.7.1 Structure and Location of Terminals

There are two terminal blocks involving outer input and output wires. One is for 5 points and another is for 6 points. There are outputs like O.C, Relay, 4-20mA, RS485. They are one touch typed and easy connection is possible with requirements.



terminal on the base and No. of each terminal
(See 5.1 for details)

6.7.2 Function and Description on Terminal Block

Function	Terminal No.	Sign for terminals	Description
power supply	(1) (5)	24(+) GND(-)	Power supply 24V(+) for detector Power supply GND(-) for detector
fire output (RELAY)	(2) (3) (4)	F-COM F-N.C F-N.O	common signal connection for fire receiver normally connected(closed) to F-COM with contacts, open at fire normally open, connected(closed) to F-COM at fire
fault output(RELAY)	(11) (9)	S-COM S-N.C/N.O	common signal connection for fault receiver open/closed status depends on J3 setting
4-20mA current output	(11)	4-20mA	4-20mA current signal output states detector status.
RS485 input/output	(7) (8)	485- 485+	RS485 communication is used for detector status indicating output and controlling detector functions.
BIT	(6)	BIT	Diagnose detector defect from outside by connecting +24V for more than 5 sec.

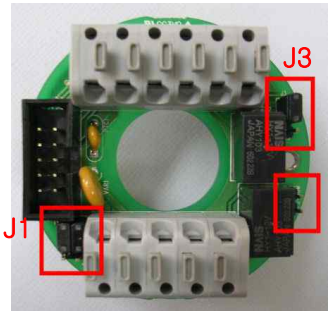
6.8 Jumper Setting (J1 ,J2, J3)

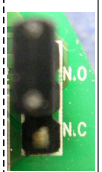
6.8.1. Function and Description on Jumpers

NO.	Function	Description
J1	Detect 'restoring signal' of a receiver	with 'restoring signal', detector is restored after fire signal detection.
J2	Connect F-COM and S-COM	use F-COM signal for fire and S-COM signal for fault as a common signal.
J3	Select output signal for faults(errors)	fault signal select to N.C or N.O at normal situation.

※ J3 : Fault Relay is 'closed' all the time and only output on the terminal block is selected to 'closed' or 'open' position. To change relay output, see SW2.

6.8.2. Setting



J1		J2		J3	
latching	non-latching	latching	non-latching	N.C	N.O
					

7. Maintenance

7.1 Scope

This chapter describes possible troubles on detector and trouble shooting for constant maintenance. Their ignorance could cause problems in detectors, which could nullify quality guaranty.
For service, please contact us, Rezontech, or our agents at any time.

7.2 Maintenance Tools and Person in Charge

For right maintenance for detectors, basic tools and a trainee are required. He or she should be familiar with laws and regulations related to installation.

7.3 Maintenance Procedure

A detector should be kept clean if possible. Regular cleaning is needed for sensor windows. Cleaning interval depends on environment and purpose of installation. It is possibly recommended by a designer of fire detection systems.

1	Please turn OFF power before maintenance.
2	Water cleaning is enough for sensor windows. Organic solvents are not permitted for cleaning purpose.
3	Use a soft brush for accumulated dust, mote and moisture on sensor windows. And then, wash it using optical fiber and washing. Last, rinse with clean water.

7.4 Periodic Maintenance

Besides cleaning and maintenance for precaution, functioning check should be done at least every 6 months. Do the test with detectors open.

7.5 Maintenance Record

All the details related to maintenance for detectors should be recorded in facility record diary. The record includes detector ID, installation date, supplier, all the details related to maintenance. On delivery for service purpose, maintenance record should be delivered with.

7.6 Trouble Shooting

7.6.1 Fault display : Green LED 'Off' or blinks

1	Check with power supply(voltage), polarity and wiring.
2	Power 'OFF' and check with wiring inside a detector.
3	Power 'ON' and wait for around 1 minute. Ask for after service when error sign is still alive.

