

Smoke Detector Control Panel (CPC-4A-24)

DC24V Spec./AC24V Spec.

Operating Instruction Manual

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We highly appreciate your purchasing of NITTAN product.





Before operation, please read this “Operating Instruction Manual” and use the equipment in proper manner.

1. Product




The Smoke Detector Control Panel is a fire detection system to be used by connecting with a designated smoke detector (0KB3). When fire breaks out, the panel receives fire signal from smoke detector and indicates operating smoke detector address and starts to sound buzzer alarm. Signal transfer function of non-voltage c contact is equipped with the panel. Also, the panel detects smoke detector abnormality (sensitivity calibration limit and non-response) by regular self-diagnosis function.

2. For your safe and proper use

This instruction manual contains various symbols indicating precautions in order to prevent safety hazard to our clients and other public as well as damages to properties. Please read the text after you have understood the symbols.

 WARNING	There is a risk of endangering the health or life of the user, or causing a significant damage to the equipment when the product is mishandled.
 CAUTION	There is a risk of causing minor injuries or damage to the equipment when the product is mishandled.
 MUST	Mandatory Action or Instruction.
 PROHIBITED	Action prohibited

⚠ WARNING

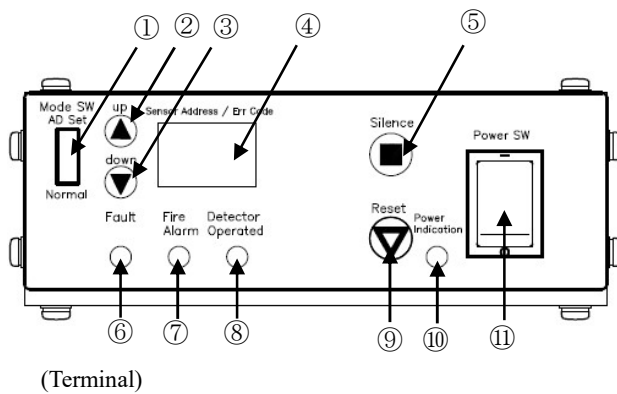
 PROHIBITED	<ul style="list-style-type: none"> • Do not touch the equipment with wet hands or dip into water or splash water over the equipment. It may cause electrification or trouble. • Do not overhaul or modify equipment. It may cause electrification and trouble. • Do not use the equipment in location where operating temperature exceeds its range (0-60°C) and where explosive gas or corrosive gas is generated. It may cause equipment trouble or fire ignition. • Do not put anything into the openings. It may cause equipment trouble or fire.
 ENSURE TO COMPLY	<ul style="list-style-type: none"> • Please ensure that the terminal cover of AC power supply is attached properly after completion of work. Otherwise it may cause electric shock. • Wire connection to each terminal should be properly carried out in accordance with specified rating and polarity. Incorrect wiring may cause trouble or fire. • Carry out checking of operating condition of interlocking devices sufficiently in case of test operation. Improper operation may cause damages to the equipment or cause danger to personnel. • The equipment is for indoor use only. Do not install it outside. It may cause malfunction.
 Connect earth wire	<ul style="list-style-type: none"> • Make sure to connect an earth wire. Otherwise it may cause electric shock during the use of equipment or in the event of electric

⚠ CAUTION

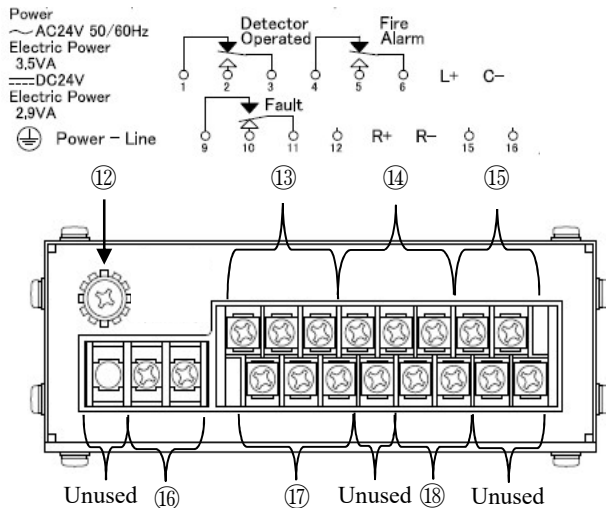
- Please make sure wiring to smoke detector as two-wire connecting arrangement. (Do not connect end-of-line resistor to end of detector line.)
- Maximum number of smoke detectors to be connected is 20. (Only 0KB3 can be connected but old model 0KB and 0IB cannot be connected.)
- Smoke detector connection terminals (L+ and C-) have polarity.
- Please use shield wire for wiring in electromagnetic disturbing environment.
- This equipment cannot be connected to detectors in automatic fire alarm system.
- The Smoke Detector Control Panel is operated in normal monitoring mode [Normal] or in setting mode [AD Set], by confirming [Mode SW] condition at initial time (power supply switch on time or reset operation time). Please set to normal monitoring mode [Normal] at monitoring time and setting completion time. If initial operation (power supply switch on or reset operation) is carried out by setting mode [AD Set] side, fire cannot be detected since system operates by setting mode.
- Make sure to check the equipment by activating smoke detectors.

