
FLAME DETECTOR

DT - 2030(Indoor Type)



Warnings and Cautions

- Use and install this product in the designated way by understanding the instruction manual enough by all means before using this product.
- Do not use this product for other purposes than fire detection, etc.
- This product shall be installed by a qualified electric constructor specializing in firefighting. The constructor shall construct this product after confirming the installation methods by all means.
- Check if there is abnormality in the product through regular inspections at least once a month in order to maintain the performance and function of this product.
- During repair or replacement, do work after unplugging the power by all means.
- For questions about troubles in use, contact our dealer.
- Install this product in a suitable way according to the use and construction method at the working place. Inferior construction can cause improper fire detection, fires, electric shocks, tool dropping, etc., for which our company cannot take responsibility.
- Construct this product by paying attention to the mounting directions.
- Installation methods are subject to change depending on situations in the working place, etc.
- For power connection of circuits, refer to the wiring diagram.
- Do not use other power sources than product's rated power(DC24V).
- Be sure to connect power cables firmly. Wrong wiring can cause troubles.
- Input power after completing the installation of products by all means.
- Avoid attachment of foreign materials to the detector PCB, which can cause troubles.
- Avoid strong vibrations, shocks or pressure, which can cause troubles.
- Detectors can cause malfunction around the facilities where strong electromagnetic waves occur.
- Do not spray chemicals that can deteriorate or deform the tool.
- Appearance, specification, etc. of the product is subject to change without prior cautions in order to improve product quality.



Nob's DT-2030 is an intelligent type of UV/IR flame detector to prevent fires in advance by detecting ultraviolet rays and infrared rays and by analyzing their wavelength characteristics.

This prevents factors of causing a non-fire alarm such as light, arc welding, etc. by analyzing ultraviolet and infrared wavelength bands simultaneously.

This sends out diverse outputs such as relay, RS-485 communications, etc. when fires occurs, so as to show the status of detectors visually through detector's LED.

- Waterproof cases
Exd IIC T6
- Broad detection distance and field of view
30M, 100°
- Diverse outputs
fire relay, fault relay, RS-485 communications
- Power monitoring function

Description

Features

System Specification

Wave Lengths :	185 to 260nm (UV) 4.35 μm center (IR)
Field of view :	100° horizontal 100° vertical
Sensitivity :	Approved performance specifications - 30m distance for a 0.1089sq.m n-heptane fire
Typical Response Time :	2 to 8 sec @ 30m
Approval :	Korea Fire Equipment Inspection Corporation Type approval No. : Gam 08-29
Classification of installation positions :	Waterproof type, explosion-proof type

Environmental Specification

Working Temperature Range :	-40°C to 80°C
Storage Temperature Range :	-50°C to 80°C
Working Humidity Range) :	RH 99% , non-condensing

Mechanical Specification

Housing :	Aluminum
Dimensions :	83mm x 83mm x 54mm
Weight :	380g
Cable Entry :	1/2 PF

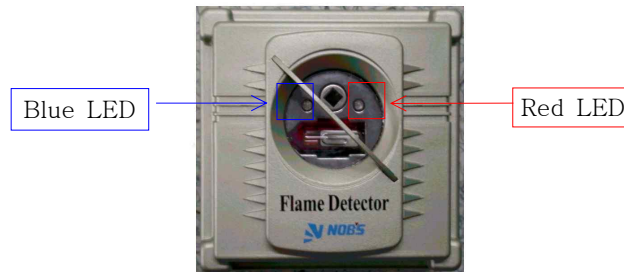
Electrical Specification

Input Power :	19 ~ 29 VDC 24VDC @ 110mA max
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Output Specification

Relay Contact Ratings : fire, fault relay	0.6A@125VAC, 0.6A@110VDC, 2A@30VDC
Communication output ³⁾ :	RS-485 Output
Status indicator ¹⁾ :	LED with status, fault, warn, or fire
Dip switch selection options ²⁾	Sensitivity:100%,75%,50%,25% Time Delay : 1, 2, 4, or 8sec Latching/Non-Latching

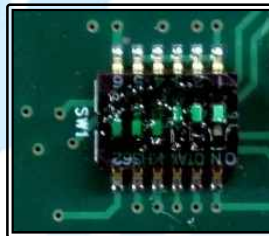
1) Visual expression via LED



Initial status : Blue and red LEDs flicker 3 times in turn.
Monitoring status : Blue LED keeps ON. Red LED is OFF.
Warning status : Blue LED keeps ON. Red LED flickers slowly.
Fire alarm : Blue LED keeps ON. Red LED flickers fast.
Abnormality alarm : Blue LED flickers. Red LED is OFF.

