



## Installation Instructions

This is a quick reference guide for the FireSense Conventional Zone Module (FCM). For more detailed system information, please refer to the “Installation & Operation Manual” Doc. # 03.050.INST-B. Please note this instruction will not address the specific programming or operational procedures.

### 1. GENERAL DESCRIPTION

This instruction applies to the FCM modules that are connected to the proprietary RS-485 network. The FCM module provides five Class A initiating loops or ten Class B initiating loops. The FCM version supervises the each Apollo smoke detectors – S60 and S65 type. Up to 6 FCMs can be connected to a single panel. The FCM module maybe mounted in the Main Cabinet as local or in a Separated Cabinet as remote. Maximum five FRC (FireSense Relay Module) may be connected to the remote FCM module via its connectors. Depending of the FRC modules number connected to FCM, there are three options of separated Cabinets for the remote FCM module mounting. All separated cabinets are produced by SAE Company ([www.1sae.com](http://www.1sae.com)).

### 2. FCM SPECIFICATIONS (Class B)

Parameter	Condition	Nominal	Unit
Standby loop voltage		26.5	V
Loop Short current		40	mA
End-of-Line Resistor		4.7	kOhm
Total Line Resistance per zone		100	Ohm
Zone Supervision Current		5	mA
Minimum Loop Standby impedance <sup>3</sup>		1800	Ohm
Maximum Loop Alarm impedance <sup>3</sup>		800	Ohm
Power voltage		24	V
Standby Current Draw	The end of line resistors are connected	110	mA
Additional Alarm current Draw per each Zone	@ Detector impedance 500 Ohm	21	mA
Maximum Detectors per Zone	Worst case <sup>1,2</sup>	24	

1. To one Zone are connected the 24 S60 Detectors, which have maximum Standby current 0.205 mA.
2. The Max. Detectors quantity per zone is defined by equation  $N_{max} = I_{max} / I_d$ , where  $I_{max} = 5mA$ ,  $I_d$  –standby current of the supervised Detectors by specific zone.
3. The Minimum Loop Standby impedance and Maximum Loop Alarm impedance do not include the EOL resistor impedance.



### 3 FCM SPECIFICATIONS (Class A)

Parameter	Condition	Nominal	Unit
Standby loop voltage		27.5	V
Loop Short current		85	mA
End-of-Line Resistor		2.35 <sup>1</sup>	kOhm
Total Line Resistance per zone		100	Ohm
Zone Supervision Current		4.2	mA
Minimum Loop Standby impedance <sup>4</sup>		4	kOhm
Maximum Loop Alarm impedance <sup>4</sup>		2	kOhm
Power voltage		24	V
Standby Current Draw	With connected end of line resistors	75	mA
Additional Alarm current Draw per each Zone	@ Detector impedance 500 Ohm	36	mA
Maximum Detectors per Zone	Worst case <sup>2,3</sup>	20	

1. Two EOL parallel resistors 4.7 K should be connected to anyone detector per each zone.
2. To one Zone maybe connected up to 20 S60 Detectors, which consume maximum Standby current 0.205 mA.
3. The Max. Detectors quantity per zone is defined by equation  $N_{max} = I_{max} / I_d$ , where  $I_{max} = 4 \text{ mA}$ ,  $I_d$  –standby current of the supervised Detectors by specific zone.
4. The Minimum Loop Standby impedance and Maximum Loop Alarm impedance do not include the EOL resistor impedance.

### 4 FCM installing in Main Cabinet

**Hardware Required:**

- One FCM module
- Four Stand-Offs (30 mm pin-socket M3)
- EGND wire
- EGND wire installation set (M3x10 screw, M3 nut, three M3 washers, M3 spring washer)

The FCM module is mounted in the Main Cabinet on the upper layer (Fig.1). Unscrew the plastic screws of the lower FLC module and secure it by four standoffs. Connect the EGND wire to the module by its installation set. Place the module on stand-offs and tie it to stand-offs by plastic screws. Connect the EGND wire to the closer grounding bolt. For FCM wiring details in the Main Cabinet refer to Fig.2-7 of the “Installation & Operation Manual” Doc. # 03.050.INST-B 1.