3. Name of each section

(Indication /Operation)



(Terminal)

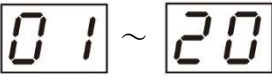




- ① Mode SW (mode switch)
At normal monitoring time: set to [Normal] (assigned) side.
At address setting time: set to [AD Set] (address setting) side.
- ② Up (increment switch)
- ③ Down (decrement switch)
When 2 or more alarms sound, digital indication can be scrolled.
- ④ Sensor Address/Err. Code (detector address/error code)
To indicate digitally smoke detector address or error code.
- ⑤ Silence (audible sound stop switch)
To stop alarm sound of the Smoke Detector Control Panel.
- ⑥ Fault (trouble light: yellow)
To turn on at smoke detector line (L+, C-) fault/short circuit, at smoke detector detachment and at smoke detector trouble time.
Fault is not latched at automatic reset.
- ⑦ Fire Alarm (fire light: red)
To turn on when 2 or more smoke detectors operate.
It remains ON until pressing Reset.
- ⑧ Detector Operated (1 detector operation light: red)
To turn on when 1 or more smoke detector operates.
It remains ON until pressing Reset.
- ⑨ Reset (reset switch)
To reset fire indication of operated smoke detector and the Control Panel.
- ⑩ Power Indication (power supply light: green)
To turn on when [Power SW] (power supply switch) is switched on at power supply time.
- ⑪ Power SW (power supply switch)
- ⑫ Earth Terminal
- ⑬ Detector Operated (1 detector operation signal transfer terminal: no-voltage c contact).
- ⑭ Fire Alarm (fire signal transfer terminal: no-voltage c contact).
- ⑮ L+, C- (detector line connecting terminal).
- ⑯ DC24V or AC24V PowerLine (Power input terminal).
- ⑰ Fault (trouble signal transfer terminal: no voltage c contact).
- ⑱ R+, R- (reset input terminal).
Terminal to input reset signal when reset operation is carried out externally.







* Please use round crimp terminal with insulation coating (RAV1.25-3) when connecting wire to terminal block.

4. Digital indication list

• Digital indication at operation time/trouble time

Digital indication	Content of digital indication	Details
	Detector address	<ul style="list-style-type: none"> To indicate smoke detector address when [Fire Alarm] (fire light) or [Detector Operated] (1 detector operation light) turns on. When 2 or more detectors operate, maximum 5 detector(*) addresses are indicated in order of operation. To indicate all addresses (*) of smoke detectors which become unable to monitor normally due to detector line fault, smoke detector detachment and smoke detector trouble when Fault (trouble light) turns on. <p>* When pressing [up] or [down] switch, it scrolls.</p>
	Detector line short circuit	<ul style="list-style-type: none"> Indicated when detector line is in short circuit.
	Detector connection number setting error	<ul style="list-style-type: none"> When [Power SW] (power supply switch) is switched on, this will be indicated together with [Fault] (trouble light) turning on. This will be indicated when detector connection number registered to the Smoke Detector Control Panel and actually connected smoke detector address number (type of address) are different.

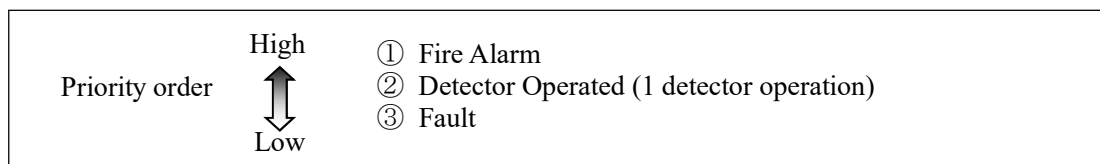
• Digital indication at setting mode time

Digital indication	Content of digital indication	Details
	Setting mode of connecting detector number	<ul style="list-style-type: none"> Mode to register connecting detector number to the Smoke Detector Control Panel.
	Reading mode of connecting detector number	<ul style="list-style-type: none"> Mode to read connecting detector number to the Smoke Detector Control Panel.
	Setting mode of detector address	<ul style="list-style-type: none"> Mode to register address to smoke detector.
	Reading mode of detector address	<ul style="list-style-type: none"> Mode to read address registered to smoke detector.
	Successful setting	<ul style="list-style-type: none"> Indicated when registration is properly made by connecting detector number setting mode or by detector address setting mode.
	Reading error Writing error	<ul style="list-style-type: none"> Indicated when reading or writing are not properly done.

