Control Unit

FC1

Operation Instruction Manual

Thank you for purchasing this product.
In this manual, we have shown the important notice in order for you to use the device just and the method of handling this system.
In addition to you read this manual well before the utilization, understanding well, and use.
After you read, in the place where it is seen with anytime, please be sure to keep.

ES0911 K5

Fenwal® FENWAL CONTROLS OF JAPAN, LTD.

Table of contents

1. Safety instructions

- Before the using, read this chapter and use correctly.
- The contents which it occurs when you handle erroneously are divided in two of "warning" and "caution". This division states clearly the size and impendence of the harm and the damage.

⚠ Warning	The Warning symbol is used to indicate situations and conditions that can cause operator serious injury and/or equipment damage.
⚠ Caution	The Caution symbol is used to indicate situations and conditions that can cause operator injury and/or equipment damage.

- Please keep below rules for safety.

⚠ Warning	・Do not disassemble a control unit. It causes trouble. ・Do not remove a control unit and detector, Fire can not detect. ・Do not use a control unit which has impacted. And also do not paint a control unit. ・Do not soak a control unit in water, and do not put a control unit into water. It causes electric shock. ・Do not use the method that not listed in this manual, It causes trouble.
⚠ Caution	・This system only tells the outbreak of a fire. This system is not Fire prevention systems. And Fire extinguishing system. ・Do not use at the place where it exceeds environmental specification. It causes trouble.

・ A term of a guarantee and a guarantee range

【A term of a guarantee】

In regard to the guarantee of this product, the designated payment of the order main thing after the paying 1 years you guarantee first only the breakdown which occurs in the normal busy condition which you follow the instruction manual.

【guarantee range】

In regard to the breakdown which it occurs in this product with the criticism of payment person side during the above-mentioned guarantee period, it does returns repair in the responsibility of payment person side. However, when it corresponds next, you exclude from the object of this guarantee.

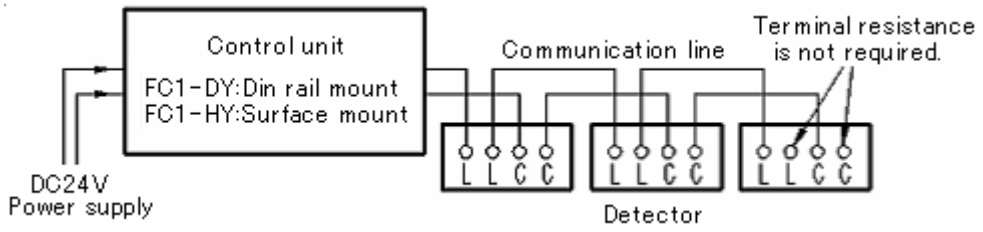
① Fire, earthquake and the damage by wind and flood, breakdown and the loss by the thunderbolt and other natural disasters etc.
② After the shipping, transporting and moving and falling etc at your corporation, breakdown and the loss with inadequate handling.
③ When cause of breakdown due to the reason other than the payment item.
④ Error in regard to use of the consumer, breakdown and the loss with repairing, remodeling other than our company and error connecting.
⑤ In case of life of the relay part by wearing and depositing of the relay contact.

Furthermore, the guarantee referred to here being something which means the guarantee of the payment item single unit, pardons the damage which is induced by the breakdown of the payment item.

2. Installation

2. 1. 1. System configuration & Connection

This control unit receives the information of warning or breakdown from the detector which is connected. In addition, it is the equipment which informs outside with the indication LED and the warning buzzer and the signal contact.



① Control unit : Control unit communicates with the detector, Control unit controls the indicating LED and 7seg. LED and the buzzer and signal contact according to the state of the detector and itself.
FC1-DY : DIN rail mount type
FC1-HY : Surface mount type

② Communication line : It is the line which shares the power supply and the communication line of the detector.

③ Detector : The connectable detector is shown with the 7th section.

2. 1. 2. Power Supply

Power supply of the control unit is DC24V±10%.

Caution

- Please prepare for the control unit exclusive power supply as much as possible.
- Please reduce the electrical noises on power supply. (Bellow 1Vp-p)
- If necessary, attach a proper noise filter to the power supply line.

2.2. Installation of control unit

Warning

・Incorrect loading of the equipments can cause a malfunction, failure or drop.
・Tighten the screw in the specified torque range.
・Under tightening can cause a drop, malfunction.
・Over tightening can cause a drop, malfunction due to damage to the screw or he equipments and malfunction.

2．2．1． FC1-DY

FC1-DY is DIN rail mount type.

Loosen the screw of the metallic parts for the installation of 2 places which are on the side of control unit itself. And put the control unit to the fixed 35mm width DIN rail. Tighten the screw in the specified torque range. Please ensure that equipment installed correctly.

(torque 1.00～1.35N･m： Reference value)

2．2．2． FC1-HY

FC1-HY is surface mount type.

Using the two screw holes of the metallic parts for the installation of 2 places which are on the both side of control unit itself, please install securely in the equipment.

Tighten the screw in the specified torque range. Please ensure that equipment installed correctly.

Please you have to match the screw installations environments.

2．2．3． Installation places

The control unit must be installed on conductive place where is grounded. And must be used, When it covers around control unit, electronic buzzer sound hears and becomes difficult to take. In addition, also heat dissipation becomes bad, becomes cause of breakdown.
Because of this, usually at least please guarantee the space of width above 10mm substance control unit top and around the guaranty of the passage of air current for heat dissipation as a purpose.