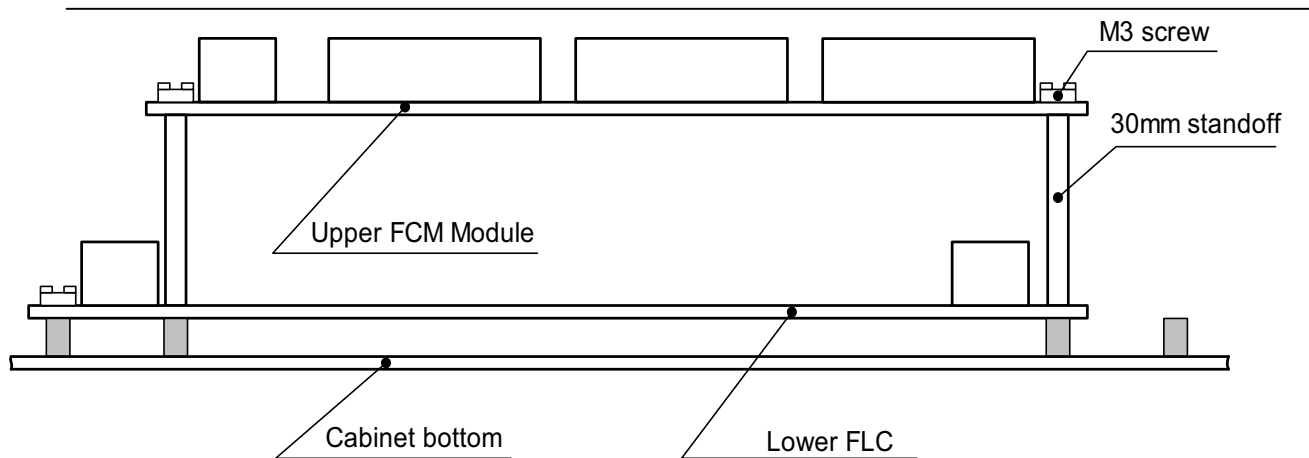


Fig.1. Optional conventional (FCM) module mounting in the Main Cabinet (side view).

## 5 FCM installing in Separated Cabinet

### Hardware Required:

- ? One FCM module
- ? Four plastic screws
- ? EGND wire
- ? EGND wire installation set (M3x10 screw, M3 nut, three M3 washers, M3 spring washer)
- ? Separated Cabinet – AC2 Model YD9025 (SAE Company [www.1sae.com](http://www.1sae.com))

The FCM module is mounted in the Separated Cabinet on back plate (Fig. 2). Connect EGND wire to module by its installation set. Place module on stand-offs and tie it to stand-offs by plastic screws. Connect the EGND wire terminal to the grounding bolt.