5. Alarm priority order

There remains a possibility of multiple numbers of alarm sounds.

Even though lower priority alarm has occurred, higher priority alarm is activated first.



6. Operation specification

Condition	Indication Light				7 Seg Indication	Terminal Indication						Buzzer Sound (*1)
	Power Indication (green)	Fault (yellow)	Detector Operated 1 detector Operation (red)	Fire Alarm (red)	Sensor Address/ Err Code Detector address/code	Fault		Detector Operated 1 detector operation		Fire Alarm		
						9-11	10-11	1-3	2-3	4-6	5-6	
At monitoring time	○	—	—	—	—	OPEN	CLOSE	CLOSE	OPEN	CLOSE	OPEN	
At power cut time	—	—	—	—	—	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	—
Detector wire line fault	○	○	—	—	[01~20] Address Indication (*2)	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	intermittent sound B
Detector wire short circuit					[E1]							
Detector ommision					[01~20] Address Indication (*3)							
Detector connection number setting error					[- -]							
Trouble detector detection by regular self-diagnosis function	○	○	—	—	[01~20] address indication	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	intermittent sound A
1 detector operation	○	—	○	—	[01~20] address indication	OPEN	CLOSE	OPEN	CLOSE	CLOSE	OPEN	intermittent sound C
fire (more than 2 detectors operation)	○	—	○	○	[01~20] address indication (*4)	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	continuous sound

* 1 Intermittent sound A: cycle 0.15Hz(bi- - - -tu, bi- - - -tu, bi- - - -tu), Intermittent sound

B: cycle 0.5Hz(bi- -tu, bi- -tu, bi- -tu), Intermittent sound

C: cycle 5Hz (bi-tu, bi-tu, bi-tu)

* 2 To indicate all addresses of smoke detectors which become unable to normal monitor by detector line fault.

When [up] or [down] switch is pressed, digital indication scrolls.

* 3 To indicate all addresses of smoke detectors which become unable to normal monitor by detector omission.

When [up] or [down] switch is pressed, digital indication scrolls.

* 4 To indicate max. 5 smoke detector addresses in operation order when 2 or more smoke detectors operate.

When [up] or [down] switch is pressed, digital indication scrolls.