⚠ Caution

- Install and use with environmental temperature and the humidity which are within specification value.
- If the control unit is not correctly installed, it causes the malfunction, the breakdown, and the fall.
  Please note it especially when using it with a lot of vibrations.
- When the installation screw is loose, it causes the fall, the short-circuit, and the malfunction.
- When the installation screw is tightened too much, it causes the fall, the short-circuits, and malfunctions by the damage of the screw and the control unit.

2.3. Installation of detector

Install the mounting base for detector installation with the two screws M3 which is more than 15mm length.
And install the detector just in the mounting base.

⚠ Caution

Install and use with environmental temperature and the humidity which are within specification value.

2.4. Wiring

⚠ Warning

・Please do the wiring after the external power supply off. It may get an electric shock or the control unit may break down.
・Please use the terminal cover for the control unit when the unit is energized, after do the wiring.
If the terminal cover is not used, it may get an electric shock.

2.4.1. Power Supply

When turning on power source, rush current is between several mS, but above 10A it flows. Wiring please tries to withstand this.

Earthing connection of the ground terminal please goes in order to protect the equipment from electric shock accident prevention and electric noise, securely.

⚠ Caution

・When miss-wiring or connecting to a power supply different from ratings, it causes a fire and the breakdown.
・Please give the noise of power supply (DC24V±10%) to the control unit as 1Vp-p or less.
Please decrease with the power supply filter etc, when the influence of the noise is strong.

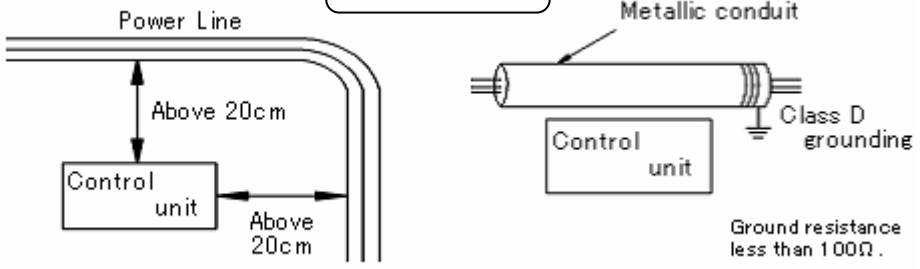
2.4.2. Communication line

The communication line is connected with control unit and detector as the power line and the signal line. Therefore, use the shield cable of 0.5mm^2, and connect the shield part in the shield cable with the terminal FG.

Divergence wiring is possible concerning wiring. In addition also polarity is nonpolar characteristics.

Do not bundle with line which gives out other electric noise and separate from it.

⚠ Caution



[Isolation from electric noise source such as power line]

The signal conductor which is connected to the receiver and the receiver please wires above 20cm separating from the power line.

Case it is not possible, please pass in the metallic conduit which the power line is grounded.

3. Starting the system

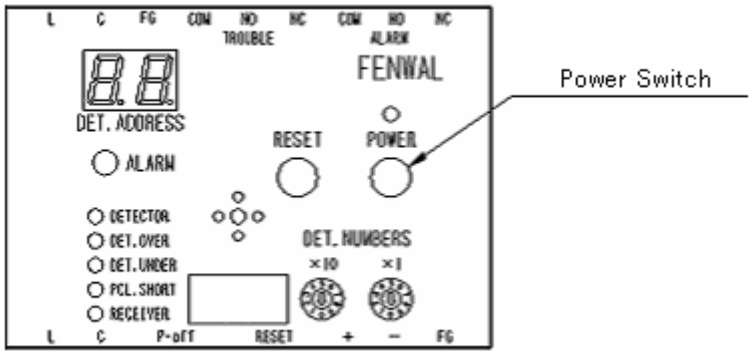
3. 1. 1. Setting of control unit

Please verify whether the number of detectors which it is connected with the DET. NUMBERS switch which is on the panel front is same.

When setting is different, trouble indication is lighting.

3. 1. 2. Power on

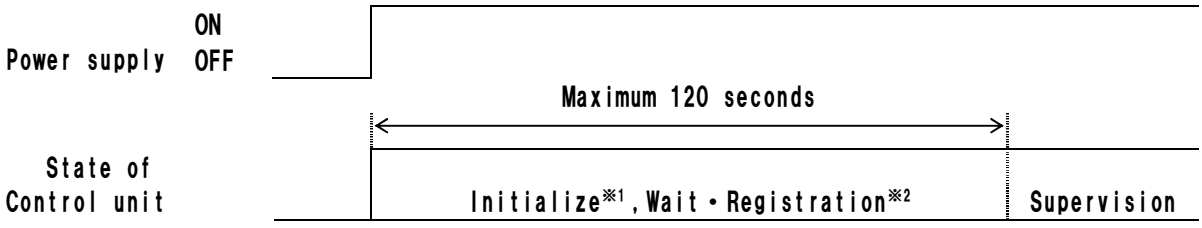
When the supply of power or power switch is pushed, the power light(green LED) lights up, the system operates starts.



Caution

- Pay attention to the sharp edge and the like when you handle control unit. It becomes cause of the wound.
- Do not operate switch with sharp and hard ones like a ball pen top. It makes surface sheet make a tears.
- Do not touch by hand where the oil is attached and the chemicals are attached. The surface seat deteriorates and softens.

3. 1. 3. Register at time of power on



※1 After power on, the alarm LED and the trouble LED blink sequentially.

