



*Yun Yang Fire Safety Equipment Co.,Ltd.*

*YFR-1*

*Addressable Fire Alarm Control Panel*

## **Operation Manual**

*2017.06.15 REV.1*

*71114-R01-E*

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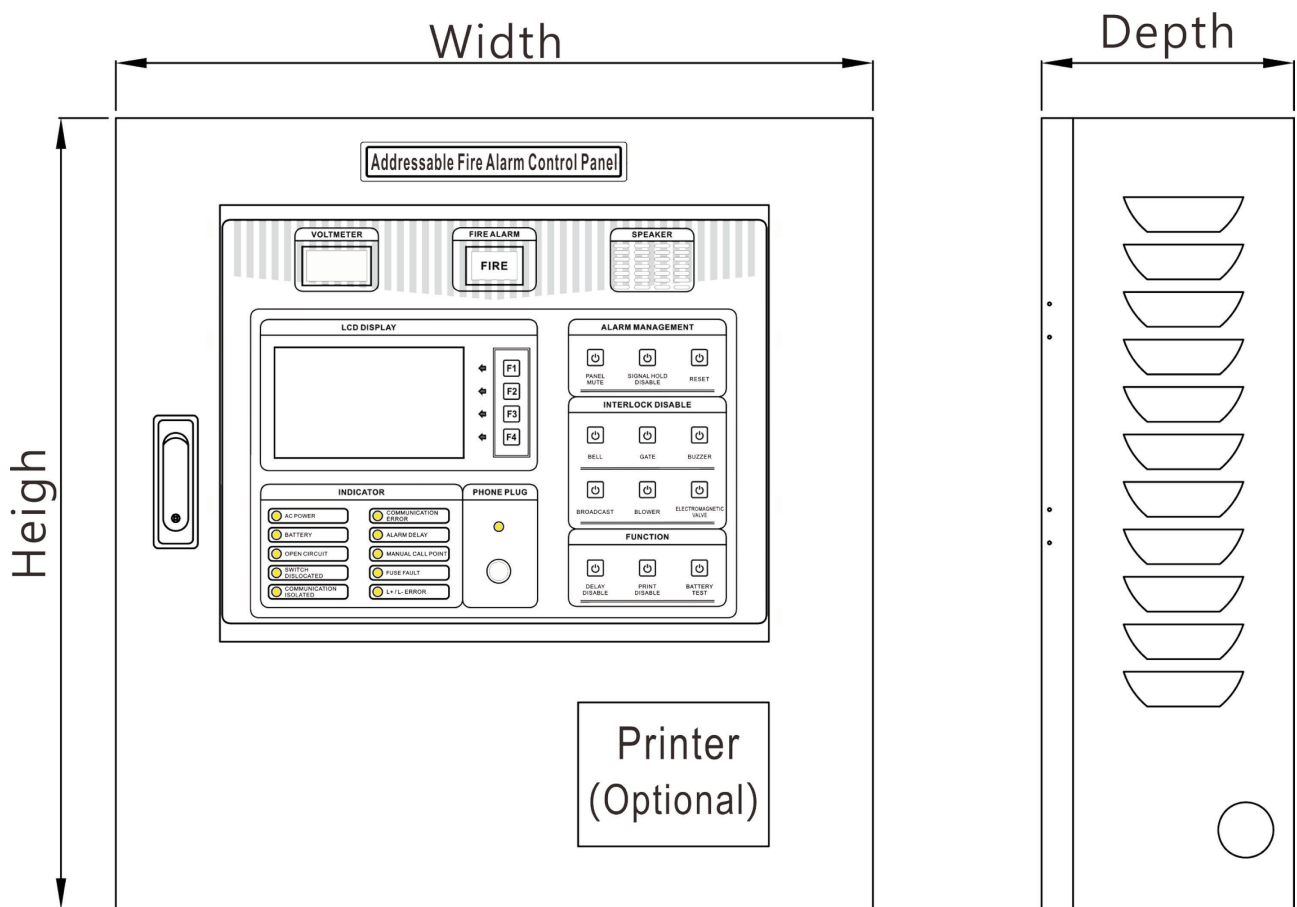
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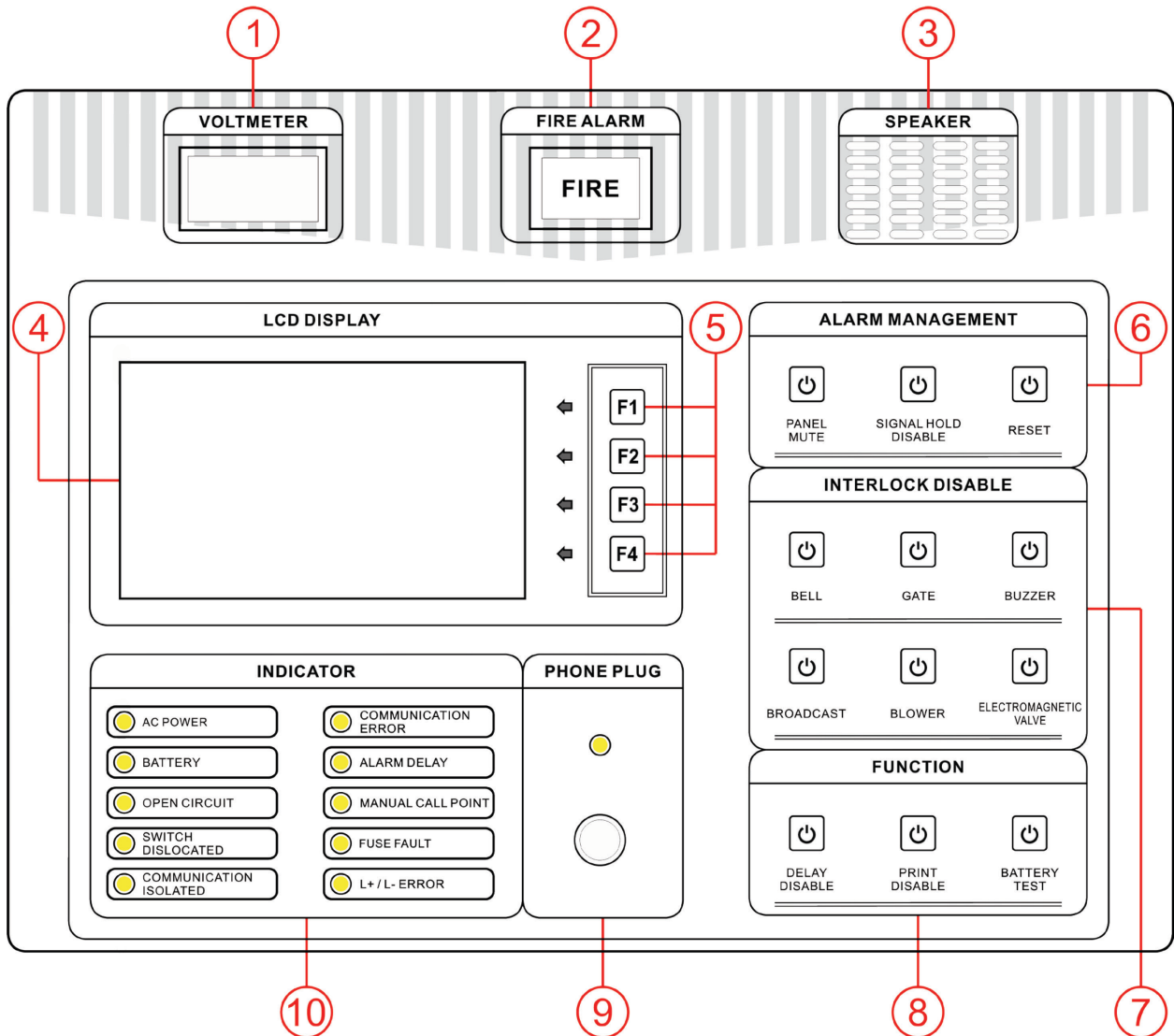
## External Dimensions Drawing



