CONVENTIONAL FIRE ALARM CONTROL PANEL   1PV0 Series

1PV0

1GPV0

■ Description

The 1PV0 series provides a line of conventional fire alarm control panels that are designed to simplify the installation, operation and maintenance work. The panels are equipped with LED arrays to indicate zone status and a digital display with 3 digits of 7 segments LEDs, which identify the alarms and troubles. Large indicators and switches allow easy recognition and operation.

■ Features

- Large indicators and switches for easy operation

- Digital display with 7 segments LEDs for identifying the alarm zone and detailed trouble

- 6 LED indicators for Other Alarms

- Panel buzzer beeps in sweep tone for making it easier to hear

- Available with End-of-line Resistors of 10 kΩ, 20 kΩ and CRE

- Durable LED zone indicators

- Maintenance switch for all alarm silence

- Alarm delay ON/OFF switch

- Plug-in type terminals

- Auto reset switch used during a fire test and system check

- Cursor switches on the panel for configuration at the installation site

- Regular test feature: Performed per week on Zone circuits, Other Alarm circuits, Standby battery and Memory

- Manual test features: System test, Fire test, Delay time measurement test, Battery test

- Alarm delay feature (Verification feature)

- Event history logs store up to 1000 of alarm events and operation histories

- Zone isolation feature for partial operation and maintenance work

- False operation prevention feature

- Monitors open circuits, short circuits and ground faults on external circuits

- Lightning protection circuit for external lines

- Standby Battery (Ni-Cd 24 VDC, sealed type)

- Pair of Telephone handset for maintenance work

- Available in 10 to 160 zone models

- **1GPV0** is a Gas leakage alarm model

- Supports Built-in emergency telephone system

- Supports special order specifications:

    E.g. Panel color and size, Power supply capacity, Number of connectable telephones, Expansion relays, Auxiliary indicators and switches, Multiple annunciators, etc.

■ Indicators on Operation Panel
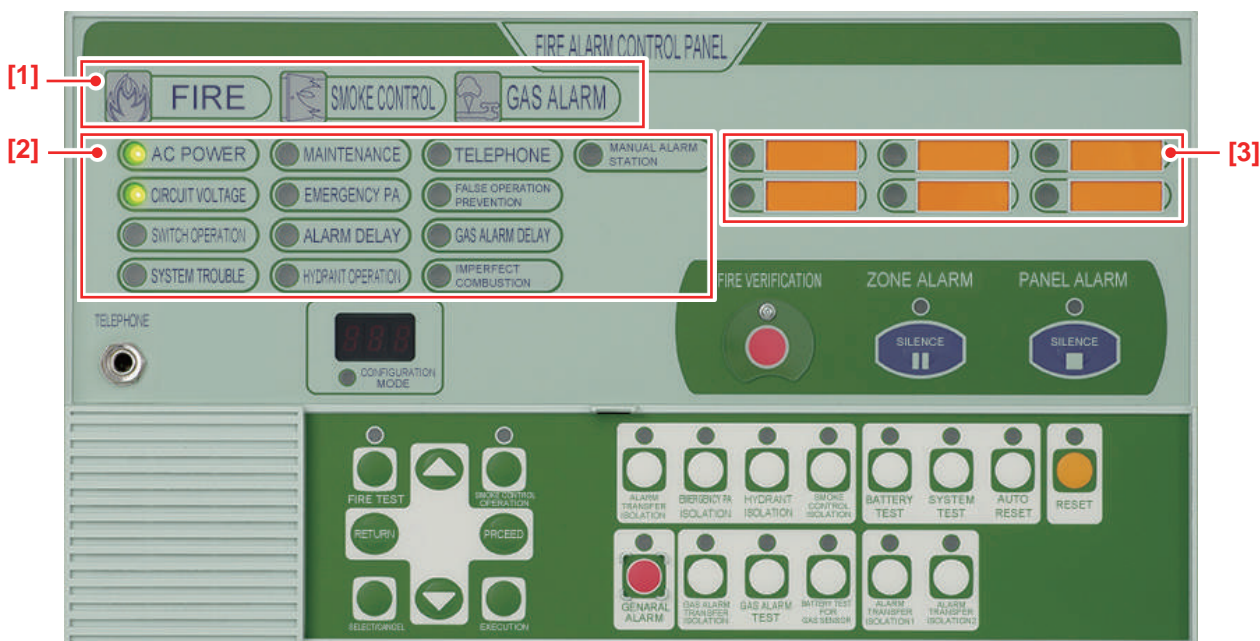
[1] Common Indicators

FIRE (Red)
LED lighting steady when a fire alarm is activated.

SMOKE CONTROL (Red)*
LED lighting steady when a detector for ventilation facilities is activated.

GAS ALARM (Amber)**
LED lighting steady when a gas alarm is activated.

[2] Various Indicators

AC POWER (Green)
LED lighting steady when AC power supplied to the main power circuit is ON.

CIRCUIT VOLTAGE (Green)
LED lighting steady as long as the main circuit voltage of the control panel is within acceptable levels (approx. 20.4 V and greater).

SWITCH OPERATION (Red)
LED flashing when the panel switches are ON or not normal state.

SYSTEM TROUBLE (Amber)
LED lighting steady when there is any trouble condition being detected on the panel. The trouble code is indicated on the display.

MAINTENANCE (Red)
LED flashing during maintenance mode or masked to the zone(s).

EMERGENCY PA (Red)
LED lighting during the emergency microphone activation. Zone alarm is silenced during the time.

ALARM DELAY (Red)
LED lighting when the control panel is in a delay mode or in an alarm mode. The indicator will be turned off and the control panel will revert back to a normal mode after a 60-second timer elapsed from the reception of the fire alarm signal without any new alarm signal.