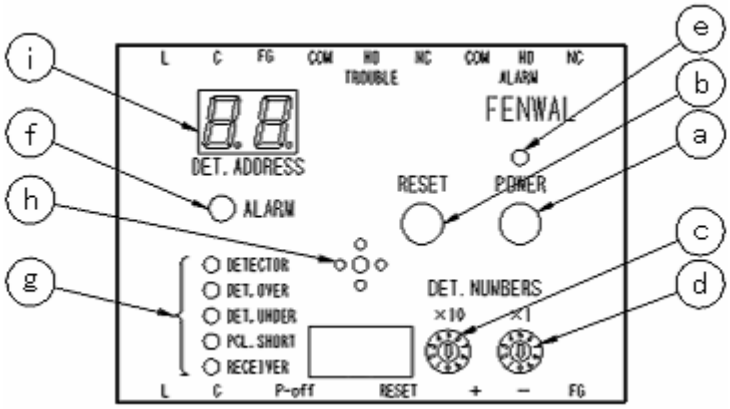
※2 Control unit supplying power to the detector which is connected, starts communication. Control unit inspects the address of all detectors which are connected, registers the detector automatically.

When detectors of a quantity which is set in 120 seconds are registered, supervision is started. When a quantity which is set with control unit and the number of detectors which are registered are different it makes trouble.

3. 2. Control unit

3. 2. 1. Name and function of each section

① Operation panel



a. POWER : Power supply switch (White)

Supply of power supply is started, or the each operation of POWER switch turns on/off the system.

> ⚠ Caution
>
> After turning off the system, until it turns on power supply again, please provide the interval of a minute or more. There are times when the system does not start normally.

b. RESET : Reset switch(Blue)

Operation of reset switch resets the alarm LED, alarm signal contact output and buzzer rumble (continual sound).

However, when the detector still has alarm state, control unit for the second time becomes alarm state.

The alarm LED and the trouble LED blink sequentially while resetting the alarm one by one. Also, each segment LED of 7seg LED blinks in order one at a time.

c. DET. NUMBERS×10 : Detector numbers switch(X10)

This is the switch whereby to set the connectable detector numbers by ten digits. (X10)

> ⚠ Caution
>
> Since the setting of this switch is recognized only at the time of turning the power on, the power is to be off in the event of changing the setting.

d. DET. NUMBERS×1 : Detector numbers switch (X1)

This is the switch whereby to set the connectable detector numbers by ten digits. (X1)

> ⚠ Caution
>
> Since the setting of this switch is recognized only at the time of turning the power on, the power is to be off in the event of changing the setting.

e. POWER: Power Supply indication LED (Green)

While power has been turned on, the power light has lit up.

When control unit CPU error occurs, the power light it goes out and `E' or `E. ' is indicated in 7Seg LED.

f. ALARM: Alarm indication LED (Red)

When the detectors are in alarm state, it lights up.

Control unit keeps alarm state. Control unit until reset switch is pushed even with when the smoke of the smoke detector is gone, continues to indicate alarm state.

However, at the time of zone alarm occurrence, as for the alarm LED blinks. Concerning “4.2.Zone alarm “. The zone alarm does not keep with control unit.

When the alarm occurs, alarm LED is indicated in preferentially from indication of other things.

g. TROUBLE: Trouble indication LED (Yellow)

While trouble occurs in the system, the trouble LED which corresponds to the contents of trouble lights up or blinks.

Details of trouble contents please refer to “6. Procedures/steps to be taken in the event of trouble mode”.

h. Buzzer (Embedded)

In case of alarm state it rumbles with continual sound. In case of trouble state it rumbles with intermittent sound.

However, at the time of control unit CPU error to continue rumble, the contents are indicated in 7Seg LED.

> ⚠ Caution
>
> When the alarm occurs in a trouble state where control unit CPU error is excluded, rumble of the buzzer changes to continual sound from intermittent sound because of alarm priority indication.

i. 7 Segment LED (Red)

Address of the detector where the alarm occurs is indicated.
When the alarm occurs with the plural detectors, the scroll it indicates in the order where the alarm generates the address which is in the midst of alarm occurring 2 seconds.
First address indicates the decimal point in simultaneously

> ⚠ Caution
> When trouble occurs in alarm state, for alarm priority indication, the address where trouble occurs is not indicated.

Address of the detector where trouble occurs is indicated.
When the trouble occurs with the plural detectors, the scroll it indicates in the order where the trouble generates the address which is in the midst of alarm occurring 2 seconds.
First address indicates the decimal point in simultaneously

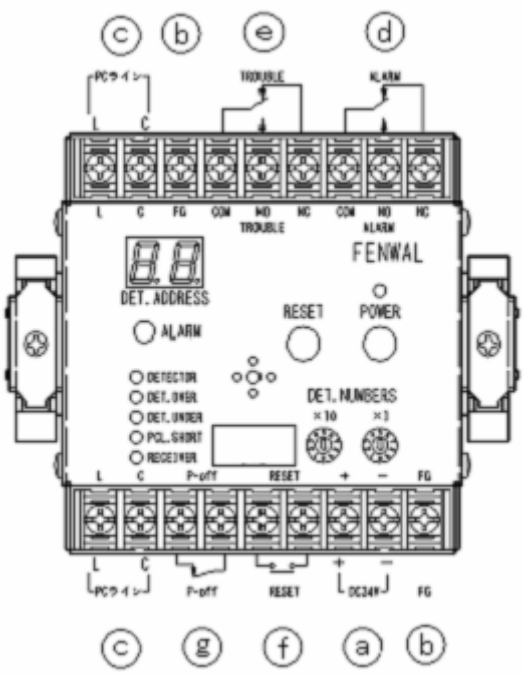
> ⚠ Caution
> When trouble occurs in alarm state, for alarm priority indication, the address where trouble occurs is not indicated.