Addresses / Loops	Dimensions	Type	H mm*W mm*D mm
150 / 1CH		Mounting	450 * 480 * 160
256 / 1CH		Mounting	450 * 480 * 160
512 / 2CH		Mounting	450 * 480 * 160
768 / 3CH		Mounting	500 * 480 * 160
1024 / 4CH		Mounting	500 * 480 * 160
1280 / 5CH		Mounting	840 * 480 * 180
1536 / 6CH		Mounting	840 * 480 * 180
1792 / 7CH		Mounting	1020 * 480 * 180
2048 / 8CH		Mounting	1020 * 480 * 180

 Select casing dimensions based on on-site condition. Please confirm with us your needs.

## A. Name of Main Panel Sections



1. Voltage Indicator: indicates voltage of the main power source.
2. Fire Indicator: indicates fire signal on the main panel.
3. Audio Device: main panel audio.
4. Alarm Information Section: Chinese LCD information display.
5. Function Switch: LCD display function operation switch.
6. Alarm Process: operating section for subsequent alarm operation.
7. Cancel Relay: control section for main panel peripheral devices.
8. Function Selection: main panel function selection switch.
9. Zone Telephone: zone telephone inlet.
10. Status Indicator Section: main indicator section of main panel status.

## B. Description of Indicator Lights in the Status Section

### 1. AC Power:

The light is lit when the main system is using external AC power as the main power source; and the light is off when AC power is removed. (Allowable voltage range is plus and minus 10% of nominal.)

### 2. Standby Power:

This light is lit when AC power is removed and the standby power is used.

### 3. Off-line Indicator:

This light flashes when any external locator (repeater) loop in the system is off-line. (L,C disconnection)

### 4. Switch Caution:

This light flashes when the control switch on the operating panel is not positioned normally.

### 5. Communication Isolation:

This light flashes when the isolation switch is not positioned in the ON position or when isolation is not set via the operating panel in the system communication module.

### 6. Abnormal Connection:

This light flashes when abnormality is detected in the main signal transmission line between the main panel and the locator (repeater), address detector, or address transmitter; or in the transmission line between the main panel and system communication modules.

**7. Accumulation Indicator:**

This light flashes when the address detector or the locator (repeater) loop is accumulating.

**8. Fire Alarm Transmitter:**

This light flashes when any one of the external fire alarm transmitters is pressed.

**9. Fuse Malfunction:**

This light flashes when a fuse is burnt out in the main system power panel or system communication modules. (A red LED is located next to each fuse. Lit LED indicates a burnt fuse.)

**10. Ground Abnormality:**

This light flashes when the resistance between the detector L.C external line and ground is less than  $2M\Omega$ .

**11. Zone Telephone & Telephone Inlet:**

This light flashes to indicate that the zone telephone will sound when the zone telephone is plugged into any one of the telephone inlets in the fire alarm operation panel.

## C. Description of Switches in the Alarm Process

### Section

#### 1. Main Audio Switch:

Innate alarm sounds of the main panel include fire alarm sound, disconnection sound, or synthesized vocal. When the main panel receives a disconnection or fire alarm signal, the main audio will sound; and when this switch is pressed, main audio sounding is paused and the not-localized indicator light above the switch flashes (subsequent re-sounding mode). Pressing this switch longer than 3 seconds permanently mutes the main audio and the dislocation indicator light above the switch lights.

#### 2. Auto Restore Switch:

Pressing this switch sets all relays to non-self preservation mode. The indicator light above the switch and the dislocation indicator will flash.

#### 3. Complete Reset Switch:

Pressing this switch sets all main panel statuses to reset mode.



## D. Description of Switches in the Cancel Relay Section

### 1. Local Audio Switch:

When this switch is pressed during fire alarm loop activation and local alarm sounding, local alarm sounding is paused and the dislocation indicator light above the switch flashes.

### 2. Damper Switch:

When this switch is pressed during exhaust loop activation, damper relay output is paused and the dislocation indicator light above the switch flashes.

### 3. Sounder Switch:

When this switch is pressed during sprinkler/foam loop activation and sounder sounding, sounder sounding is paused and the dislocation indicator light above the switch flashes.

### 4. Broadcast Relay Switch

When this switch is pressed during fire alarm loop activation and broadcast relay output, broadcast relay output is paused and the dislocation indicator light above the switch flashes.

### 5. Ventilation Fan Switch:

When this switch is pressed during exhaust loop activation and ventilation fan relay output, ventilation fan relay output is paused and the dislocation indicator light above the switch flashes.