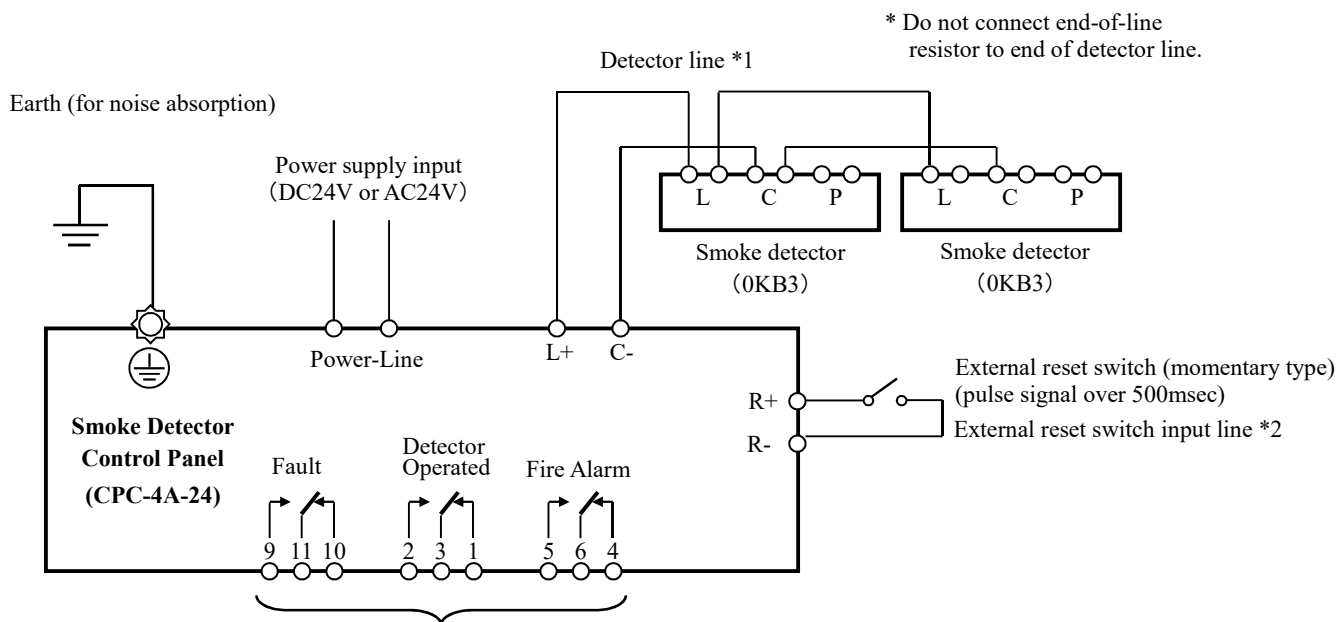
7. Overall connecting diagram

⚠ DANGER



MUST

- Ensure that AC power supply is switched off before starting wiring, and connection is made properly. Otherwise it may cause electric shock.



No-voltage c contact: indication of device board shows condition at monitoring time (at power supply time).

- *1 It is recommended to use either AE cable or CPEV cable with conductor diameter over 0.65mm.
It is recommended to use shielded CPEV-S cable where electromagnetic noise causes disturbance.
Connect the shielded part of cable to the earth terminal.

- *2 After connection, please operate the detectors and confirm that will reset from operating condition to normal monitoring condition by external reset switch input.

8. Setting of the number of detectors connected

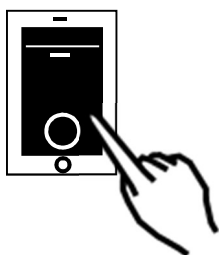
To register smoke detector number to be connected to the Smoke Detector Control Panel.

CAUTION

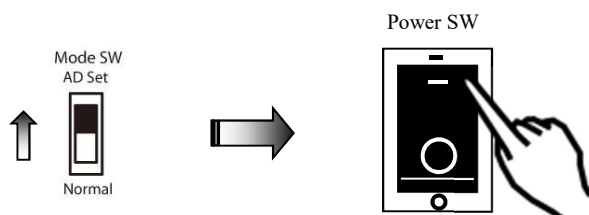
- The number of connected detectors registered to the Smoke Detector Control Panel is 2 at the time of factory shipment. Please register actual number of smoke detectors (0KB3) to be connected.
The registered number of connected detector is stored in the Smoke Detector Control Panel. Even when power supply is off, the stored registration will not be erased.
When registered number in the Smoke Detector Control Panel and the number of connecting detector address (address type) do not correspond, smoke detector connecting number setting error appears.

- ① Switch off [Power SW] (power supply).

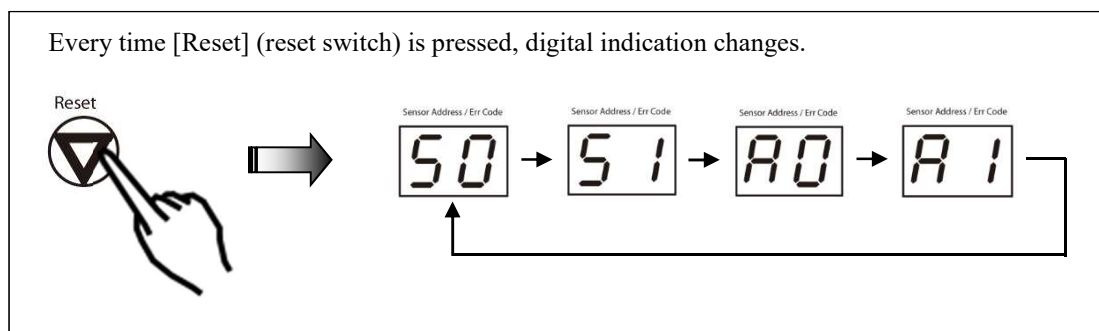
Power SW



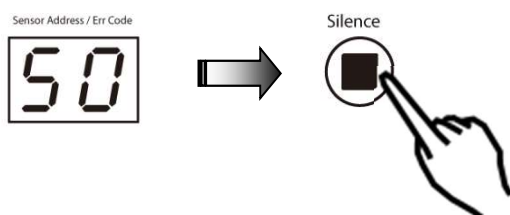
- ② Switch on [Power SW] (power supply) by setting [Mode SW] (mode switch) to [AD Set] (address setting) side.