At the time of zone alarm occurrence “00” is indicated.
In addition, As for 7seg. LED indication “00” the scroll it indicates in the order where the alarm generates indication and the address indication to which the alarm occurs.

> ⚠ Caution
> When the alarm occurs in zone alarm state, the alarm LED from blinking becomes lighting because of alarm priority indication.
> In addition, As for 7seg. LED indication “00” the scroll it indicates in the order where the alarm generates indication and the address indication to which the alarm occurs.

When control unit CPU error occurs, “E” or “E.” indicates.
Because this indication is breakdown of control unit, please exchange.

② Terminal section



Conformity wire
18-26AWG
Screw
M3×6L
Tightening torque
0.5 N·m

> ⚠ Warning — Please install the bundled terminal cover in order to prevent accident such as electric shock.

> ⚠ Caution — Use the proper screw driver bit for screw size. Tighten inside of torque.

a. DC24V (+, −),

It is the terminal which connects the DC 24V power line.

> ⚠ Warning — Do not input the power source other than DC 24V to the terminal.
> Do not exceed the service voltage range. It becomes cause of accident such as fire.
> Making a mistake in polarity and connect, the equipment breaks down.

b. FG

It is the terminal which connects the ground line.

c. Power Communication Line (L, C)

It is the terminal which connects the communication line.

> ⚠ Warning — Do not connect wiring other than the communication line to this terminal absolutely.
> It becomes cause of breakdown such that it stops starting normally.

d. ALARM (COM, NO, NC)

At the time of alarm state and power supply stopping/deciding, the alarm contact signal operates.

However, at the time of zone alarm occurrence, as for the alarm contact signal it does not operate.

Alarm contact State of control unit	Between COM and NO	Between COM and NC
Normal supervise	Close	Open
Alarm or Power supply stop	Open	Close
Zone alarm	Close	Open

⚠ Caution

Do not exceed the maximum of contact point voltage and the maximum of contact point electric current in this terminal. It becomes cause of breakdown such as contact point depositing.

e. TROUBLE (COM, NO, NC)

At the time of trouble state and power source stopping/deciding, trouble contact signal operates.

Trouble contact State of control unit	Between COM and NO	Between COM and NC
Normal supervise	Close	Open
Trouble or Power supply stop	Open	Close

⚠ Caution

Do not exceed the maximum of contact point voltage and the maximum of contact point electric current in this terminal. It becomes cause of breakdown such as contact point depositing.

f. RESET

With external non voltage contact input, control unit resets.

⚠ Warning

・Do not connect other than the non voltage contact point to this terminal absolutely. It becomes cause of breakdown such that it stops starting normally.

・During signal inputting, control unit becomes non supervisory state. When reset action is verified, please stop the input of the signal.

g. P-off

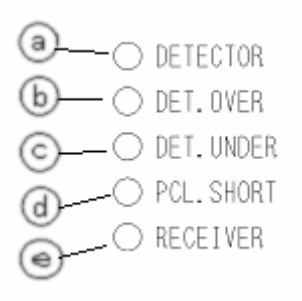
When power source of control unit is off, the non voltage contact point is output.

State of control unit	contact
Power on	Open
Power off	Close

⚠ Caution

Do not exceed the maximum of contact point voltage and the maximum of contact point electric current in this terminal. It becomes cause of breakdown such as contact point depositing.

③ About Trouble indication



a. DETECTOR

It lights up when sensitivity revision over or inside the detector, trouble occurs in the detector. (Refer to "6. Procedures/steps to be taken in the event of trouble occurrence")
In addition, address of the detector where trouble occurs is indicated in 7seg LED.

b. DET.OVER

It lights up when the number of detectors which have been recognized is greater than specification at the detector number switch of control unit

c. DET.UNDER

It lights up when the number of detectors which have been recognized is less than specification at the detector number switch of control unit.
Control unit, the numbers of detectors recognizing few, lights up similarly even when being disconnected of the communication line and broken wire inside the detector.