### 6. Solenoid Valve Switch:

When this switch is pressed during sprinkler/foam loop activation and solenoid valve relay output, solenoid valve relay output is paused and the dislocation indicator light above the switch flashes.

## E. Description of Switches in the Function

### Selection Section

#### 1. Disable Accumulation Switch:

When this switch is pressed, all loop accumulations are disabled, all loops are set in immediate activation mode, and the dislocation light above the switch flashes. Pressing this switch again restores original accumulation.

#### 2. Cancel Printing Switch:

When this switch is pressed, the printer is set to idle mode and the dislocation light above the switch flashes. Pressing this switch again restores the printing mode.

#### 3. Battery Test Switch:

When this switch is pressed, the backup battery can be tested under AC power mode. Voltage is indicated by a voltage meter and is used to examine the status of the backup power.

## F. Appearance, Dimensions, and Specifications

### Exterior Dimensions

Casing type	Mounting								
Addresses / Loops	150/1CH	256/1CH	512/2CH	768/3CH	1024/4CH	1280/5CH	1536/6CH	1792/7CH	2048/8CH
H (mm)	450			500		840		1020	
W (mm)	480			480		480		480	
D (mm)	160			160		180		180	

### Specifications Table

Item	Specification								
Main Power Supply	AC110V 50/60Hz · AC220V 50/60Hz								
No. of Addresses / No. of Units	150/1CH	256/1CH	512/2CH	768/3CH	1024/4CH	1280/5CH	1536/6CH	1792/7CH	2048/8CH
Standby Battery	DC24V								
Transmission Distance	Dual-line type (branched wiring possible) 1.5KM								
Main/Sub-panel Communication	RS-485 transmission distance 800M, Maximum 3KM with network signal adaptor and 40KM with fiber optics								
Loop Voltage	Load power/ Indicator light/ Zone telephone: DC24V SLC power source: AC32V								
Power Consumption	Main control panel monitoring (max): 500mA Communication module (each system) monitoring (max): 280mA								
Transmission Method	Selective/Sequential								
Broadcast Output Method	Relay output: interlock relay board x 13 sets for a maximum of 2000 contacts (relay board = 40 contacts (standard), 160 contacts (expansion))								
Main Audio	Synthesized sound, vocal, or alarm sound (over 90 dB)								
Temperature Range	0~40°C								
Cabinet Material	Powder coating steel								

## G. Maintenance Essentials

1. When the control panel is in standby monitoring mode: AC power indicator light is lit, voltage monitor reads DC24V (within the green operating range), backlight power-saving function of the LCD is on, no indicator lights are lit, and the external operation panel light is lit.
2. In the event of power outage, the main panel automatically switches to standby power (battery). AC power indicator light is off and the standby power indicator light is lit. All other parameters are identical with that during AC power monitoring (indicator light is off and flashes when a fire alarm is activated).
3. At least two annual maintenances are suggested every year to ensure the proper functioning of the devices.
4. Please promptly service and repair devices when malfunctioning is noted or when the outer equipment becomes damaged to avoid compromising normal operations or resulting in subsequent damages.
5. Please contract professional organization(s) or relevant qualified maintenance personnel to test the devices. Tests should be recorded and reported to relevant authorities for reference to guarantee the safety of the public. The below test items are for reference:
  - ① Power: Whether the switch between AC power and standby power is normal and whether the standby battery charges normally.

② Fire alarm/disconnection test:

Under normal operation, the panel automatically detects the main panel. When abnormality is detected, please promptly inspect and repair the device(s). Exterior loop test should be conducted using the actual loop line on-site to ensure that monitoring is normal at each loop point.

③ Inspect whether the indicator lights and display are normal on the operation panel.

④ Inspect whether the switch, visual, and audio indicators on the operation panel are normal.

⑤ Reference history record listings to keep track of abnormalities.

⑥ Test exterior relay devices.

6. Maintain the surrounding environment of devices and avoid locations with high humidity, high temperature, or unstable power or voltage (excessive voltage) to guarantee the working life of the electronic parts.