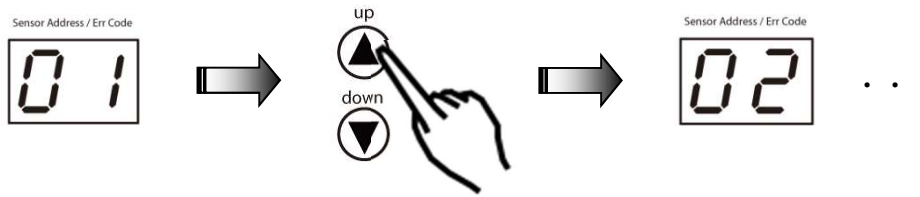
- ③ [SO] is indicated digitally.



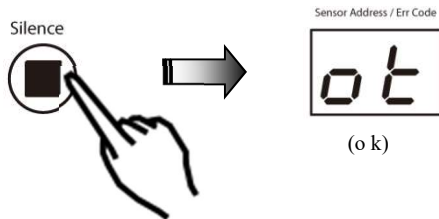
- ④ Set to [connecting detector number setting mode].
Select [SO] and push [Silence] (audible sound stop switch).



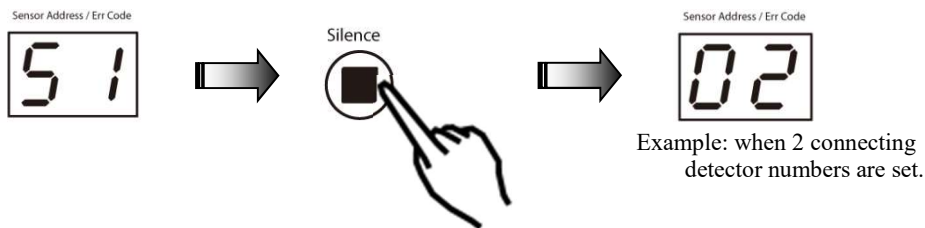
- ⑤ [01] is indicated digitally. Indicate detector number to be connected to the Smoke Detector Control Panel by pressing [up] (increment switch) or [down] (decrement switch). (Connecting detector number can be registered up to [01~20].)



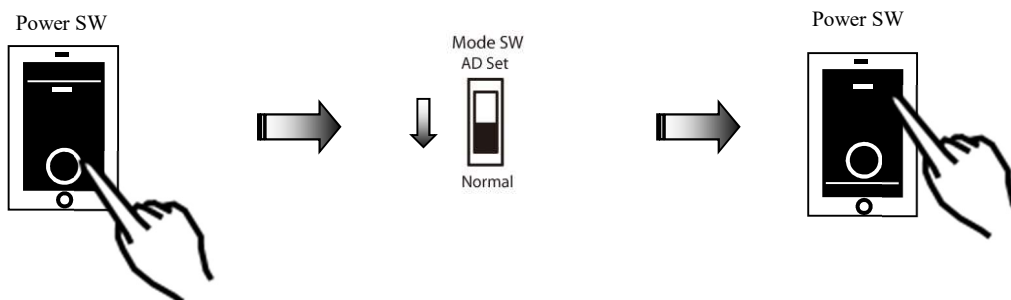
- ⑥ Register connecting detector number by pressing [Silence] (audible sound stop switch). When *ok* (ok: setting succeed) is indicated, registration is completed. (About 3 seconds later, indication will reset automatically and return to ③ condition.)



- ⑦ Confirm registered connecting detector number by setting to [connecting detector number reading mode]. Push [Reset] (reset switch) and indicate [S1] and push [Silence] (audible sound stop switch). Registered connecting detector number is indicated digitally. (About 3 seconds later, indication will reset automatically and return to ③ condition.)



- ⑧ When registration is completed, release setting mode. Switch off [Power SW] (power supply) and set [Mode SW] (mode switch) to [Normal] (assigned) side and switch on [power SW] (power supply), then setting mode is released and returns to normal monitoring mode.



⚠ CAUTION

- Please make sure to return to normal monitoring mode after completion of setting detector connecting number. Otherwise the system becomes unable to detect fire and unable to operate properly.

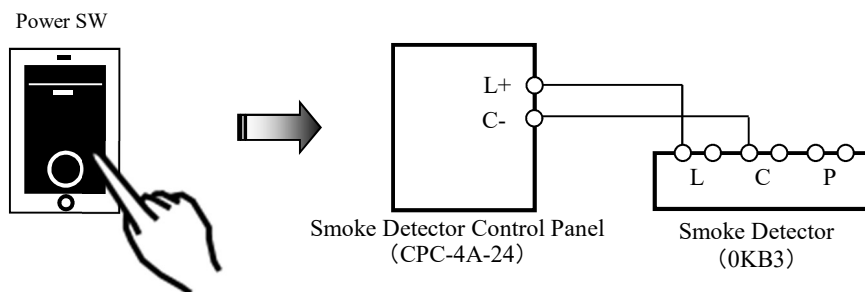
9. Smoke detector address setting

To register smoke detector address to be connected to this Smoke Detector Control Panel.
Smoke detector (0KB3) is registered as 01 address at the time of factory shipment.