The indicator flashes while the alarm delay function is disabled.

HYDRANT OPERATION (Red)
LED flashing while a hydrant pump(s) is in operation.

TELEPHONE (Red)
When a handset is plugged into a telephone jack of a manual alarm station or an annunciator panel, the panel will generate ringtones and this indicator will light steady.

FALSE OPERATION PREVENTION (Red)
LED lighting steady when the control panel is in a false operation prevention mode.

GAS ALARM DELAY (Red)**
LED lighting steady when the panel receives a signal indicating the activation of a gas detector. Upon the reception of the signal, the panel is turned into a delay state for 40 seconds, during which the indicator is kept turned on. If the detector is continued to be active after the delay time elapsed, the gas alarm goes off and the indicator turns off. If the alarm delay is disabled, the indicator will keep flashing.

IMPERFECT COMBUSTION (Red)**
LED lighting steady when a gas detector detects incomplete combustion.

MANUAL ALARM STATION (Red)
LED lighting steady when the manual alarm station is activated.
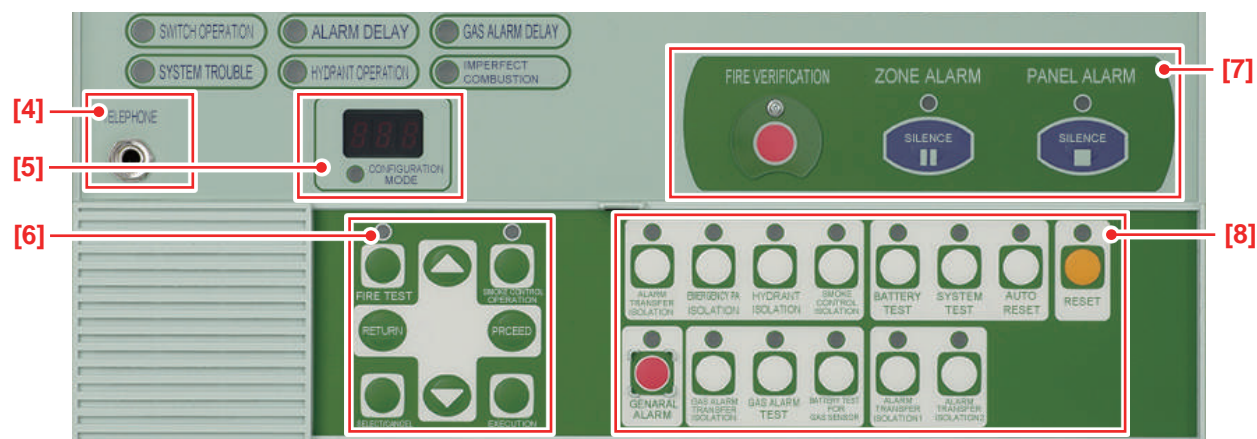
[3] Other Alarms (Red)
Each of the LEDs will light steady upon the reception of a corresponding alarm signal. These indicators flash when a cable break exists.

*   Combined model (Smoke control type) only.
** 1GPV0 model (Gas alarm type) only.

■ Controls on Operation Panel

[4] TELEPHONE Jack
This is a telephone jack dedicated for the maintenance purposes. When a handset is inserted into the jack, communication between control panel and on-site handset can be made.

[5] 7-segment Display
The 7-segment LEDs display a digital representation of either a trouble code, or an identification of a zone code in which a fire alarm etc. has been generated.

[6] Cursor Keys
FIRE TEST Switch
The switch is used to perform a fire test. When activated, the fire indication test will be enabled on the fire alarm zones and smoke control zones. During the test, the indicator is lit steady.

SMOKE CONTROL OPERATION Switch*
The switch is used to activate a smoke control device from a remote site. The indicator will be lit steady when the switch is pressed once, and turns off when the switch is pressed again.

[7] Main Operation Switch
FIRE VERIFICATION Switch
Activation of this switch will forcibly return the ISOLATION and EMERGENCY PA ISOLATION switches etc. into their normal state, and will send the Panel into General alarm. It also causes a fire verification signal to be transferred to an emergency PA system.

ZONE ALARM SILENCE Switch
Activation of this switch when a zone alarm is sounding, silences the zone alarm. The fire alarm resumes if the fire condition is continued after a predetermined period of time (2, 4, 6, 8 min.)

PANEL ALARM SILENCE Switch
Activation of this switch when Panel alarm is sounding, turns off the alarming sound and its flashing indicator. When a new alarm is triggered, then the alarming sound is generated again.

[8] Various Switches
TRANSFER ISOLATION Switches
These switches block a fire common signal transferred to other facility or facilities. While the signal isolation is in effect, the indicator is lit steady. However, a common fire alarm transfer signal from FF' terminal will never be blocked.
Each switch isolates the signal transfer to followings;
- Common facilities : GA1/2-GB1/2-GC1/2, GA3/4-GC3/4
- Emergency PA : EC-ESC
- Hydrant : H-H'
- Smoke controls

BATTERY TEST Switch
The battery can be tested. During the test, the indicator is lit steady, and the 7-segment display will indicate the voltage of the battery. If the voltage indication is approx. 20.4 or greater, the battery is normal.

SYSTEM TEST Switch
The fire alarm circuitry test, other alarm indication circuitry test, indicator test and battery test are automatically performed. During these tests, the indicator is lit steady.

AUTO RESET SWITCH
The switch is used during a fire test and maintenance. Activation of this switch will cause the alarm delay function to be canceled, and automatically resets the Panel and Detectors which has triggered the alarm.

RESET Switch
The switch is used to reset the panel from a fire condition, and to recover the smoke control devices. While being reset, the indicator is lit steady.