2) Dip Switch Setting

Korea Fire Industry Technology Approval to conduct the test in the technical standards as of 1 January 2012 has been enhanced



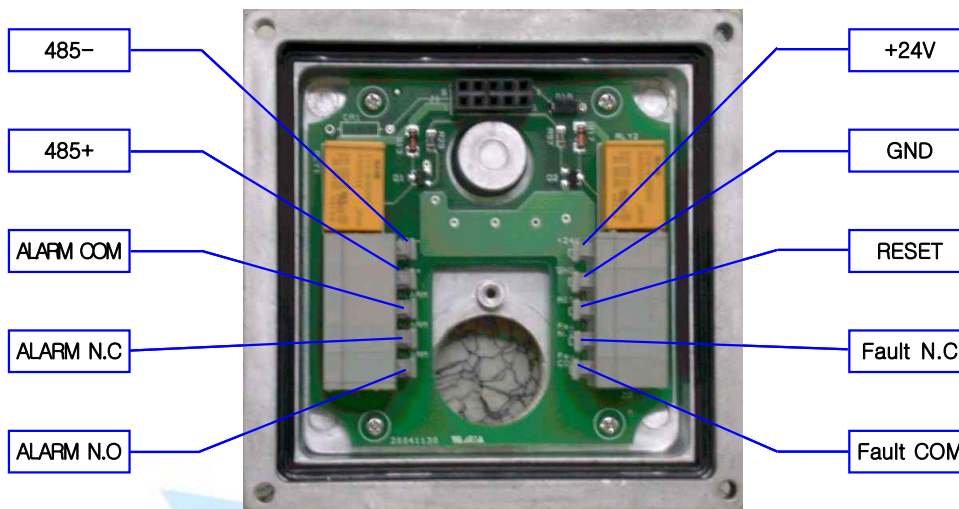
*** Dipswitches arbitrary value set by the individual test operations do not**

3) 485 communications

When using 485 communications, contact our company.

DT-2030 Cable Wiring Diagram

<Schematic diagram of terminal board>



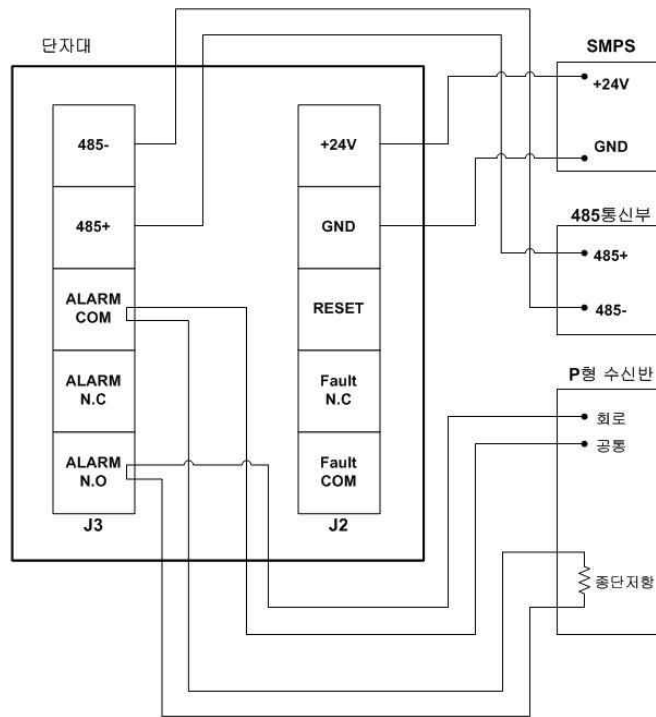
1. Dimensions of terminal board connection cables: 16 ~26 AWG [ϕ 0.405 ~ ϕ 1.29 mm]
2. Cable board connection
 - 485+ : 485 communications TX terminal
 - 485- : 485 communications RX terminal
 - ALARM COM : Common terminal for fire relay(Common(com) terminals on the reception board connected)
 - ALARM N.C : "B" contact - Connected with 'ALARM COM' terminal during normal time
Disconnected from 'ALARM COM' terminal during fire occurrence
 - ALARM N.O : "A" contact - Disconnected from 'ALARM COM' terminal during normal time
Connected with 'ALARM COM' terminal during fire occurrence
 - +24V : Connect (+) terminal of power
 - GND : Connect (-) terminal of power
 - RESET : Initialization terminal - Terminal to initialize the flame detector when it works at fire latching(Initialized by connecting RESET terminal with GND)
 - Fault N.C : Detector abnormality relay "B" contact - Disconnected from 'Fault COM' terminal during normal time
Connected with 'Fault COM' terminal during abnormality in detectors
 - Fault COM : Common terminal for fault relay