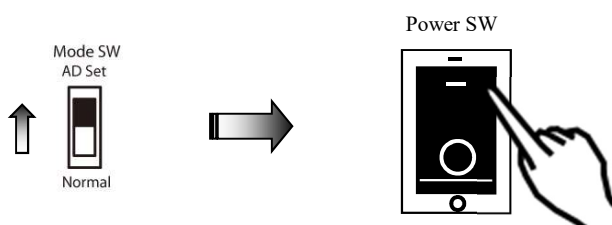
⚠ CAUTION

- Please make sure to register smoke detectors with non-overlapping address (1-20).
The Smoke Detector Control Panel is unable to detect overlapping addresses. Unless properly registered, connecting detector number error message may be indicated.
The registered address is stored in smoke detector. Even when power supply is off, the registration will not be erased.
- When setting address, please make sure to connect the Smoke Detector Control Panel and smoke detector (0KB3) one for one. When multiple numbers of smoke detectors are connected, they may be registered with the same address or writing error may be indicated.

- ① Switch off [Power SW] (power supply) and connect the Smoke Detector Control Panel with smoke detector one for one.



- ② Switch on [Power SW] (power supply) by setting [Mode SW] (mode switch) to [AD Set] (address setting) side.

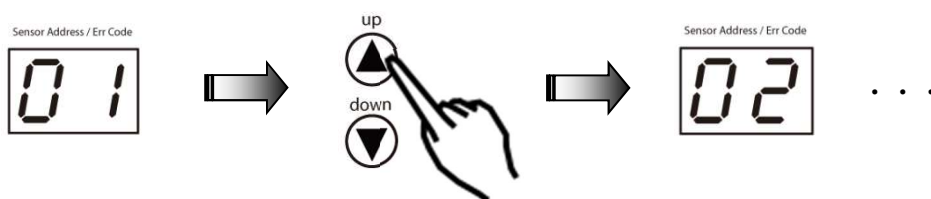


- ③ When [SO] is indicated digitally, set to [Address Setting Mode]. Push [Reset] (reset switch) and indicate [AO] and push [silence] (audible sound stop switch).



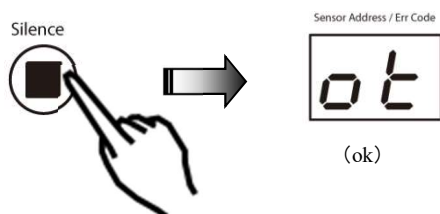
- ④ [01] is indicated digitally. Indicate the address of smoke detector to be registered, by pressing [up] (increment switch) or [down] (decrement switch). (Address can be registered up to [01-20].)

* Please set address number from [01] upward in series for easy management.

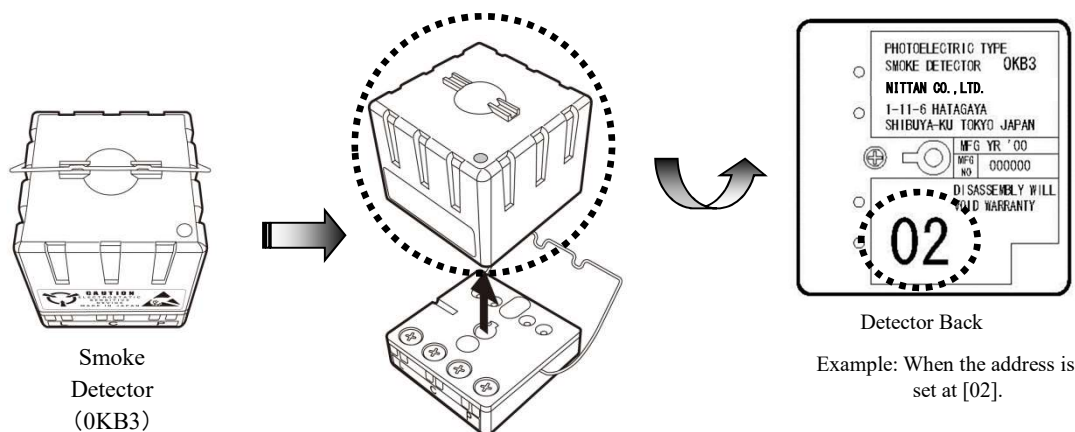


- ⑤ Register address by pressing [Silence] (audible sound stop switch).