d. PCL.SHORT

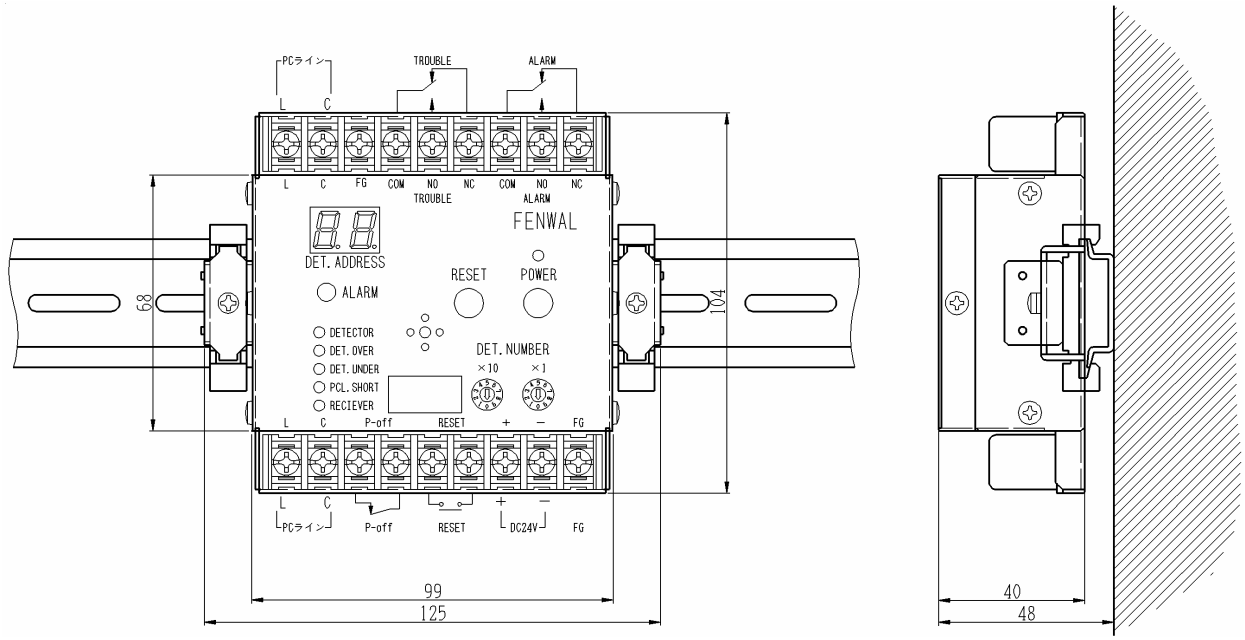
When the communication line is short, it lights up.

e. RECEIVER

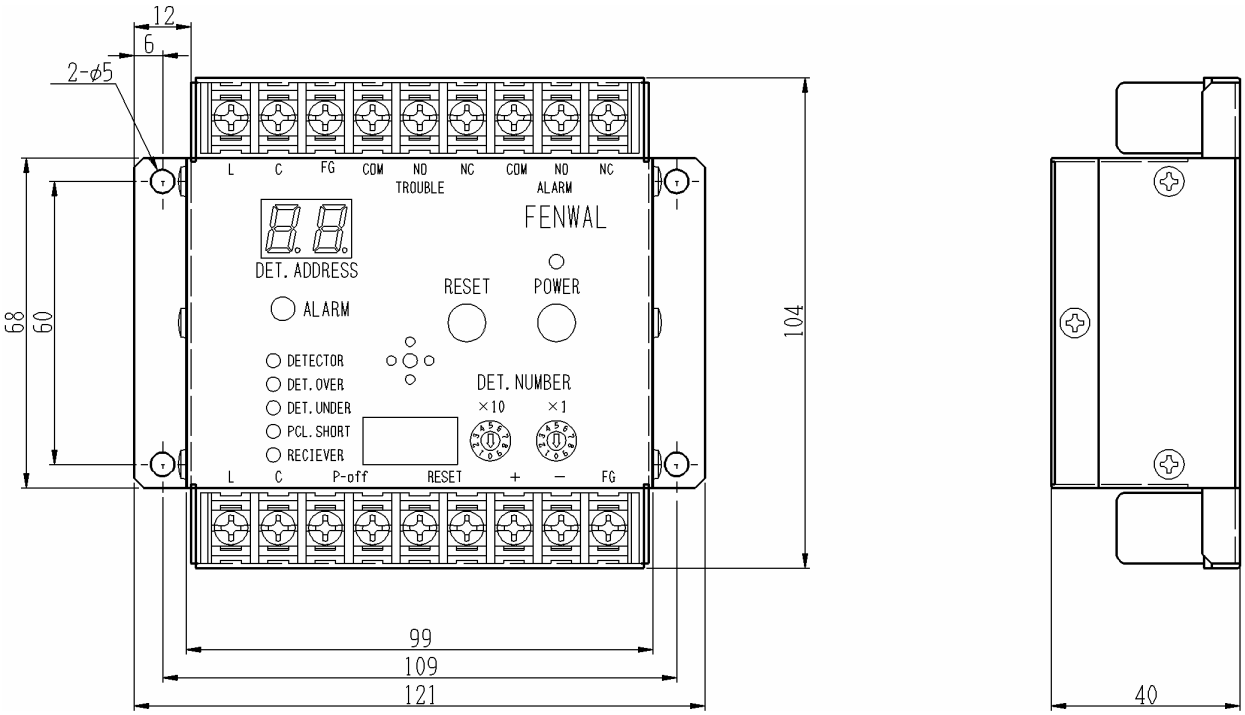
It lights up when specification of detector number switches of control unit 0 or 32 or more.
In this case of control unit trouble, please exchange.

3.3. Dimensions

3．3．1． FC1-DY



3．3．2． FC1-HY



3.4. Electric specifications

(1) Name of item : Control unit
(2) model : FC1-DY
: FC1-HY
(3) Rating : DC24V 0.15A
(4) Range of working voltage : DC24V ±10%

> **Warning**
> ・Please install the power supply only for the control unit as much as possible.
> ・Please give the noise in the power supply to the control unit as 1Vp-p or less.
> ・Please correspond with the power supply filter etc, when there is a noise.

(5) Connectable detector Numbers : Up to 31.

> **Caution**
> Please do not connect the detector of the same address. It becomes not be able to watch normally.

(6) Method of setting up connectable detector counts : It sets making use of the driver from the operation panel.
When setting up 0 or 32, the trouble LED is made to light up as a trouble state.
(7) Set up for receiving the alarm signals : 5%/m
(8) External wiring resistance : Less than 10Ω

> **Caution**
> External wiring value of resistance please do not wire above 10 Ω. Supervision stops impossible normally.