GENERAL ALARM Switch
The switch is used to trigger an alarm in all zones. Any zone alarm which has been triggered using this switch cannot be silenced by the Zone Alarm Silence switch. While it is in effect, the indicator is lit steady, and when the switch is pressed again, the indicator and the zone alarm are turned off.
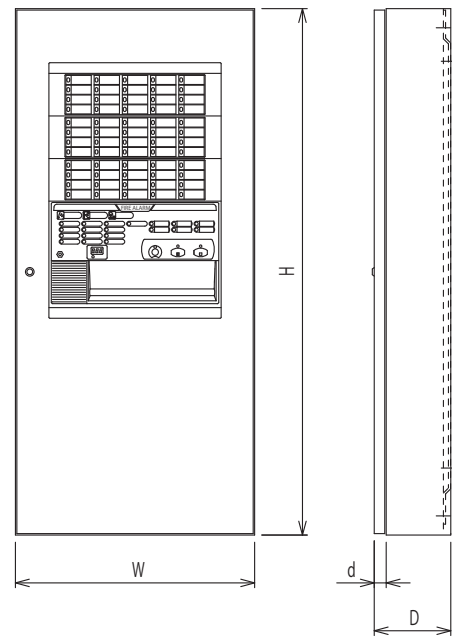
* Combined model (Smoke control type) only.
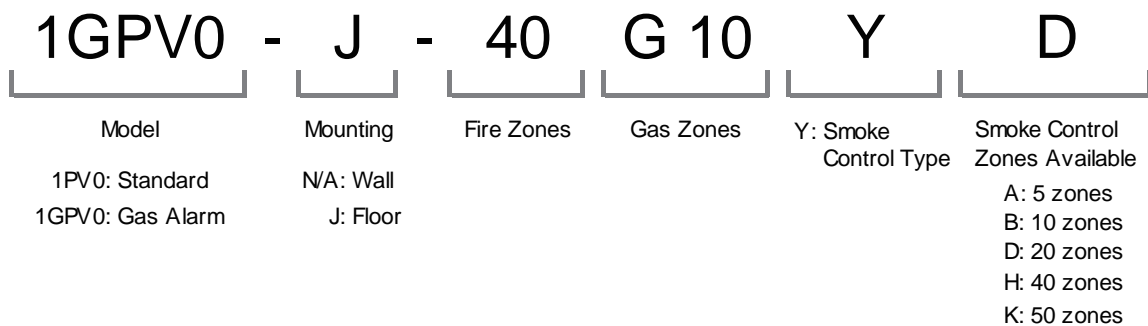** 1GPV0 model (Gas alarm type) only.