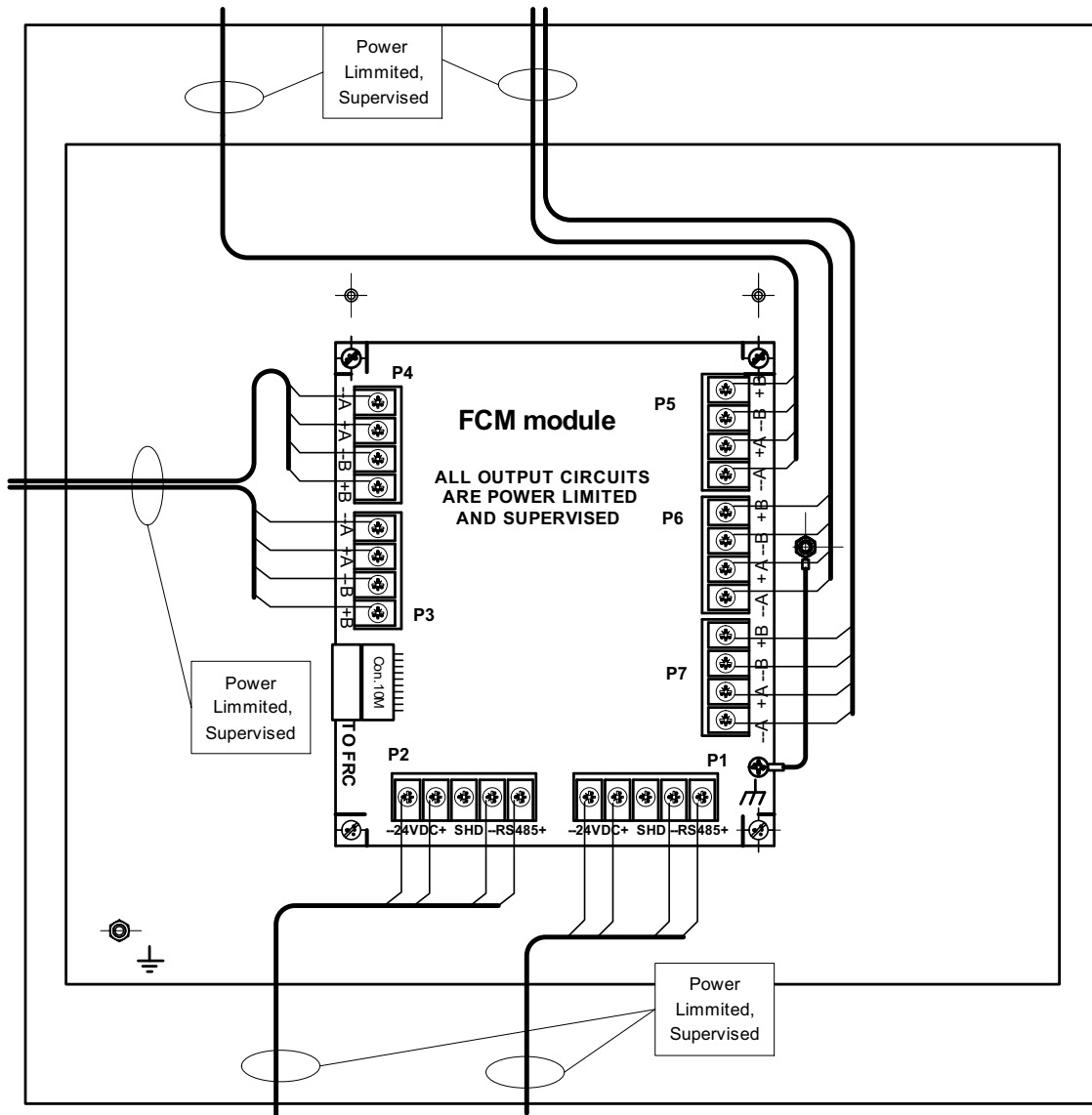


Fig. 2. FCM installation in the Separated Cabinet AC2 (model YD9025)  
**6 FCM and FRC installing in Separated Cabinet**

The FCM module may be mounted in the Separated Cabinet with FRC modules. The module is mounted in one of two types of Separated Cabinet, depending on the FRC modules quantity, which are connected to the remote FCM module. The following models of Separate Cabinets for the FCM installation with FRC modules are produced by SAE Company ([www.1sae.com](http://www.1sae.com)):

- AC2 Model YD9026– for one FCM module with up to three FRC modules
- ACE Model YD9027 – for one FCM module with up to five FRC modules.