(9) Start up time : After the power on and after the maximum of 2 minutes start of supervision.
(10) Signal contact output : Alarm contact output

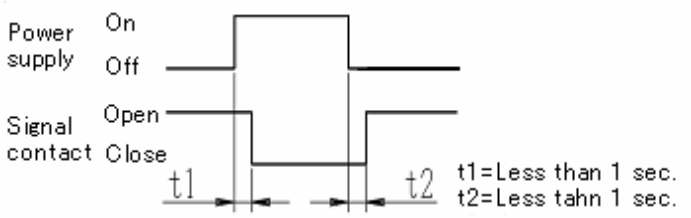
Contact type / State	Between COM and NO	Between COM and NC
Normal supervision	Close	Open
Alarm or Power off	Open	Close
Zone alarm	Close	Open

: Trouble contact output

Contact type / State	Between COM and NO	Between COM and NC
Normal supervision	Close	Open
Trouble occurs or Power off	Open	Close

: Power off contact output

State	Contact
Power on	Open
Power off	Close



Capacity of contact DC30V 1A AC125V 0.3A Resistance loading

(11) Sound of alert : Electronic buzzer.
Alarm sound : Continual sound
trouble sound : Intermittent sound(continual sound priority)

(12) On/off of power switch : At the time of power switch operating, when power source is turned on again, please take the interval of 1 minute or more.
When while the power switch is on main power source is stopped directly, when main power source is turned on again, please take the interval of 1 minute or more.

⚠ Warning

Do not disassemble the equipment.
Electric shock, short circuit, there are times when it becomes cause of fire and breakdown.

3.5. Environmental specifications

(1) Working temperature range : 0℃～60℃

(2) Storage temperature range : －20℃～70℃

(3) Working humidity range : 30～85%RH

Warning

Do not use at the place where it exceeds environmental specification and the place where the volatilization gas and the corrosiveness gas occur.
It becomes cause of breakdown such that it stops operating normally.

3.6. Mechanical specifications

(1) External form : W125×D104×H40 (FC1-DY)
: W121×D104×H40 (FC1-HY)

(2) Main material : SPCC t1.0 black paint

(3) Mass : Approximately 420g

4. Procedures/steps to be taken in the event of alarm occurrence

When this system inspects abnormality, the following warning is output from control unit. When warning is output, verifying circumstance, please do necessary disposal.

4.1. Alarm

The alarm occurs when the alarm signal (AON) from the detector is received by the control unit.

(1) The alarm LED lights up.
(2) The buzzer (continual sound) rumbles.
(3) The alarm signal contact is output.
(4) The alarm detector address is indicated in 7seg LED indication.

4.2. Zone Alarm

The zone alarm is one of alarm information. That occurs when address recognition becomes impossible in communication obstacle and control unit or breakdown of the detector,

(1) The alarm LED blinks.
(2) The buzzer (continual sound) rumbles.
(3) "00" is indicated in 7seg LED indication.

The state indicating LED of the detector at the time of alarm state and zone alarm state blinks 1 times at a time in 2 seconds.

5. Indication of the time of trouble

When this system inspects trouble, the following warning is output from control unit.

(1) The trouble LED which responds to the contents of trouble lights up.
(2) The buzzer (intermittent sound) rumbles.
(3) The trouble signal contact is output.
(4) The trouble address of the detector which occurs is indicated in 7seg LED indication.

When the primary factor of trouble is a detector, the state indicating lamp of the detector which is trouble state (red LED) it goes out. When warning is output, verifying trouble, to following "6. the coping method at the time of trouble occurrence", please correspond.

When there is a trouble primary factor in the detector, the state indicating LED (red LED) of the detector which is trouble state goes out.
When warning is output, verifying the contents of trouble, to following "6. Procedures/steps to be taken in the event of trouble occurrence", please correspond appropriately.

⚠ Caution

The time of trouble occurrence, when you redo wiring or exchanging the detector, Do it after turning off power.