NITTAN
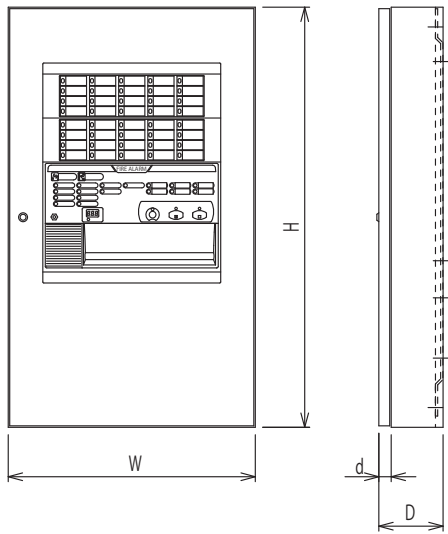
■ Dimensions

1PV0

1GPV0

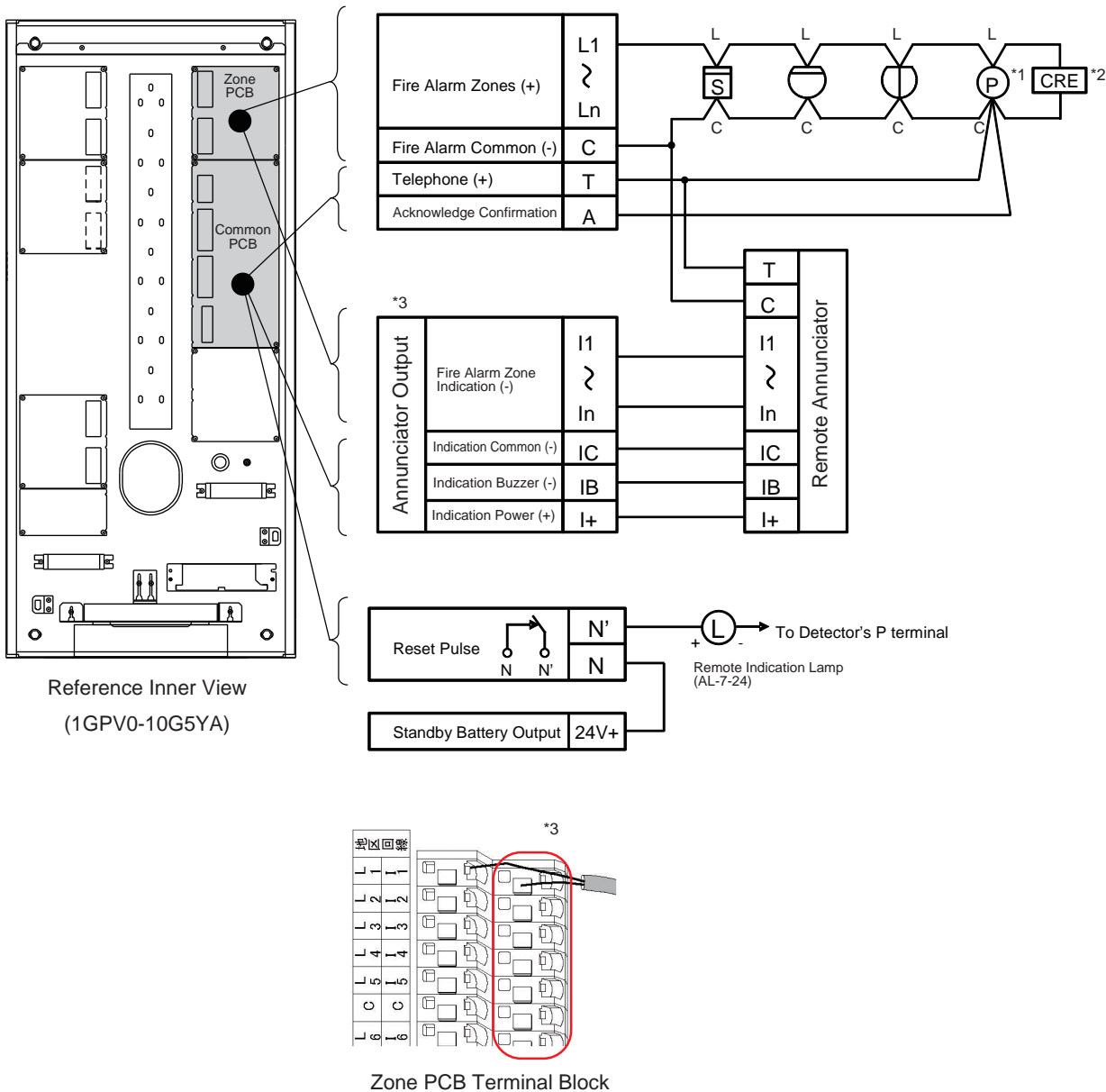| Model	Mount-ing	Fire Zones	Gas Zones	Dimensions (mm)
1PV0-10L/-10YA	Wall	10	N/A	W 500 H 850 D 130 d 25
1PV0-20L/-20YB		20	N/A	
1PV0-30L/-30YB		30	N/A	
1PV0-40L/-40YD		40	N/A	
1PV0-50L/-50YD		50	N/A	W 500 H 1100 D 130 d 25
1PV0-60L/-60YD		60	N/A	
1PV0-J-70L/-70YH	Floor	70	N/A	W 600 H 2000 D 350 d 40
1PV0-J-80L/-80YH		80	N/A	
1PV0-J-90L/-90YK		90	N/A	
1PV0-J-100L/-100YK		100	N/A	
1PV0-J-110L/-110YM		110	N/A	
1PV0-J-120L/-120YM		120	N/A	
1PV0-J-130L/-130YM		130	N/A	
1PV0-J-140L/-140YM		140	N/A	
1PV0-J-150L/-150YM		150	N/A	
1PV0-J-160L/-160YM		160	N/A	

Model	Mount-ing	Fire Zones	Gas Zones	Dimensions (mm)
1GPV0-10G5	Wall	10	5	W 500 H 850 D 130 d 25
1GPV0-20G5		20	5	
1GPV0-10G5YA		10	5	W 500 H 1100 D 130 d 25
1GPV0-20G5YB		20	5	
1GPV0-30G10/-30G10YB		30	10	
1GPV0-40G10/-40G10YD		40	10	
1GPV0-50G10		50	10	
1GPV0-50G10YD	Wall	50	10	W 500 H 1100 D 160 d 25
1GPV0-J-60G20/-60G20TD	Floor	60	20	W 500 H 2000 D 350 d 40
1GPV0-J-70G20/-70G20YH		70	20	
1GPV0-J-80G20/-80G20YH		80	20	
1GPV0-J-90G20/-90G20YK		90	20	
1GPV0-J-100G20/-100G20YK		100	20	

■ Model Name Nomenclature

1GPV0 - J - 40 G10 Y D

Model	Mounting	Fire Zones	Gas Zones	Y : Smoke Control Type	Smoke Control Zones Available
1PV0: Standard	N/A: Wall				A: 5 zones
1GPV0: Gas Alarm	J: Floor				B: 10 zones
					D: 20 zones
					H: 40 zones
					K: 50 zones

■ Typical Wiring Diagram 1

For Fire Detectors and Annunciator Panel

Reference Inner View
(1GPV0-10G5YA)