※ Connect two of "ALARM COM" terminal and "A CONTACT" terminal generally regardless of order when connecting it with the detector circuit lines on the reception board or when operating something by interlocking it during fire occurrence.

※ **Warning**

- ① Connect it suitably for the functions of each terminal.
- ② Connect power(DC+24V, GND) with power terminal only by all means.
- ③ Inputting power(DC+24V) to the RESET terminal can cause troubles.
- ④ Contacting of other foreign materials to substrate can cause troubles.

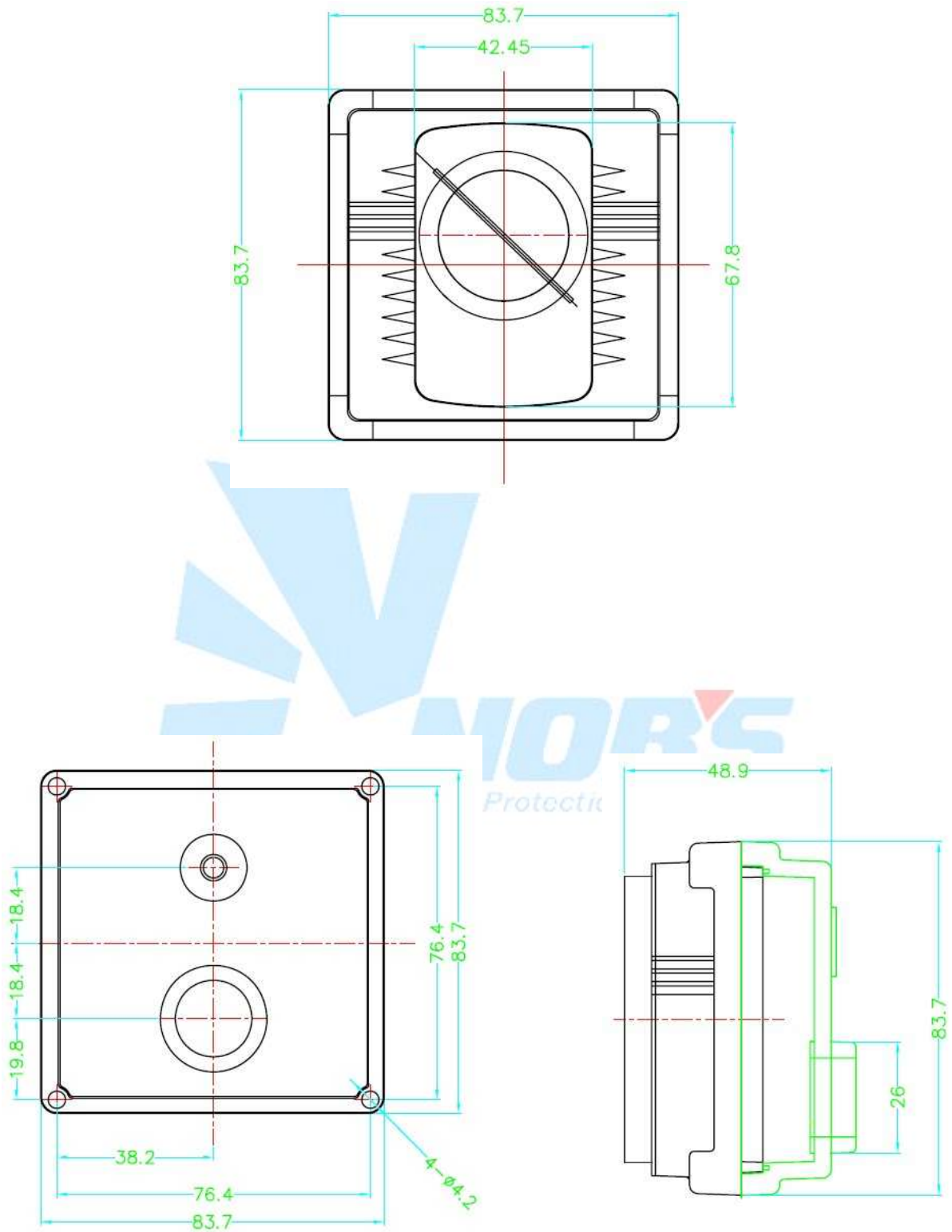
<Wiring Diagram>



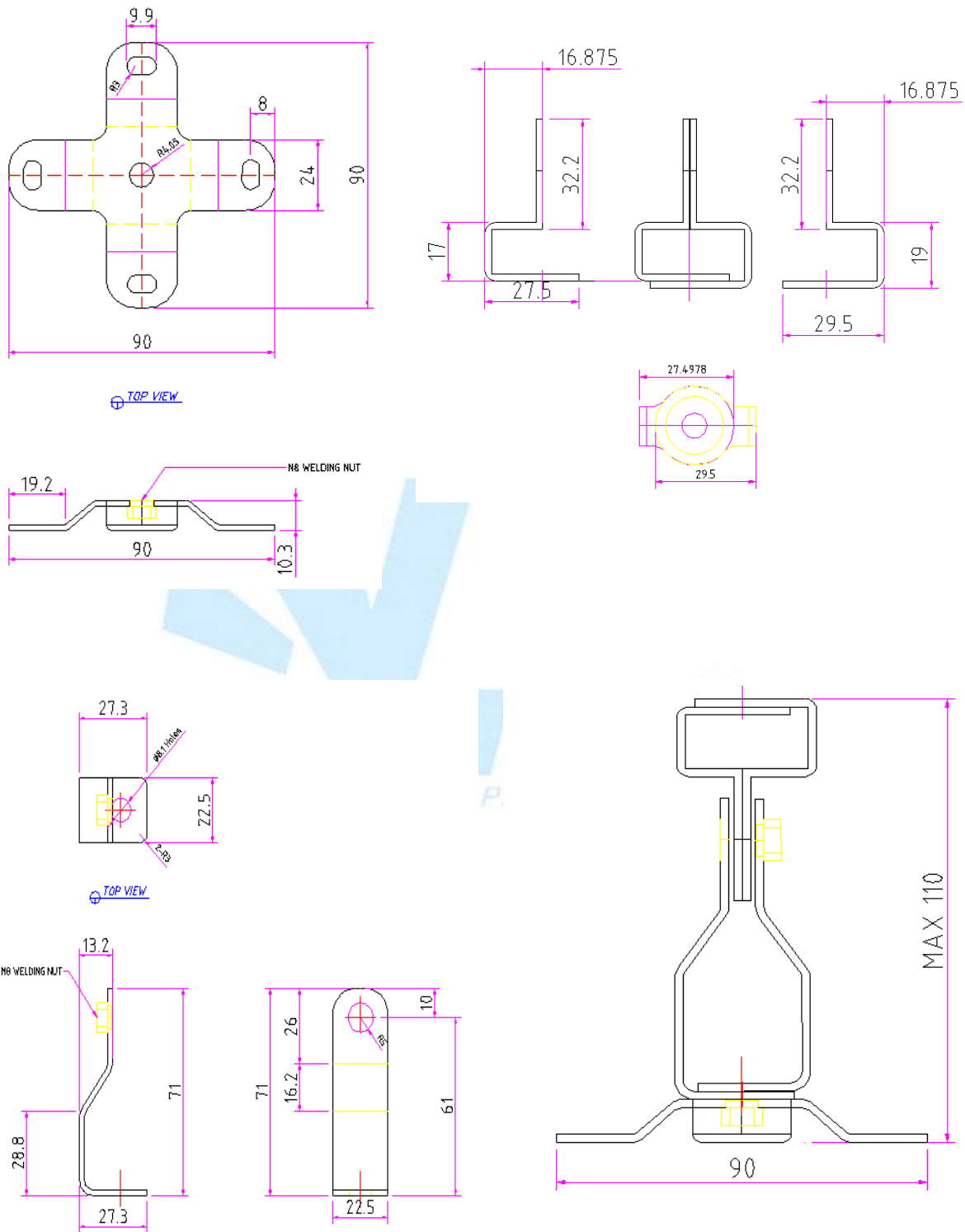
※ Cautions

- ① The use of SMPS(Switching Mode Power Supply) 24V power is recommended.
- ② The connection of detector power at transmitters, indication lamps or main alarm lamps on the P type of reception board during the use of reception board is prohibited.
 - Blue LED of the flame detector flickers when power is connected on the transmitters or indication lamps of P type reception board. (By the voltage monitoring function)