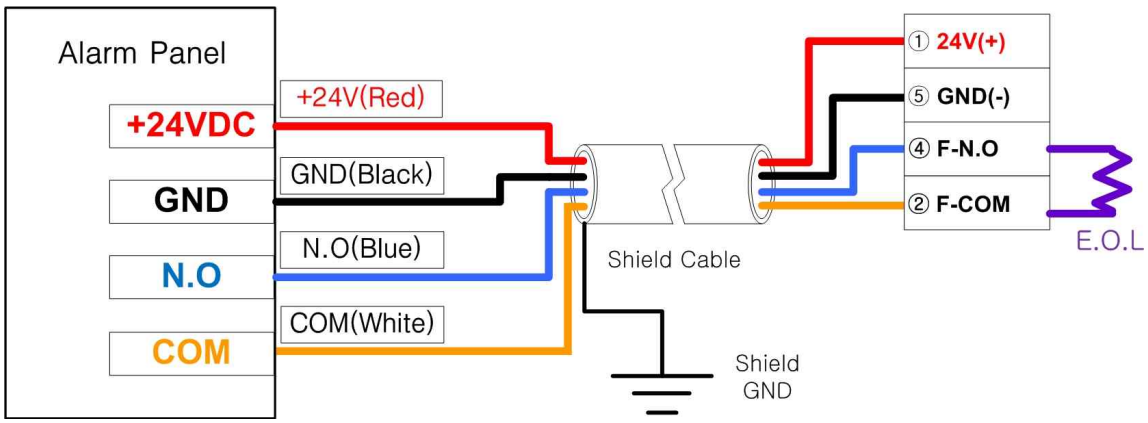
7.6.2 False alarm

1	Power 'OFF' and check with wiring inside a detector.
2	Power 'ON' and wait for around 1 minute. Ask for after service when false alarm is initiated.

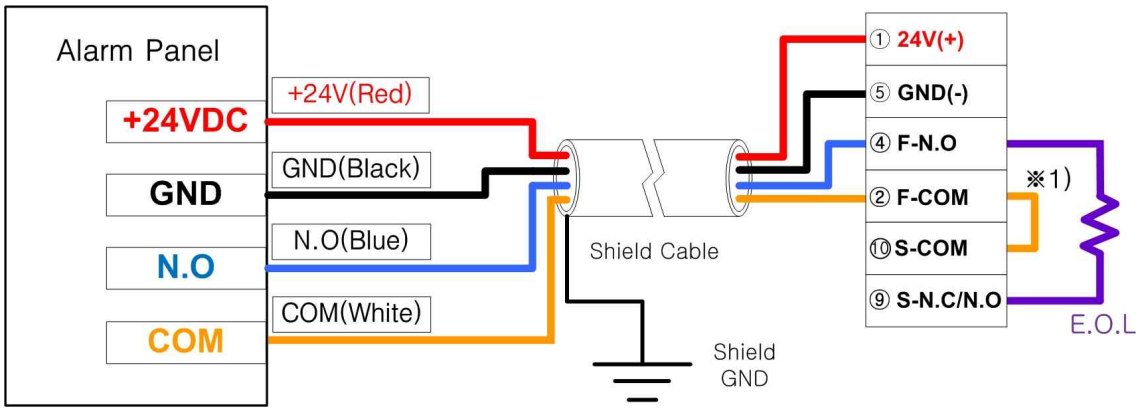
Appendix. A General Wiring

1. Wiring for Alarm Panel

1.1. Power + Fire alarm(+ E.O.L)



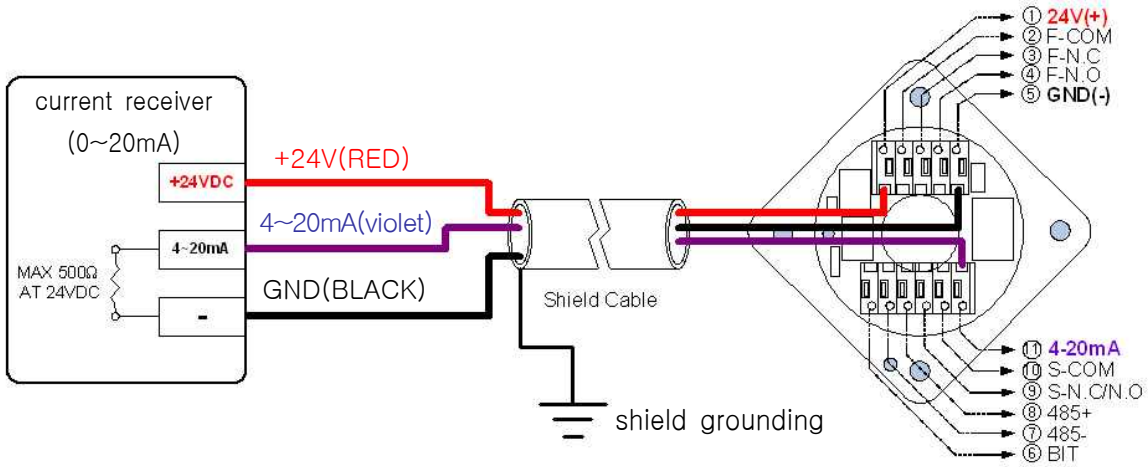
1.2. Power + Fire alarm(+ Fault alarm + E.O.L)



※ An End of line(E.O.L) resistor must be connected to the last detector. And in case of this detector, E.O.L (ex 10kΩ) resistor is to be installed between No. 4 and No. 9(No. 2) on the terminal block.

※1) When J2 connector is used. F-COM and S-COM, the connection is not required.