Zone PCB Terminal Block
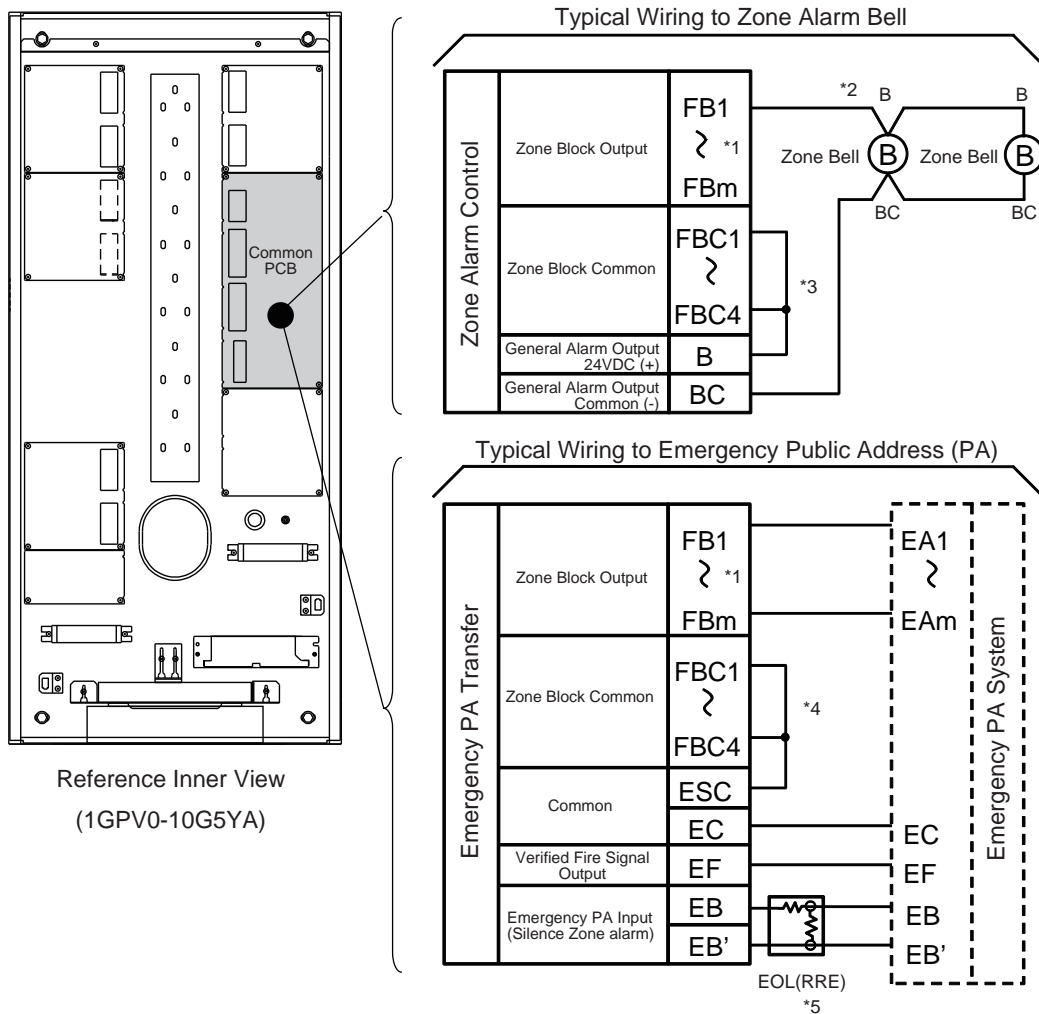
*1: P=Manual Alarm Station

*2: CRE is a dedicated end-of-line device. Resistors both 10kΩ and 20kΩ are available as well.

When using 10kΩ and 20kΩ resistors, DIP switch settings are required for each Zone PCB.

*3: Annunciator connecting terminals start from "I1" in the lower row of the terminal block on the zone PCB.

NITTAN

■ Typical Wiring Diagram 2

For Zone Alarm Bells and Emergency PA System

Reference Inner View

(1GPV0-10G5YA)

Common PCB

Typical Wiring to Zone Alarm Bell

Zone Alarm Control

Zone Block Output	FB1 ⌇ *1 FBm
Zone Block Common	FBC1 ⌇ FBC4
General Alarm Output 24VDC (+)	B
General Alarm Output Common (-)	BC

*2
B — Zone Bell (B) — B — Zone Bell (B)
BC — BC

*3

Typical Wiring to Emergency Public Address (PA)

Emergency PA Transfer

Zone Block Output	FB1 ⌇ *1 FBm
Zone Block Common	FBC1 ⌇ FBC4
Common	ESC EC
Verified Fire Signal Output	EF
Emergency PA Input (Silence Zone alarm)	EB EB'

*4

Emergency PA System

EA1 ⌇ EAm
EC
EF
EB EB'

EOL(RRE) *5

---

*1: Standard number of Zone block outputs (FB terminals) is 20, expandable to 40 and 60 with optional
Zone Bell expansion PCBs.
Each Zone Block (FB terminals) can individually output signals either to Zone alarm bells or Emergency PA.

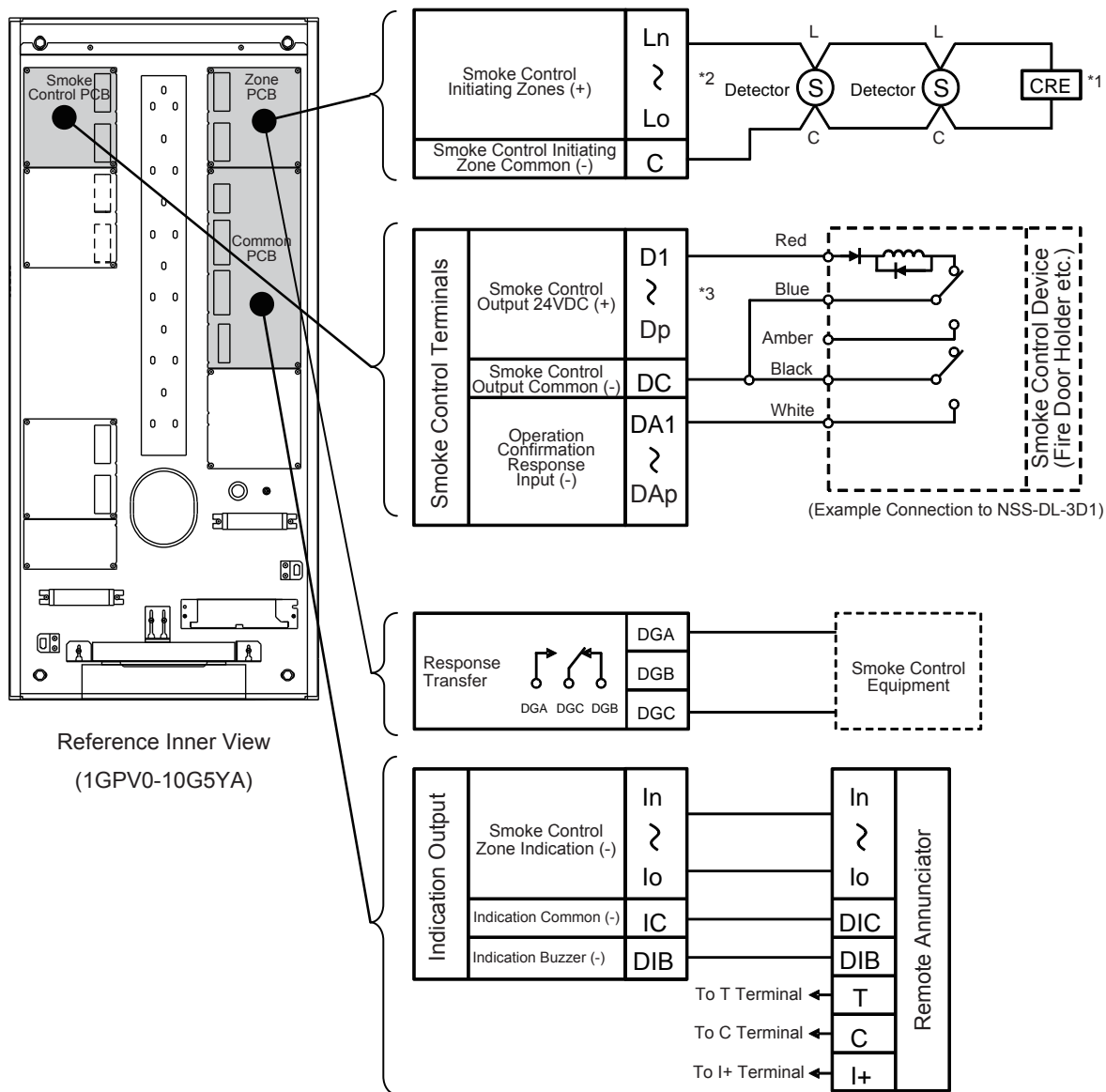*2: Use Motor Bells rated at 10mA@24VDC.