- ③ Use the power(24V) entering the transponder as the power of detectors during the use of R type reception board after checking the capacity of that power.(If the capacity of power is insufficient, the transponder and flame detector may not work)
- ④ It is possible to check the performance of flame detectors temporarily using batteries(24V charged condition) on the reception board when there is no SMPS.
- ⑤ Flame detectors also do not work if power is disconnected because there is no spare power in the flame detector. Ask Nob's about this.

Outside Dimensions of DT-2030



DT-2030 Bracket



Selection of power cable and electric wire length

Table for maximum length of power cable pursuant to the number of detector connections

·d : Cable diameter[mm]

·N : Number of flame detectors connected together with the same cable

[Unit : m]

N \ d	1.63	1.29	1.02	0.812	0.644
1	3,101	1,942	1,214	769	484
2	1,550	971	607	385	242
3	1034	647	405	256	161
4	775	486	304	192	121
5	620	388	243	154	97
6	517	324	202	128	81
7	443	277	173	110	69
8	388	243	152	96	60
9	345	216	135	85	54
10	310	194	121	77	48
11	282	177	110	70	44
12	258	162	101	64	40
13	239	149	93	59	37
14	221	139	87	55	35
15	207	129	81	51	32
16	194	121	76	48	30
17	182	114	71	45	28
18	172	108	67	43	27
19	163	102	64	40	25
20	155	97	61	38	24
21	148	92	58	37	23
22	141	88	55	35	22
23	135	84	53	33	21
24	129	81	51	32	20
25	124	78	49	31	19
26	119	75	47	30	19
27	115	72	45	28	18
28	117	69	43	27	17
29	107	67	42	27	17
30	103	65	40	26	16

※ Cautions

When the voltage of actual power is lower than DC24V, maximum cable length becomes smaller, so it shall be calculated using actual voltage value, and if ambient temperature gets higher, resistance value increases at the same length, so maximum cable length can be shorter. Use actual application distance shorter than the above table.

Current output cable length table

d [mm]	1.63	1.29	1.02	0.812	0.644
X [m]	12,355	7,738	4,838	3,066	1,929

※ d : Cable diameter

X : Distance from reader to detector

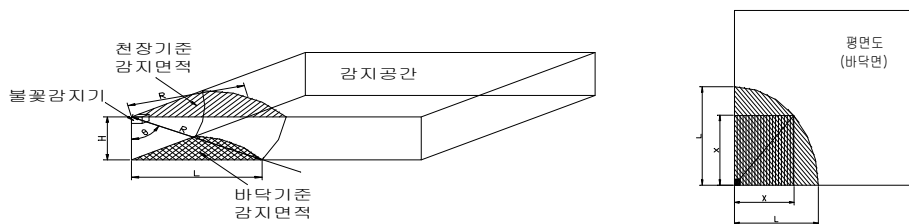
Detection area pursuant to detector installation height