2. Wiring for current receiver

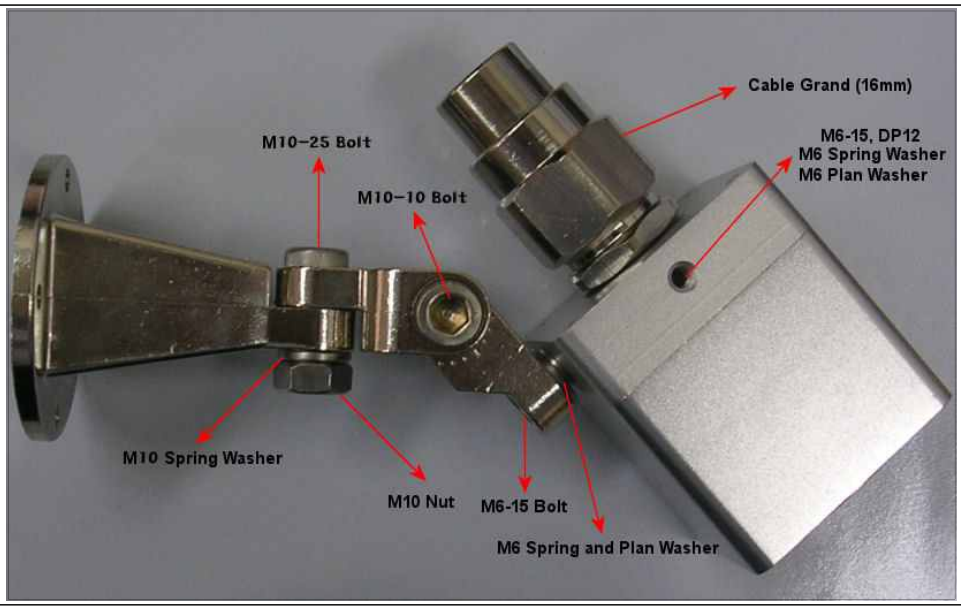


※ For RS485 communication and FAULT(fault : S-COM/N.O/N.C), contact us, Rezontech distributors or headquarter.

Appendix B. Bracket _ Light Trap Usage

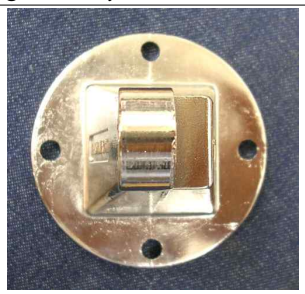
1. This bracket was designed for easy installation and easy angular adjustment which enables optimal functioning of detectors.
   a. material : aluminium , nickel coating
   b. adjustment degree : up to 180°(vertical & horizontal)
   d. scale display : notched in every 15 degree.
   c. dimension for wall mounting : max. 6mm (4 holes)
   d. comprised of : 1set bracket, 2ea M10-10 bolt, 1ea M10-25 bolt, 1ea 10mm nut, 1ea 10mm spring washer, 1ea M6-15, 1ea 6mm spring washer, 1ea 6mm plan washer

2. Bracket _ & Light Trap Installation



a. Hold tightly detector and light trap with M6-12 bolt, M6 spring washer and M6 plan washer.
b. Unscrew M10 nut and M10-10 bolt and adjust installation angle.
c. Screw M10-25 bolt as tightly as possible and screw M10 nut.
d. Screw M10-10 bolt as tightly as possible.
e. Install M6 spring washer and M6 plan washer between bracket and detector and hold tightly bracket and detector using M6-15 bolt.

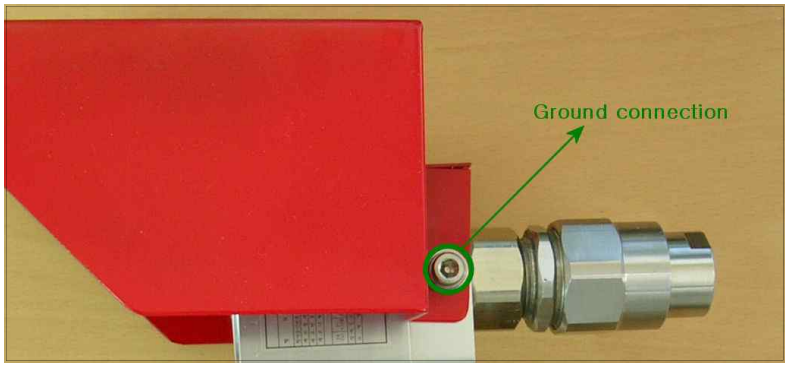
3. pictures

pictures	
	
from side	from below
	
angular adjustment - horizontal (M10-25)	angular adjustment zoom-in
	
angular adjustment - vertical(M10-10)	Wall mounting (6mm)

Appendix.C Grounding for detector

1. Outward grounding

As a way of getting grounding at detector casing, install a grounding line at marked 'ground connection' position as below.



2. Internal grounding

Take internal grounding where outward grounding is not possible and grounding line and signal line are commonly used.

As below, take grounding at marked position "Ground connection" by connecting ring-type terminal to M3-5 Bolt.