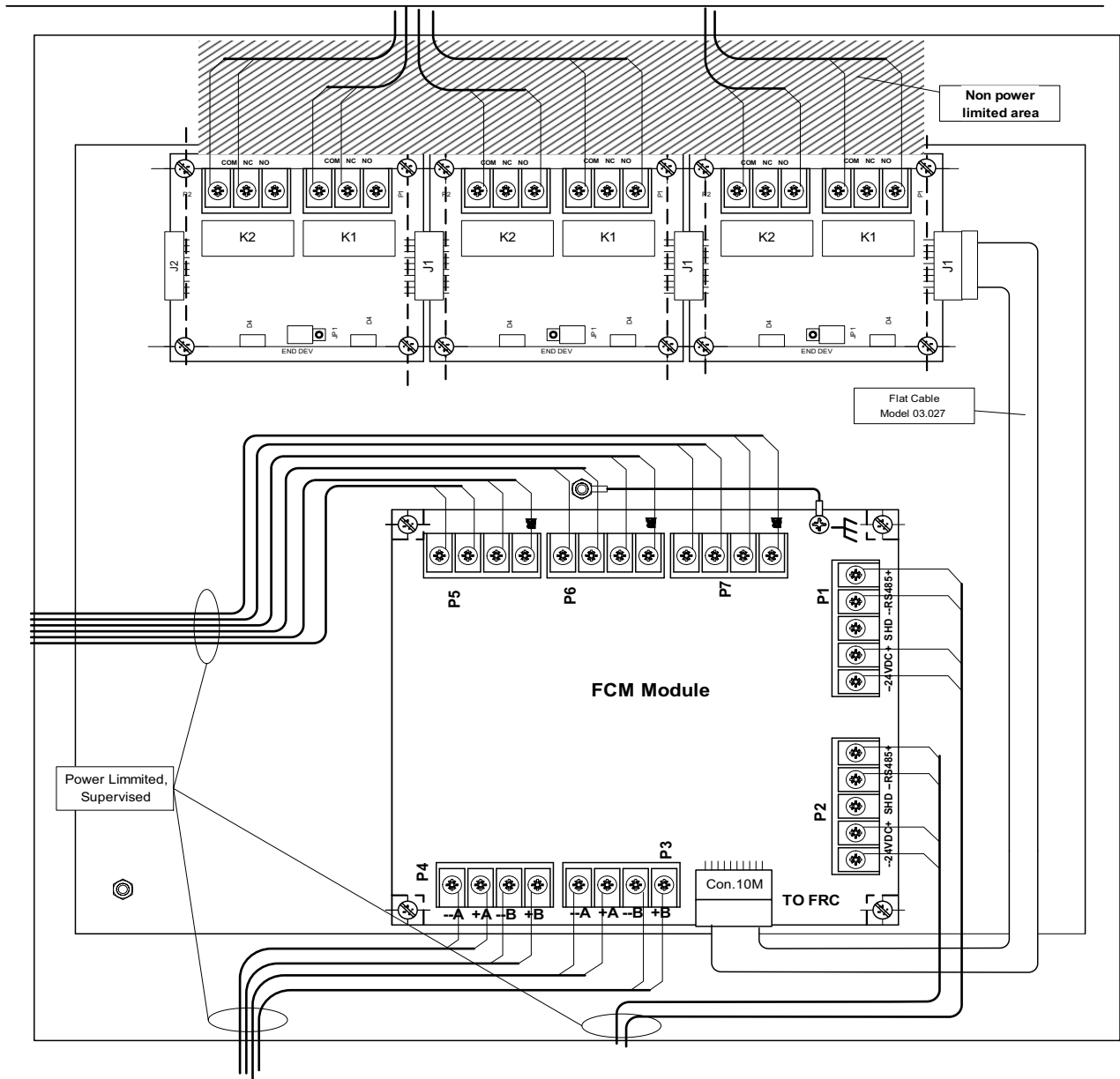


Fig. 3. FCM and three FRC installing and wiring in the AC2 Cabinet Model YD9026

The FCM with FRC modules mounting is shown on Fig. 3 and Fig.4. The FRC modules are mounted on stand-offs (16 mm) that provides distance minimum 13 mm from the Relay Pins to the plate. It allows connecting a 120-240 VAC power to the relay dry contacts. The FCM module is mounted similar to Sec. 5. The FRC modules should be connected together by connectors and after should be tied to stand-offs by plastic screws. The right side FRC is connected to FCM by flat cable. Put jumper JP1 in "END DEVICE" position on the left side FRC and in opposite position on others FRC



**Hardware Required:**

- One FCM module
- Four plastic screws per each mounted module
- FRC modules from one up to five
- Flat Cable Model 03.027
- EGND wire
- EGND wire installation set (M3x10 screw, M3 nut, three M3 washers, M3 spring washer)
- Separated Cabinet – AC2 Model YD9026 or ACE Model YD9027