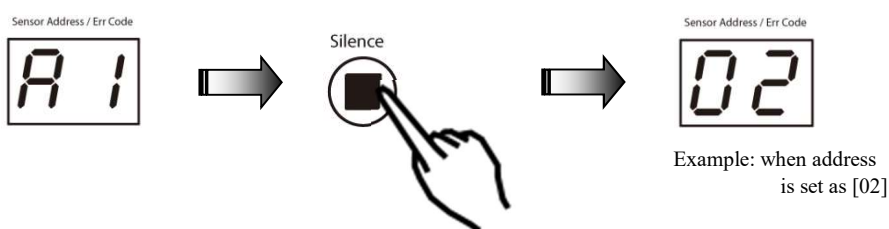
When **ok** is indicated digitally, registration is completed. (About 3 seconds later, indication will automatically reset and return to ③ condition.)



* Please enter the registered address into the available space of the product label attached to the back of the detector, in order to identify the address.



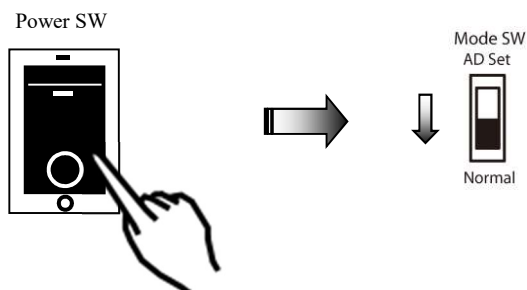
- ⑥ Confirm registered address by setting to [Address Reading Mode]. Push [Reset] (reset switch) and indicate [A1] and push [Silence] (audible sound stop switch), then registered detector address is indicated digitally. (About 3 seconds later, indication will automatically reset and return to ③ condition.)



* When [- -] is indicated, this means reading error.

When [Reset] (reset switch) is pressed, indication is restored. When reading error is indicated, check wiring and others, and set again.

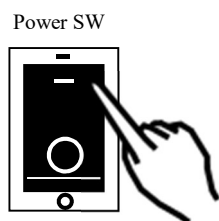
- ⑦ When you wish to continue registration of address to other smoke detector, replace registering smoke detector body only, and register address to all smoke detectors one by one in line with the above ③-⑥.
- ⑧ When registration is completed, release setting mode.
Switch off [Power SW] (power supply) and set [Mode SW] (mode switch) to [Normal] (assigned) side.



- ⑨ Connect the number of smoke detectors registered in the above [8. Setting of detector connection number].

- ⑩ Return to normal monitoring mode.

When [Power SW] (power supply) is switched on under the condition of [Normal] (assigned) at [Mode SW] (mode switch), it returns to normal monitoring mode.



CAUTION

- Please make sure to return to normal monitoring mode after completion of setting detector address. Otherwise the system becomes unable to detect fire and unable to operate properly.

10. Troubleshooting

If the condition is not rectified after applying the following procedures, please contact the distributor from which you purchased or NITTAN Co., Ltd.

Condition	Cause	Corrective Measures
[Power Indication] (power supply light) is turning off.	Power is not supplied to [Power-Line] (power supply input terminal).	Supply power to [Power-Line] (power supply input terminal).
	[Power SW] (power supply switch) is not ON.	Switch on [Power SW] (power supply switch).
While [Fault] (trouble light) is turning on and alarm buzzer is sounding, smoke detector address [01~20] is indicated digitally. * Alarm buzzer cycle: 0.5Hz (bi- -tu, bi- -tu, bi- -tu)	There is a cable break in the detector line (L+, C-).	Repair the cable break. When repaired, trouble alarm will be self reset.
	Smoke detector is detached.	Connect the smoke detector. When connected, trouble alarm will be self reset.
While [Fault] (trouble light) is turning on and alarm buzzer is sounding, smoke detector address [01~20] is indicated digitally. * Alarm buzzer cycle: 0.15Hz (bi- - -tu, bi- - -tu, bi- - -tu)	Smoke detector is in trouble.	Replace smoke detector of which address is indicated digitally. After replacement, push [Reset] (reset switch) and system will be reset.
While [Fault] (trouble light) is turning on and alarm buzzer is sounding, [E1] is indicated digitally. * Alarm buzzer cycle: 0.5Hz (bi- -tu, bi- -tu, bi- -tu)	Detector line is in short circuit.	Repair short circuit point. When repaired, trouble alarm will be self reset.
When [Power SW] (power supply switch) is switched on, [- -] is indicated digitally and [Fault] (trouble light) is turning on. * Alarm buzzer cycle: 0.5Hz (bi- -tu, bi- -tu, bi- -tu)	Detector numbers registered to the Smoke Detector Control Panel and detector address number (number of address type) are different.	Register detector connecting number, by referring to [8. Setting of detector connection number].
	Detectors registered with the same address are included in connecting smoke detectors.	Confirm that smoke detector address is not overlapping, by referring to [9. Smoke detector address setting].
	Wiring is influenced by noise from other equipment.	Replace detector wiring with shield wire.
When only 1 detector is operating, [Fire Alarm] (fire light) is turning on.	End-of-line resistor is connected to wiring.	Remove end-of-line resistor.
Even when a detector operates, address is not indicated digitally.	Old models (0KB, 0IB) are connected.	Connect 0KB3, the address of which is registered.
	Wiring is affected by noise from other equipment.	Replace detector wiring with shield wire.