*3: When using FB terminals for Zone alarm bells, install a wire jumper between B and FBC terminals.

*4: When using FB terminals for Emergency PA, install a wire jumper between ESC and FBC terminals.

*5: Dedicated RRE end-of-line device is required, which is supplied with the control panel.

For Smoke Control Systems

Reference Inner View
(1GPV0-10G5YA)

Smoke Control Initiating Zones (+): Ln / Lo
Smoke Control Initiating Zone Common (-): C
*2 Detector (S) — Detector (S) — CRE *1

Smoke Control Terminals:
- Smoke Control Output 24VDC (+): D1 / Dp *3
- Smoke Control Output Common (-): DC
- Operation Confirmation Response Input (-): DA1 / DAp

Red, Blue, Amber, Black, White — Smoke Control Device (Fire Door Holder etc.)

(Example Connection to NSS-DL-3D1)

Response Transfer: DGA, DGC, DGB — DGA / DGB / DGC — Smoke Control Equipment

Indication Output:
- Smoke Control Zone Indication (-): In / Io
- Indication Common (-): IC
- Indication Buzzer (-): DIB

Remote Annunciator: In / Io / DIC / DIB / T / C / I+

To T Terminal
To C Terminal
To I+ Terminal

*1: CRE is a dedicated end-of-line device. Resistors both 10kΩ and 20kΩ are available as well.
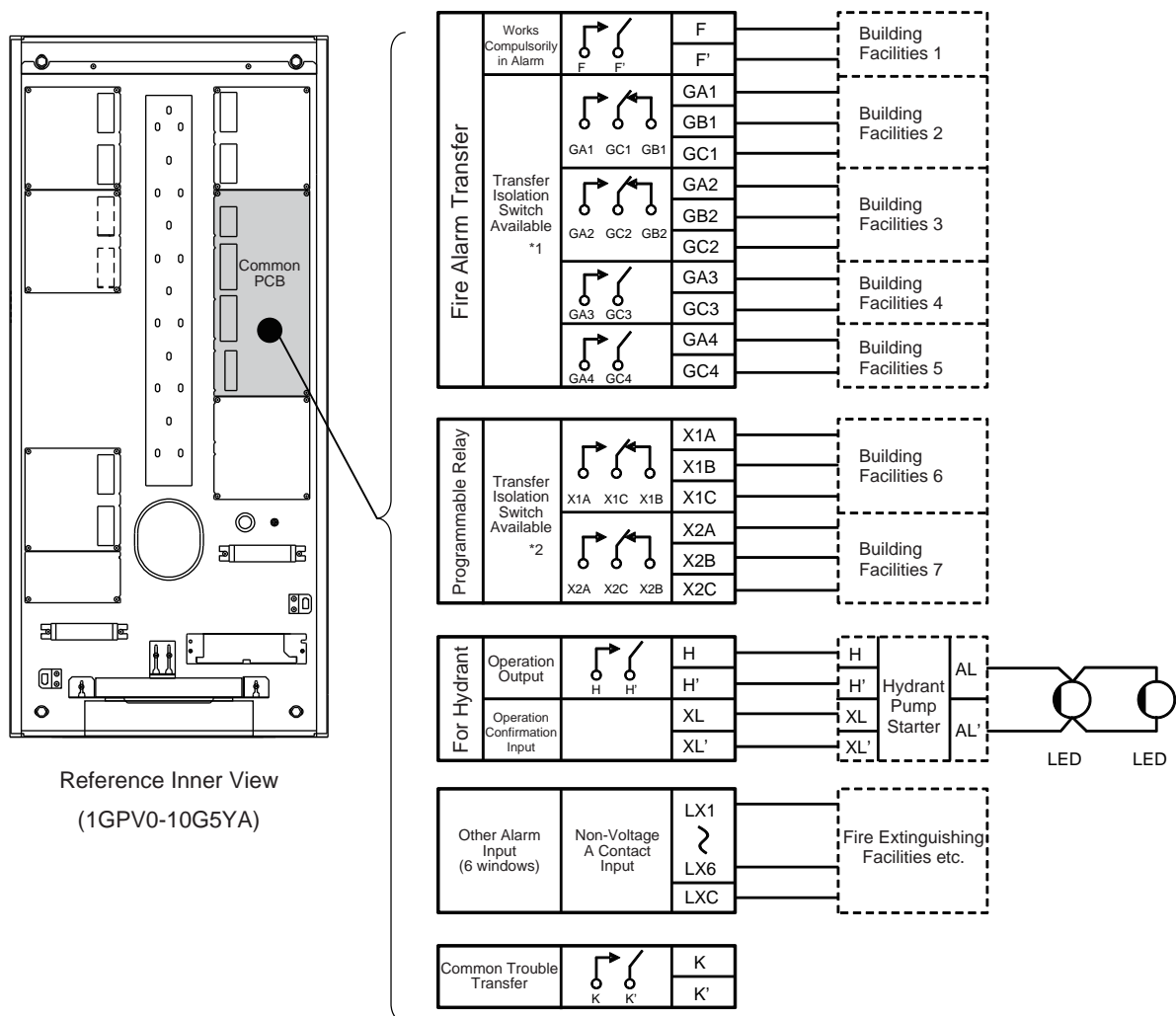When using 10kΩ and 20kΩ resistors, DIP switch settings are required for each Zone PCB.