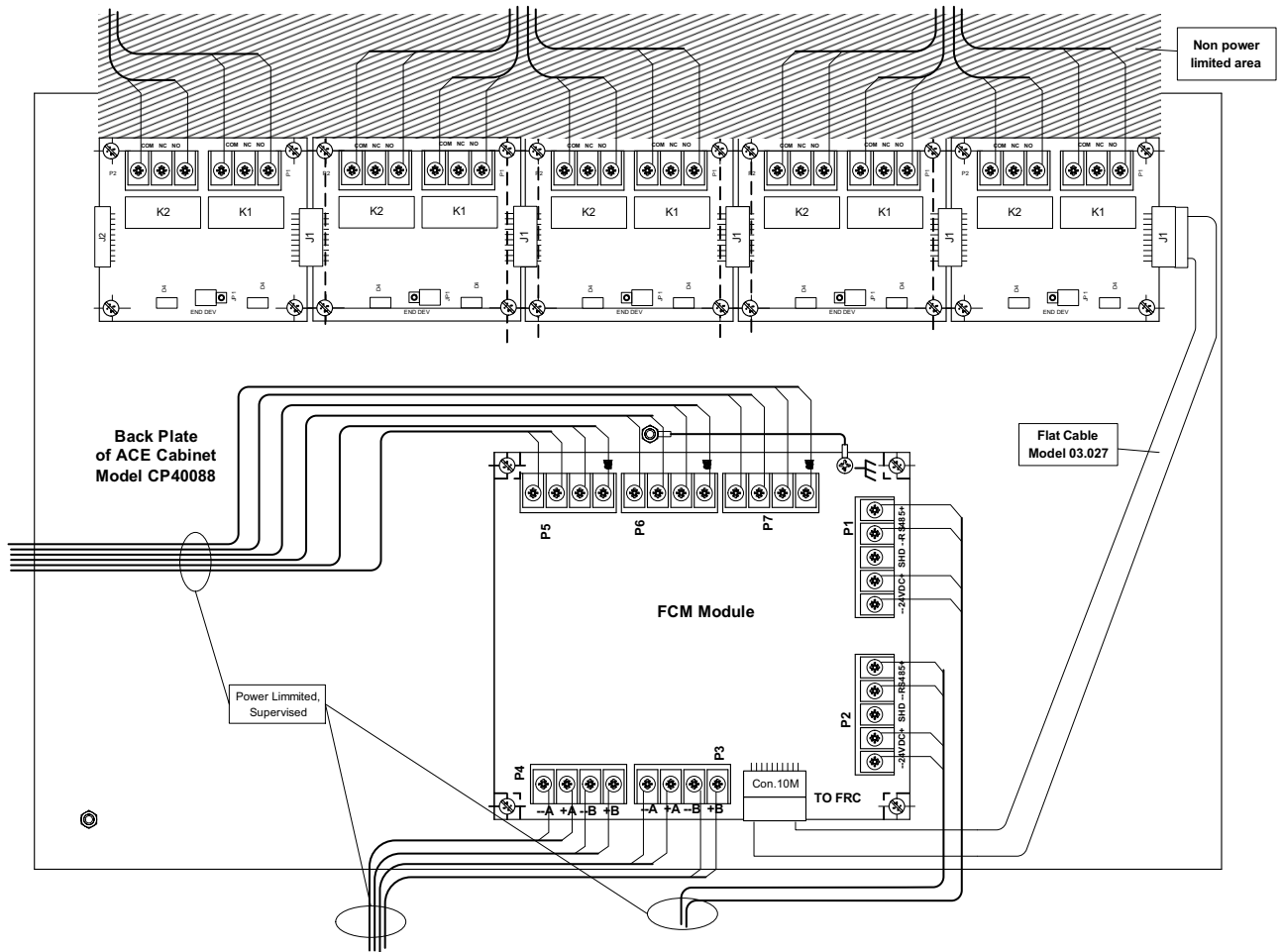


Fig. 4. FCM and five FRC installing and wiring in the ACE Cabinet Model YD9027

## 7. FCM connection and preparing to function

The FCM module should be connected to the power and to the network according to Fig.5 Choose class A or B by dipswitch SW2 (Fig. 6). Set the module address by dipswitch SW1 (Fig.7). The detectors and EOL wiring in class A is shown in Fig. 8. Two EOL resistors should be connected in parallel together to anyone detector per each zone.

If the FCM is to be used as the last module on the network, dipswitch 'END REM' must be put to the ON position (Fig.6).  
 All wires must conform to local codes, ordinances and regulations.