7. Maintain the cleanliness of the LCD window at all times.

## H. Easy Troubleshooting

### 1. Power indicator light is off:

#### (1) AC power indicator is off:

Check whether AC power is supplying power normally, whether the AC power switch is turned to (ON) on the main power board, or whether the AC fuse on the main power board is burnt out.

#### (2) Standby power indicator is off:

Check whether standby power switch is turned on (ON) on the main power board, whether the power fuse is burnt out, and whether the standby power (battery) is charged.

### 2. Disconnection/Fire is displayed on the LCD:

Please first check the corresponding external locator (repeater) and then inspect the end of line detector and the corresponding wiring.

### 3. Switch dislocation indicator is flashing:

Press the ON/OFF switch again to restore the specific output function.

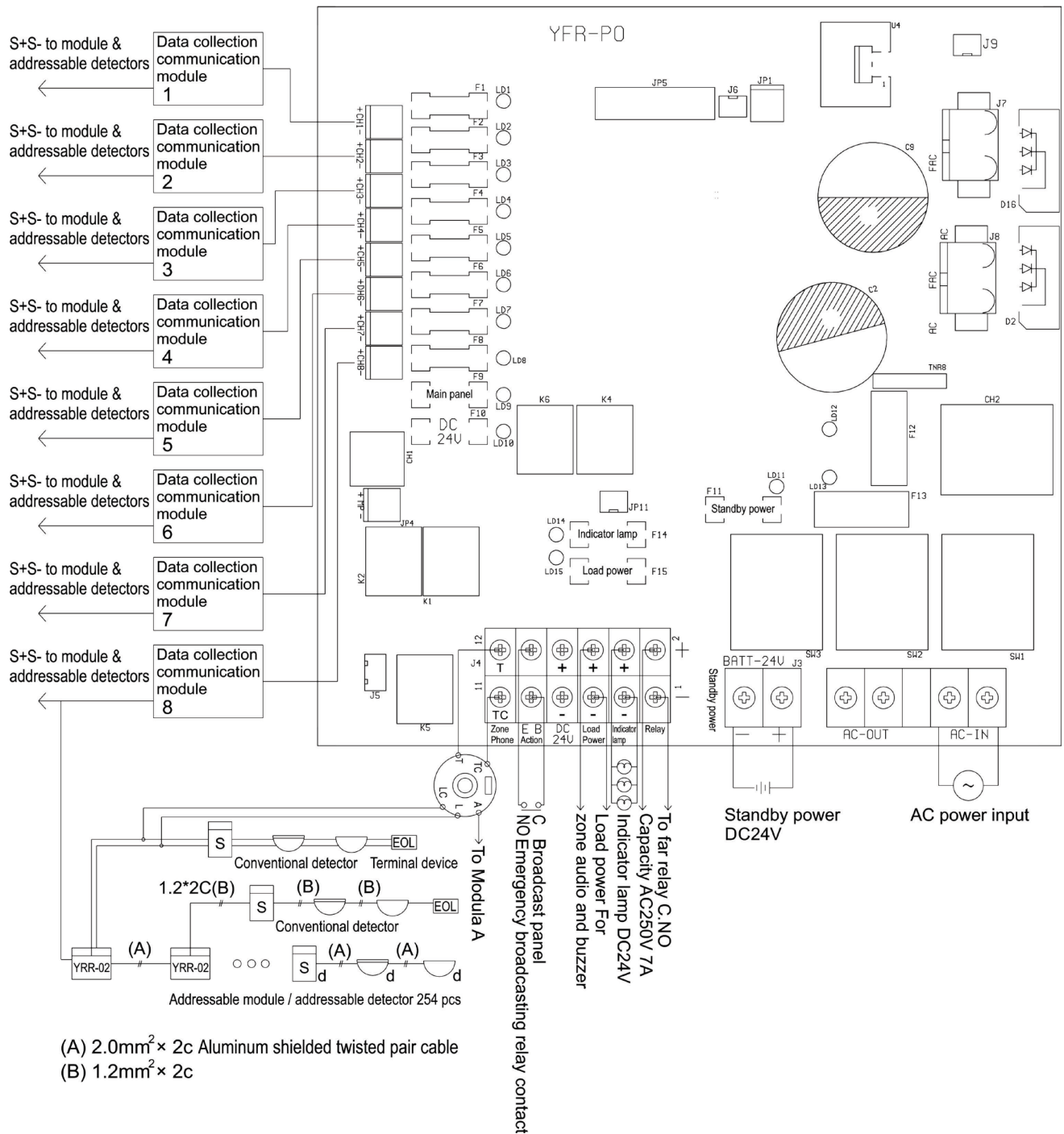
### 4. Abnormal communication indicator:

Check the LCD communication history and proceed on-site to check whether the communication wiring has been damaged or whether the locator (repeater) has loosened or fallen off. If definite cause cannot be determined after inspection, please contact the distributor or the manufacturer.

## I. Installation Cautions

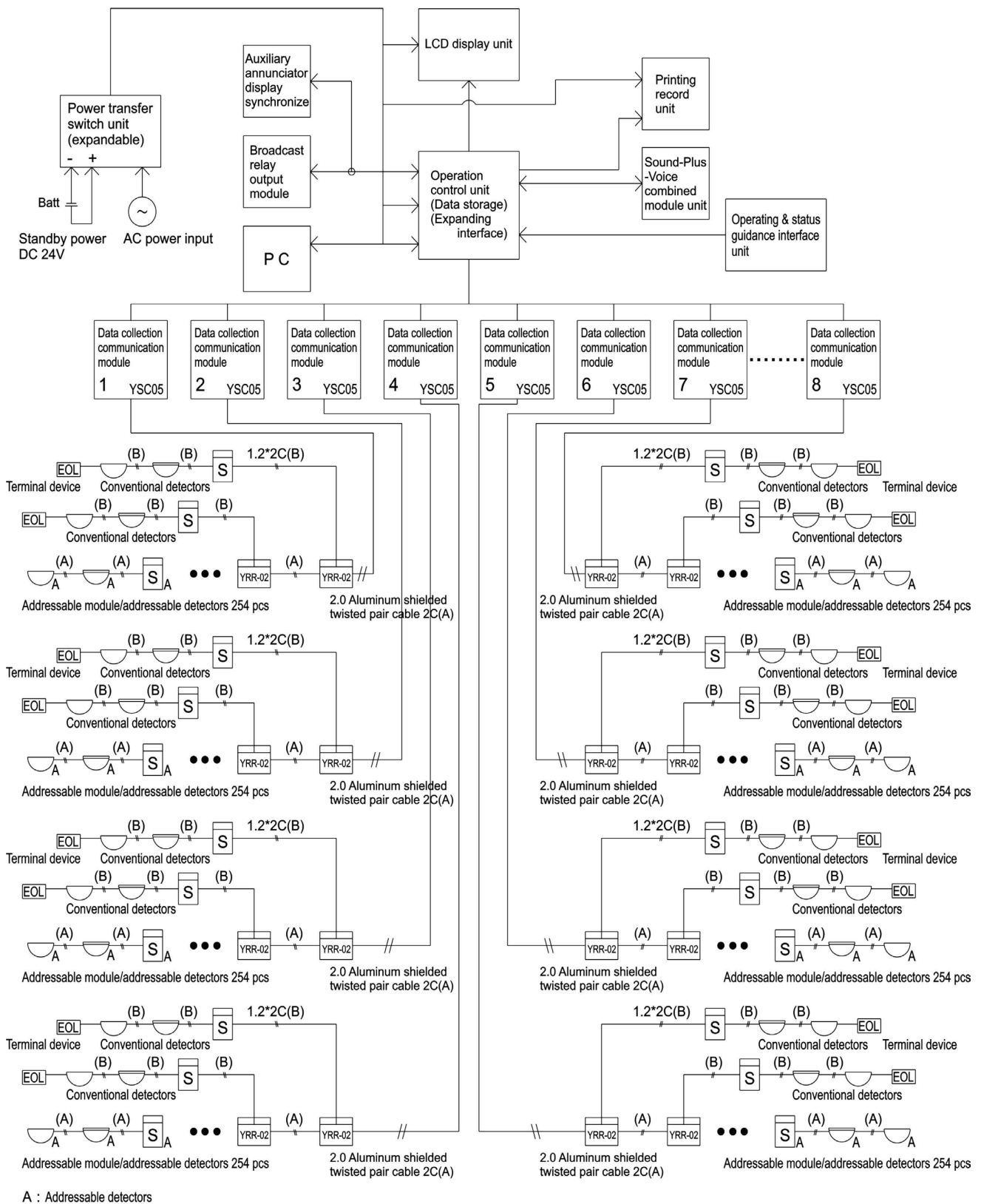
1. Please make sure that the exterior wires correspond to the labeled contents prior to installation. Ground resistance must be greater than  $2M\Omega$ .
2. Please make sure that the voltage is normal prior to turning on AC power.
3. Please turn off the battery power when loading or unloading the battery. Confirm the polarity and install the battery correctly into the battery terminal.
4. Make sure that the device is grounded.
5. During test, after the AC power switch is turned off (OFF), please also turn off the standby power to prevent excessive power discharge of the standby battery which may result in lack of power during the next test (need to await recharge).
6. Exterior load capacity limit (each):
  - ① Indicator light (LED): 20mA
  - ② Local alarm: 30mA
  - ③ Sounder: 0.5A
  - ④ Exhaust / supply air damper 0.5A