11. Product specification

Model Name	CPC-4A-24
Rated Voltage	DC24V(DC23.0-DC26.8V) or AC24V(AC20V-AC27V), 50/60 Hz
Rated Power	Supervisory condition: 0.9VA (DC24V) / 1.8VA (AC 24V) Alarm condition: 2.9VA (DC24V) /3.5VA (AC 24V)
Detector Power Voltage	Rated DC 19V
Max. No. of Detector	20 Max
External Wire Resistance	Below 20ohm (between Control Panel and distal Smoke Detector)
External Reset Switch Input Line External Wire Resistance	Below 2ohm (between smoke detector control panel and external reset switch)
Connecting Detector	0KB3 (old model 0KB and 0IB are not connectable)
Switch	Power SW (Power Supply Switch) : Latching Type
	Reset (Reset Switch) : Momentary Type
	Mode SW (Mode Switch) Slide Type
	Silence (Audible Sound Stop Switch) : Momentary Type
	up (Feed Switch) : Momentary Type down (Return Switch) : Momentary Type
Indicator Light	Power Indication (Power Supply Light) : Green
	Fault (Trouble Light) : Yellow
	Fire Alarm (Fire Light) :Red
	Detector Operated (One Detector Operation Light) : Red
	Sensor Address/Err Code (Detector Address/Code) : 7 Segment LED (Two Digit Indication)
Relay Contact Point (Non-Voltage C Contact)	Fault , Fire Alarm, Detector Operated Contact Point Ratings: DC30V, 1A / AC 125V, 0.3A (resistance load)
Audible sound (electronic buzzer)	Detector line fault/short circuit, detector detachment, detector connecting number setting error. :intermittent sound (cycle: 0.5Hz)
	Trouble detector detection by regular self-diagnosis function. :intermittent sound (cycle: 0.15Hz)
	When Detector Operated (One Detector Operation Light) turns on. :intermittent sound (cycle: 5Hz)
	When Fire Alarm (Fire Light) turns on. :continuous sound
Function	<ul style="list-style-type: none"> ●Regular self-diagnosis function: Function to detect trouble by conducting diagnosis on smoke detector at power switch on time and at every 6 hours after power switch on. ● Line fault/short circuit monitoring function: Function to constantly monitor detector line fault/short circuit. ● Detector omission monitoring function: Function to constantly monitor smoke detector omission. ● Address indication function: Function to indicate address of operated or troubled detector. ● External reset function: Function to oconduct reset operation externally by input of pulse signal of over 500msec to fire control device terminal (R+, R-). ● Power supply cut signal trasnfer function: Function to transfer trouble signal from fire control device terminal (9, 10, 11) at power supply cut time. ● Address setting function: Function to set address to smoke detector.
Recommend cable(over 0.65mm conductive diameter)	Polyethelene insulation cable (AE cable) for alarm Polyethelene insulation vinyl sheath cable (with shield) (CPEV-S cable)
Material	Body: aluminium (alumite treatment)
	Cover: steel sheet (trivalent chrome chemical conversion treatment)
	Screw: iron and steel (trivalent chrome chemical conversion treatment)
	Mounting bracket (separate purchase): steel sheet (trivalent chrome chemical conversion treatment)
Outside Dimension	W 110mm x H 40mm x D 195mm (body only)
Weight	about 560g (body only)
Operating Environment	Temperature: 0°C to +60°C, Humidity: below 85% RH (non-condensation)
Storage Temperature Range	-20°C to +70°C
RoHS directive	Complied
Safety standard	ETL approved (UL STD 61010-1 Third Edition/Recognized Component) Insulation characteristics: Pollution degree 2, overvoltage category I
Mounting	to use mounting bracket (separate purchase)