Detection area comparison table pursuant to installation positions

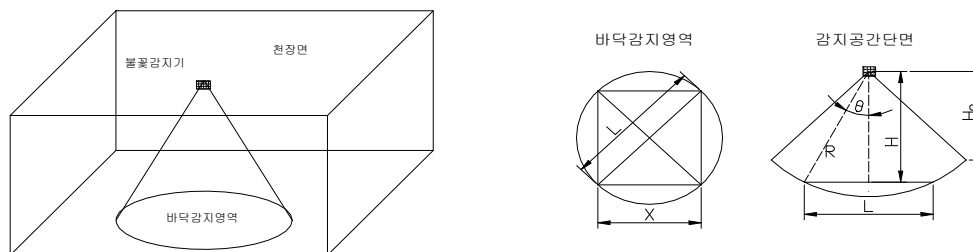
Floor detection area during installation on the ceiling and corner is shown in the following table. Installing it on the ceiling when the ceiling height is 14m or higher and installing it at the corner when lower than 11m can detect broader area with the same number of detectors. When applying it to the actual site, it will be a good way to use it complexly by considering the site conditions.

Position Height	Ceiling		Corner		Position Height	Ceiling		Corner	
	X [m]	A [m ²]	X [m]	A [m ²]		X [m]	A [m ²]	X [m]	A [m ²]
1	1.4	2	21.2	450	19	26.9	722	16.4	270
2	2.8	8	21.2	448	20	28.3	800	15.8	250
3	4.2	18	21.1	446	21	29.7	882	15.1	230
4	5.7	32	21.0	442	22	28.8	832	14.4	208
5	7.1	50	20.9	438	23	27.2	742	13.6	186
6	8.5	72	20.8	432	24	25.5	648	12.7	162
7	9.9	98	20.6	426	25	23.5	550	11.7	138
8	11.3	128	20.4	418	26	21.2	448	10.6	112
9	12.7	162	20.2	410	27	18.5	342	9.2	86
10	14.1	200	20.0	400	28	15.2	232	7.6	58
11	15.6	242	19.7	390	29	10.9	118	5.4	30
12	17.0	288	19.4	378	30	0.0	0	0.0	0
13	18.4	338	19.1	366					
14	19.8	392	18.8	352					
15	21.2	450	18.4	338					
16	22.6	512	17.9	322					
17	24.0	578	17.5	306					
18	25.5	648	17.0	288					

When installing it at the corner



When installing it on the ceiling



Maintenance

General Maintenance

After a flame detector has been installed exactly, there is nothing particular to maintain except regular detection check and lens cleaning.

Caution : It is necessary to remove any particles and films formed above the lens in order to maintain proper sensitivity of the system. It is necessary to clean the window at least once a month, and it is necessary to clean it more often in the dirty environment.

Cleaning of Lenses

Smear cleaning solutions on it using clean, soft, napless cloth, tissue or cotton cloth. Do not touch lenses with hands.

- a. Dip lenses in the solution.
 - b. Rub it with dry and stainless cloth until the window becomes clean.
 - c. Dry the window completely.
- ※ In general, cleaning solutions may be alcohol as an enough option.

Sensitivity Check

Use Nob's test lamps(TTL102) in order to check if the function of each detector works properly.

Custody

Keep the flame detector in the clean and dry area, and temperature and humidity shall be within the range shown on the environmental specification.

Problem Solution

This was made to give a guideline to solve problems that can occur at the site. However, this does not present all possible problems and solutions, so if you cannot solve it in the way mentioned below, contact Nob's. If you have no equipment and personnel for proper tests, we recommend you to send the damaged detector to Nob's. Attach specific descriptions as far as possible for the problem that happened. Remove the outside alarm output line by all means before doing any check, because problems may occur during alarm conditions.

Caution : You cannot receive free A/S if there is any repair conducted by other person than Nob's personnel within free warranty period. Read the contents written on the warranty carefully.