6. Procedures/steps to be taken in the event of trouble occurrence

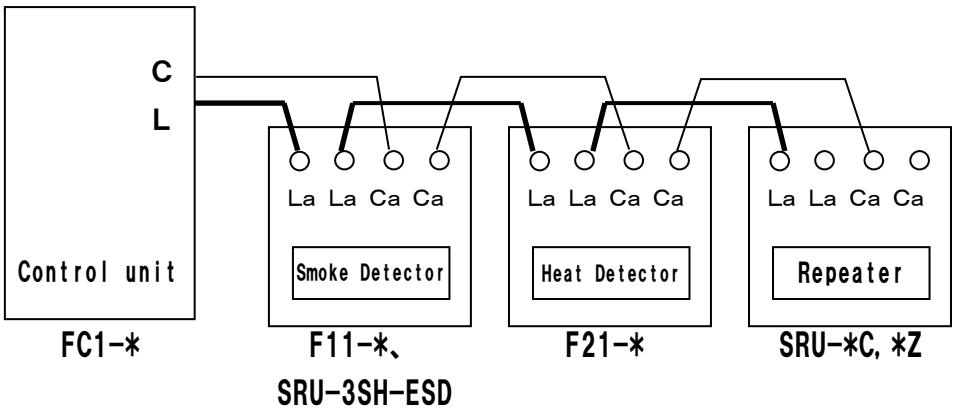
Control unit indications				Smoke detector LED	Contents of trouble	Confirmation Items
POWER	TROUBLE	7 Seg. LED	Buzzer			
Lighting	DTECTOR LED Lighting	Corresponding detector's address is indicated	Intermittence rumble	Blinking 10 seconds interval or Corresponding detector's LED turns off.	-Communication line power failure -Internal abnormality of detector -Smoke detector sensitivity revision over	-Replace the detector.
	OVER LED Lighting	None	Intermittence rumble	Blinking 10 seconds interval	The number of detectors which have been recognized is greater than specification at the detector number switch of control unit.	Make the specification of the detector number switch and the number of connected detectors equal.
	UNDER LED Lighting	None because the disconnection before the power supply on cannot recognize the address, or When the disconnection is detected after the power supply on, the broken wire detector address is displayed.	Intermittence rumble	Blinking 10 seconds interval or Turning off	-The number of detectors which have been recognized is less than specification at the detector number switch of control unit. -Broken wire of communication line -Broken wire inside detector -Falling off of detector	-Make the specification of the detector number switch and the number of connected detectors equal. -Make sure of wiring which is to be correctly done. -Insert correctly the communication line into the Terminal Block of control unit. -Insert correctly the communication line into the Terminal Block of the detector. -Please verify whether the communication line has not been disconnected.
	SHORT LED Lighting	None	Intermittence rumble	Turning off	-Communication line short circuit	The communication line is short. Just please wire.
	RECIEVER LED Lighting	None	Intermittence rumble	Blinking 10 seconds interval	-Specification of detector number switches of control unit 0 or 32 or more. -The power switch or flash memory of control unit is abnormal.	-Please verify the detector number switch setting of control unit. -In case of control unit trouble, please exchange.
Turning off	Turning off	'E' or 'E.' indication	Continual rumble	Turning off	Control unit CPU error.	Because it is breakdown of control unit.

⚠ Caution

Doing the above-mentioned coping, case problem is not solved, please inform to the nearby Fenwal Controls of Japan Co., Ltd.
The time of trouble occurrence, when you redo wiring or exchanging the detector, Do it after turning off power.

7. Detector

The detector being connected by control unit, watches abnormality.



7.1. Connectable detector

The following detector is connection possible in control unit.

As for details please inquire the function which we would like you to use to our company Sales Div.

Name	Model	Function	Remarks
Smoke Detector	F11-*	-photoelectric expression -official operation density 5%/m	Mounting base (FBR-Y)
Smoke Detector	SRU-3SH-ESD	-photoelectric expression -official operation density 5%/m	Mounting base (FDB-ADS)
Heat Detector	F21-*	-Fixed-temperature type -Alarming Fixed temperature range is 70℃(158F)	Mounting base (FBR-Y)
Repeater	SRU-*C	Non voltage contact supervision	Installation metallic parts
Repeater	SRU-*Z	-Non voltage contact supervision -DC24V/1A contact output	-DC24V power supply -Installation metallic parts

8. Serial communication facility

This control unit has a serial communication function.

Please inquire about this facility to the Fenwal Controls of Japan Co., Ltd. Tokyo headquarters.

9. Maintenance and Inspection

9.1. Daily Inspection

The items that must be inspected daily are listed in bellow Table.

No.	Item		Object	Inspection	Method	Judgment Criteria	Remedy
1	Installation		Common	Looseness, rattling	Move the module to check.	The module must be installed solidly.	Retighten the screws. If the modules are loose, fix it with screws.
2	Appearance		Common	Dirt and foreign matter.	Check visually.	Dirt and foreign matter must not be present.	Remove and clean.
				Damage.	Check visually.	There is no damage on the modules.	Equipment is exchanged in consideration of the influence on the performance.
3	Wiring		Common	Damage.	Check visually.	There is no damage on the wires.	Rewiring by conformity wire.
				Dirt and foreign matter.	Check visually.	Dirt and foreign matter must not be present on the terminals.	Remove and clean.
				Looseness terminal screws.	Retighten.	Screws should not be loose.	Retighten the terminal screws with the proper torque.
4	Behavior	Normal Supervision	The Control unit	Power LED	Check visually.	The LED must be ON. (Green)	Please refer to section 6.
				The rest of LED except the Power LED	Check visually.	The LED must be Off.	
				Buzzer	Listening.	The buzzer must be off.	
			The Detector	State indic1ation LED	Check visually.	Blinking 10 seconds interval	Please refer to the user's manual for the detector.

⚠ Warning

- Please do not touch the terminal while the unit is energized. It may get an electric shock.
- Please do the cleaning and the increase tightening of the screw after the power supply off. If not the power supply off, it may get an electric shock.
- Do not soak a detector in water, and do not put a detector into water.

⚠ Caution

- Under tightening can cause a drop, malfunction.
- Over tightening can cause a drop, malfunction due to damage to the screw or equipments and malfunction.
- Please use the dry cloth or wring the water out tightly cloth for the cleaning.
- After Cleaning, Do not leave a foreign substance such as sawdust or wiring debris on a detector. Such debris could cause erroneous operation.

9.2. Periodically Inspection

The items that must be inspected one or two times every 6 months to 1 year are listed below. When the equipment is moved or modified, or layout of the wiring is changed, also perform this inspection.