# J. External Wiring Diagram (Main Panel)





## K. Structural Block Diagram (Main Panel)



## L. Battery Calculation Formula

In accordance with BSMI CNS 11039\_2. 10. 3

C : Battery Capacity (AH)      L : Coefficient of Variation (0.8)

$I_1$  : Main Panel Monitoring Current       $I_2$  : Loop Two Activation Current  
(Other Loops on Monitoring)

$K_1$  and  $K_2$ : Capacity/Time Coefficient

( Nickel-cadmium Type:  $K_1=1.8$     $K_2=1/3$       Lead-acid Type:  $K_1=2.3$   
 $K_2=0.65$  )

Main Panel Electricity Requirement: DC 24V 500mA (  $I_1$  )

Communication (Loop) Monitoring: DC 24V 280mA ( Each System )

Activation Requirement (Each Loop): DC 24V 43mA

( 1 ) After 60 minutes of monitoring, two loops are activated for 10 minutes  
(8 systems):

$$\begin{aligned}
 C &= 1 / L \left[ K_1 I_1 + K_2 ( I_2 - I_1 ) \right] \\
 &= 1 / 0.8 \times \left[ 2.3 \times 0.5 + 0.65 \times [ ( 0.043 \times 2 + 8 \times 0.28 ) - 0.5 ] \right] \\
 &= 1.25 \times \left[ 1.15 + 0.65 \times 1.826 \right] \\
 &= 1.25 \times 2.34 \\
 &= 2.93
 \end{aligned}$$

( 2 ) 60 minutes of monitoring:

$$\begin{aligned}
 C &= I_1 + \text{Number of Systems} \times \text{System Monitoring Current} \\
 &= 0.5 + ( 8 \times 0.28 ) \\
 &= 2.74
 \end{aligned}$$

$$( 1 ) + ( 2 ) = 2.93 + 2.74 = 5.67 \quad ( \text{AH} )$$

## M. Battery Requirement Estimation Formula

No. of Units \ Item	Capacity Requirement	Installed Battery Specification	Battery Catalog Number
1	2.11 AH	DC24V 2.3 AH * 1	NP2.3 – 6
2	2.62 AH	DC24V 4 AH * 1	NP4 - 6 ( PL4-6 )
3	3.13 AH	DC24V 4 AH * 1	NP4 - 6 ( PL4-6 )
4	3.63 AH	DC24V 4 AH * 1	NP4 - 6 ( PL4-6 )
5	4.14 AH	DC24V 7.2 AH * 1	NP7.2 - 12 ( PL7-12 ) ( or NP7-12 )
6	4.64 AH	DC24V 7.2 AH * 1	NP7.2 - 12 ( PL7-12 ) ( or NP7-12 )
7	5.15 AH	DC24V 7.2 AH * 1	NP7.2 - 12 ( PL7-12 ) ( or NP7-12 )
8	5.67 AH	DC24V 7.2 AH * 1	NP7.2 - 12 ( PL7-12 ) ( or NP7-12 )