1	Problem	There is no output, and blue LED is OFF.
	Estimated cause	No DC power is supplied to the detector.
	Solution	Check if the polarity of 24VDC has been exactly connected.
2	Problem	There is no output, and blue LED flickers.
	Estimated cause	The supplied voltage is lower or higher than working range.
	Solution	Check if the supplied voltage is away from 19 ~ 29VDC range.
3	Problem	The temperature of detectors is higher than ambient temperature.
	Estimated cause	Excessive voltage is supplied.
	Solution	Check if voltage higher than 29VDC is supplied.
4	Problem	There continuously comes an output via the operation of infrared sensors even though there is no particular light source in the detector.
	Estimated cause	There exists an infrared light source around.
	Solution	Check if there is an infrared light source around by blocking the infrared window part for about 10 seconds. If there is an infrared light source around, remove the infrared light source or change the detector installation position. If there is no infrared light source around, replace the infrared sensor of DT2030.
5	Problem	There continuously comes an output via the operation of ultraviolet sensor even though there is no particular light source in the detector.
	Estimated cause	There exists an ultraviolet light source around.
	Solution	Check if there is background UV by blocking the UV window part for about 10 seconds. If there is background UV, remove the UV generation source or change the detector installation position. If there is no background UV, replace the UV sensor of DT2030.

Specifications subject to change without notice

Type Approval Certificate



Certificate No. 2008-05-332

CERTIFICATE OF TYPE APPROVAL

Applicant : Oh-Kyong Taik
Company : Noble Protection Company
Address : R203,308 1F Dae-Ryung Techno Tower, 327-24
Kasan-Dong, Kumchon-Gu, Seoul, Korea

This is to certify that the following item has been approved in accordance with the provisions of Article 36-① · 37-① of the Fire Facility Establishment Maintenance and Safety Supervision Law, and Article 9 · Article 12-① of the Fire Service Equipment Type Approval Enforcement Regulation.

1. Item : Flame Detector
2. Type : DC 24 V, Normal type, Repeatability type, Water-proof type, UV/IR Dual application type, Indoor type, Ex-protection type, Detection distance 30 m, Detection angle 100°, Model(DT-2030)
3. Type Approval No. : 감08-29
4. Limitation : — / —

Date : May 29, 2008



President

Korea Fire Equipment Inspection Corporation

Quality Warranty

We warrant that this product has passed the process and final inspections via our company's thorough quality control. If there occurs a trouble recognized as our company's responsibility within 1 year after purchase, we provide free repair according to the written warranty regulations.

Model name			
Korea Fire Equipment Inspection Corporation type number			
Manufacture number			
Warranty period	1 year after purchase date		
Purchase date	Month	Day	Year
Customer	Company name		
	Address		
	Name		
Store	Agency		
	Address		
Certification number			

※ This product has been certified by government(Korea Fire Equipment Inspection Corporation).

※ The following cases correspond to charged service.

1) When warranty period is over

- 2) When a trouble occurred due to the input of foreign materials into the product
- 3) When a trouble occurred due to dropping or shocks
- 4) When appearance has been damaged or deformed by organic solvent such as thinner, benzene, etc.
- 5) When a trouble occurred to the product due to wrong application of working voltage
- 6) When components have been lost or damaged due to arbitrary disassembly of product by customers
- 7) When a trouble occurred due to repair or renovation of products by other person than the repair engineer of service center
- 8) When a trouble occurred due to natural disaster(lightning, fires, flooding, earthquake, etc.)
- 9) When a trouble occurred due to violation of 'warnings and cautions' in the product instruction manual
- 10) When other troubles occurred to products due to customer faults

※ When purchasing products, be sure to receive product warranty signed and stamped from the dealer, and if not so after purchase, receive confirmation by all means.

※ Free repair is impossible unless this warranty is presented, so pay attention not to lose it.

※ Read the instruction manual enclosed with the product carefully by all means before using the product, and use it according to the designated way. If there happens a trouble during use other than the designated way, charged service will be provided.

※ This warranty will not be reissued.

Noble Protection Company

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