No.	Item	Object	Inspection	Method	Judgment Criteria	Remedy
1	Ambient temperature	Common	Within the specification	Temperature measurement	In the specification of each equipment	Changed to the temperature within the specification.
2	Ambient humidity	Common	Within the specification	Humidity measurement	In the specification of each equipment	Changing at the humidity within the specification.
3	Atmosphere	Common	Existence of volatility and causticity gas	Gas measurement	There must be neither volatility nor a causticity gas.	Volatility and the causticity gas of atmosphere are excluded.
4	Power voltage	Common	In the ratings	Voltage measurement	In the ratings of each equipment	Changed to the voltage within the ratings.
5	Installation	Common	Looseness, rattling	Move the module to check.	The module must be installed solidly.	Retighten the screws. If the modules are loose, fix it with screws.
6	Appearance	Common	Dirt and foreign matter.	Check visually.	Dirt and foreign matter must not be present.	Remove and clean.
			Damage.	Check visually.	There is no damage on the modules.	Equipment is exchanged in consideration of the influence on the performance.
7	Wiring	Common	Damage.	Check visually.	There is no damage on the wires.	Rewiring by conformity wire.
			Dirt and foreign matter.	Check visually.	Dirt and foreign matter must not be present on the terminals.	Remove and clean.
			Looseness terminal screws.	Retighten.	Screws should not be loose.	Retighten the terminal screws with the proper torque.
8	Detector Number setting	The Control unit	The same number as detector installed	Confirmation of number of detectors actually installed.	The setting and the number of detectors actually installed are the same.	The setting is matched to the number of detectors actually installed.

No.	Item		Object	Inspection	Method	Judgment Criteria	Remedy
9	Behavior	Normal Supervision	The Control unit	Power LED	Check visually.	The LED must be ON. (Green)	Please refer to section 6.
				The rest of LED except the Power LED	Check visually.	The LED must be Off.	
				Buzzer	Listening.	The buzzer must be off.	
				Signal contact output	Signal check	The same output as 「3.2.1.②d.～g.」	Please exchange the control unit.
			The Detector	State indic1ation LED	Check visually.	Blinking 10 seconds interval	Please refer to the user's manual for the detector.
		Function	Common	Please refer to 「9.3 Functional Inspection」			

⚠ Warning

- Please do not touch the terminal while the unit is energized. It may get an electric shock.
- Please do the cleaning and the increase tightening of the screw after the power supply off. If not the power supply off, it may get an electric shock.
- Do not soak a detector in water, and do not put a detector into water.

⚠ Caution

- Under tightening can cause a drop, malfunction.
- Over tightening can cause a drop, malfunction due to damage to the screw or equipments and malfunction.
- Please use the dry cloth or wring the water out tightly cloth for the cleaning.
- After Cleaning, Do not leave a foreign substance such as sawdust or wiring debris on a detector. Such debris could cause erroneous operation.
- Do not clean with a solvent such as a ph-balanced detergent, Bleach, Benzene, Thinner, Alcohol. It causes the detector surface is damaged.

9.3. Functional Inspection

This system should not confirm operation actually applying smoke and heat, because each equipment confirms the operation autonomous.

The detector connected with the control unit and the control unit communicates regularly. Therefore, when trouble state of the control unit, the communication with the detector stagnates and alarm and trouble state in the detector, the control unit is automatically displayed in it.

The state of the detector is regularly confirmed by the automatic examination function of the detector's function, and the detector informs to the control unit automatically when alarm or trouble occurs.

The procedure and the method of confirming the communication at the control unit and the detector Periodically Inspection are shown here.

No.	Procedure	Method	Judgment Criteria		
1	Confirm this system is in the state of normal supervision.	Check visually	The control unit	Power LED	The LED must be ON. (Green)
				The rest of LED except the Power LED	The LED must be Off.
				Buzzer	The buzzer must be off.
				Signal contact output	Not output
			The detector	State indic1ation LED	Blinking 10 seconds interval
2	Starting Functional Inspection	Reset switch pushing of the control unit	The control unit	Alarm LED	Each LED blinks sequentially one by one.
				Trouble LED	
				7seg. LED	

⚠ Caution

- Functional Inspection is done by pushing the reset switch of the control unit.
- If the control unit detects trouble during Functional Inspection, the trouble contact output of the control unit will operate. When this signal is being used by the alarm output of an external system etc., please contact the persons concerned beforehand.
- Functional Inspection will end in about 1～2 minutes, but it changes with the number of detectors.
- With the number of detectors, even if blink of alarm LED and trouble LED is ending, it may be Functional Inspection.
- Do not move immediately after pushing a reset switch. Correspondence is delayed when the control unit's trouble. Confirm this system returns to the state of normal supervision.

3	Confirm this system returns to the state of normal supervision.	Check the display of the control unit, over two minutes.	The control unit	Power LED	The LED must be ON. (Green)
				The rest of LED except the Power LED	The LED must be Off.
				Buzzer	The buzzer must be off.
				Signal contact output	Not output
			The detector	State indic1ation LED	Blinking 10 seconds interval

⚠ Caution

・Please inquire of our company when it doesn't return normal supervision.

・Please confirm the return to the state of normal supervision to Functional Inspection.

１０. Disposal

This product is as general industrial waste disposal. Disposal methods are specific criteria depending on each municipality.

１１. Support

Please inquire about this control unit to the Fenwal Controls of Japan Co., Ltd. Tokyo headquarters.

Fenwal Controls of Japan Co., Ltd.
1-5-10 Iidabashi Chiyoda Tokyo, 102-0072 Japan

Tokyo headquarters : +81-3-3237-3565