*2: Connect Smoke control initiating devices to Zone PCBs.

*3: Connect Smoke control devices to Smoke Control PCBs.

■ Typical Wiring Diagram 4

For Building Facilities and Hydrant

Reference Inner View
(1GPV0-10G5YA)

*1:- Use the GA1-GA4 relays in order to transfer the fire alarm signal with isolation capability by switch activation.
- Signal transfer isolation is available by turning on the "ALARM TRANSFER ISOLATION" switch.
  (It is enabled by the DIP switch configuration on the board.)
- The panel always starts up in the transfer isolated state.

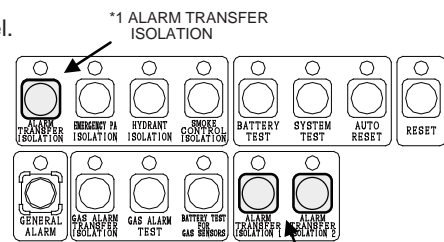*2: - Two Auxiliary Programmable Relays are available in standard model.
- The content of transfer output depends on the data configuration.
- Configuration Example:
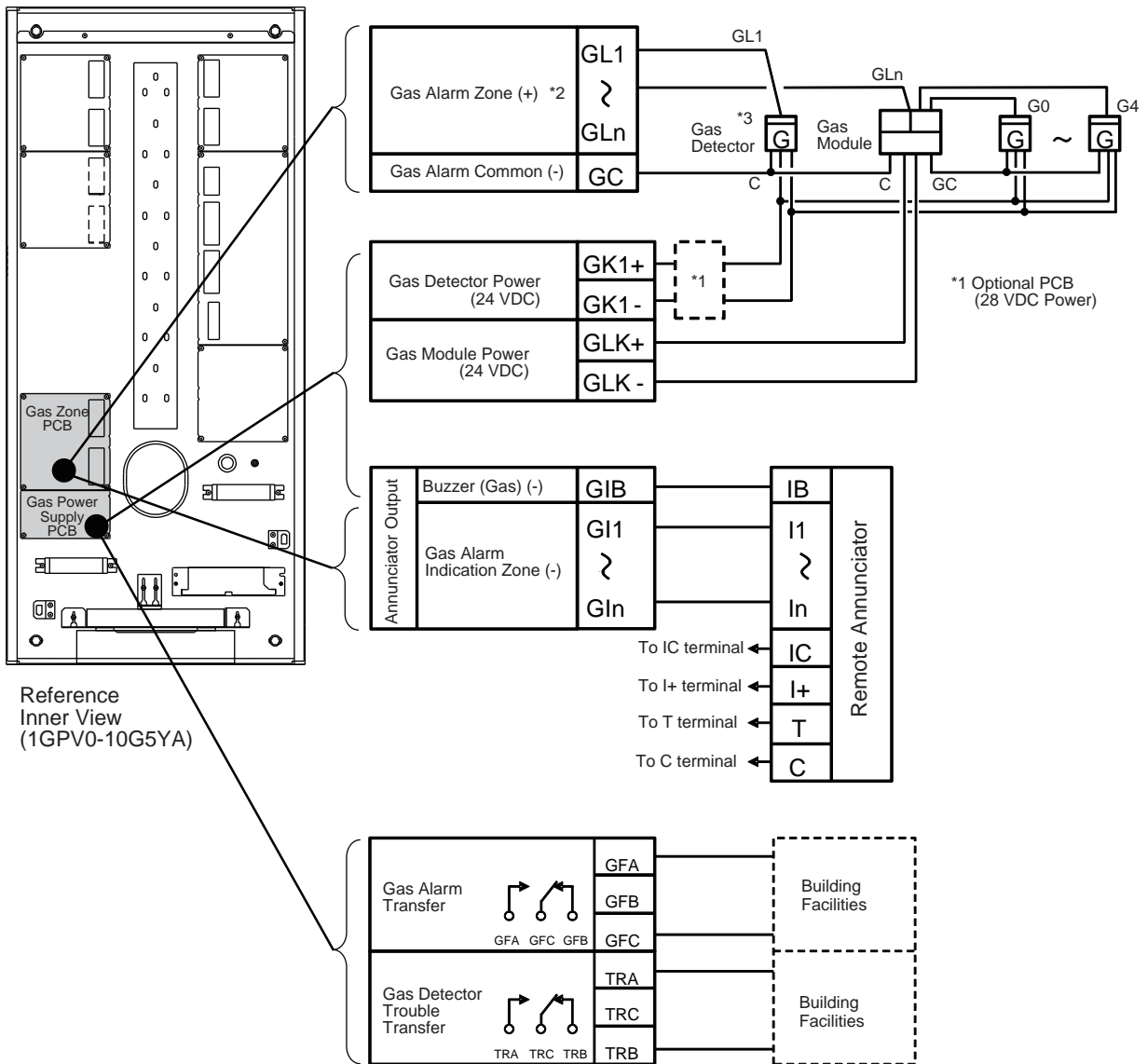 Activating "ALARM TRANSFER ISOLATION 1" switch isolates X1A, X1B, and X1C, and activating TRANSFER ISOLATION 2" switch isolates X2A, X2B and X2C etc.

■ Typical Wiring Diagram 5

For Gas Alarm Detectors

Reference
Inner View
(1GPV0-10G5YA)

*1: Use the optional PCB (PC-1292) to supply 28 VDC power to Gas detectors.

*2: Maximum number of Gas alarm zones is 20 for one FACP with Gas zone PCBs.

*3: Connectable number of Gas detectors;

   - When directly connect to FACP: 1 /zone

   - When through Gas module: 5 /Gas module (Detector with incomplete-combustion-detection function
     cannot be connected to a transmitter.)

   - Maximum number of Gas detectors:

   5 Gas zones: 10 detectors, 10 Gas zones: 20 detectors, 20 Gas zones: 30 detectors

.

NITTAN

■ Specifications

Specifications		1PV0	1GPV0
AC Power		100 VAC panel: 100 VAC ±10% 50/60 Hz 220 VAC panel: 220 VAC ±10% 50/60 Hz	
Battery Capacity for each model	Standby Battery	Sealed Type Ni-Cd battery	
	10L-40L	1.2 Ah	1.2 Ah and 0.6 Ah (for Gas alarm)
	50L-80L	1.65 Ah	1.65 Ah and 0.6 Ah (for Gas alarm)
	90L-160L	3.5 Ah	3.5 Ah and 0.6 Ah (for Gas alarm)
	10(G5)YA-40(G10)YD	1.65 Ah	1.65 Ah and 0.6 Ah (for Gas alarm)
	50(G10)YD-160(100G20)YM	3.5 Ah	3.5 Ah and 0.6 Ah (for Gas alarm)
Power Consumption		100 VAC panel: Max. 360 VA 220 VAC panel: Max. 220 VA	
Nominal Delay Time		60 sec. (smoke: 60 sec. heat: 20 sec.)	
Gas Alarm Delay Time		40 sec. (controllable for each zone)	
Dimensions		10L, 20L, 30L, 40L, 10YA, 20/30YB, 40YD, 10G5, 20G5: W500 x H 850 x D130 mm 50L, 60L, 50/60YD, 30G10-50G10, 10G5YA-40G10YD: W500 x H1100 x D130 mm 50G10YD: W500 x H1100 x D160 mm Floor mounting type, 70L-160L, Custom design panels: W600 x H2000 x D350 mm	
Display		7-segment 3-digit digital display	
LED Indicators		Fire alarm, Smoke control*, Gas alarm**, AC power, Circuit voltage, Manual alarm station, Alarm delay, False operation prevention, Telephone, Maintenance, Switch operation, Hydrant operation, Emergency PA, Imperfect combustion**, Gas alarm delay**, System trouble, Other alarm (6 windows), Zone alarm silence, Panel alarm silence, various SWITCH indicator lamps	
Functions		False operation prevention, Event history log, Faulty fuse identification, Cable break monitoring, Earth fault detection, Speaker disconnect monitoring, Automatic power shutdown	
External Line Resistance		50Ω and less	
End of Line Resister		CRE, 10 kΩ, 20 kΩ (The 10 kΩ and 20 kΩ resistors cannot be mixed on the same zone PCB.)	
Panel Alarm		Electronic sound, Automatic resound type	
External Alarm Transfer		Common Fire Alarm : F-F' GA1-GB1-GC1 GA2-GB2-GC2 GA3-GC3 GA4-GC4 Smoke Control ON/OFF* : DGA-DGB-DGC Gas Alarm** : GFA-GFB-GFC Gas Detector Trouble** : TRA-TRB-TRC Reset Pulse : N-N' Hydrant ON/OFF : H-H' Emergency PA : EF EC FBn Common Trouble : K-K' Standard Transfer : X1A-X1B-X1C X2A-X2B-X2C Optional Transfer PCB A : Non-Voltage Form-A contact x 40 (Max. 8 PCBs available) Optional Transfer PCB B : Non-Voltage Form-A contact x 24, Form-C contact x 8 (Max. 8 PCBs available)	
Output Power	Bell (Zone Alarm)	10L-15L: 0.3 A 20L-70L: 0.45 A 80L and more: 0.6 A	
	Indication Lamp	1 A	
	Smoke Control*	1 A	
	Gas Detector**	1 A (including the power for relay modules for Gas detector)	
Connectable Annunciator Panel		1 unit (Model PSH, expandable up to 10 units)	
Connectable Detectors		Standard type Smoke detector: Max. 40 /zone, Total 20 x zones Heat detector: As required Thermistor type Heat detector: Max. 24 /zone, Total 12 x zones Detectors with test function: Max. 20 /zone, Total 10 x zones (The Max. number of detectors per zone is cut in half if CRE+20 kΩ configuration is selected.)	
Operating Temperature		0°C to 40°C	
Primary Materials		Main Body: Wall Mounting Type: SPCC or SECC t1.6 Door: SPCC t1.2 Floor Mounting Type: SPCC or SECC t2.0 Operation Panel: ACS resin	
Body Color		JPMA Color Code A22-90B Semi-gloss (off-white)	

*   Combined model (Smoke control type) including Y infix in its model name only.
** 1GPV0 model (Gas alarm type) only.