**WARNING!!!**

If this module will be connected to an existing operation system, inform operator and local authority that the system will be temporary out of service. Disconnect power to control panel before installing module

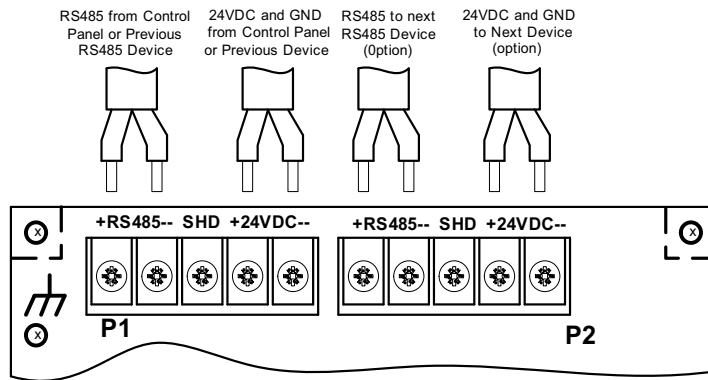


Fig. 5 Power and network wiring.

**Functional switch - SW2**

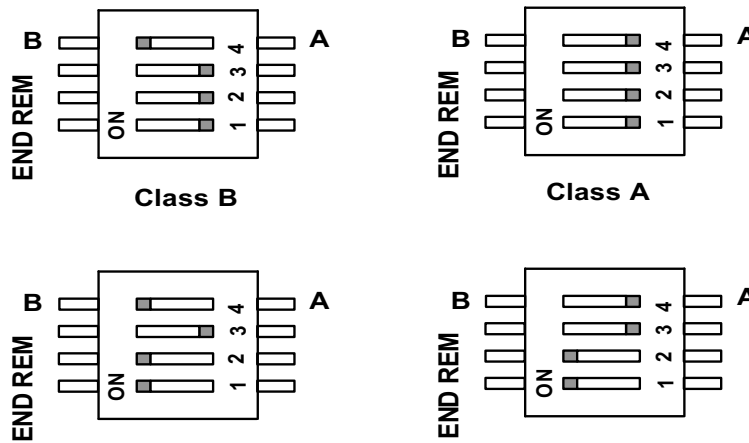


Fig.6. Switch 4 for Class A or B. Switch 1 & 2 for connection load of RS485 net in last modules.



FCM address - SW1

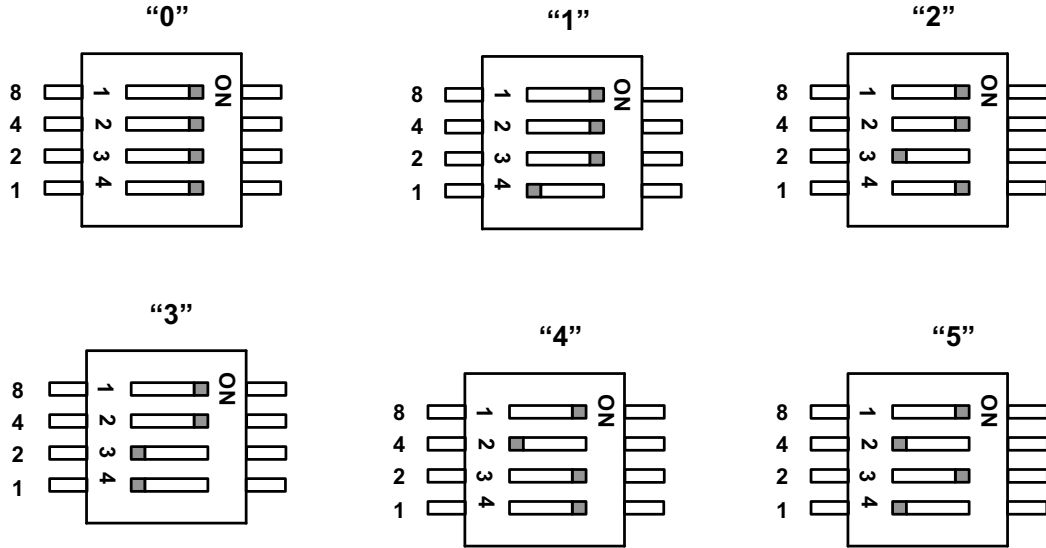


Fig.7. Network address setting

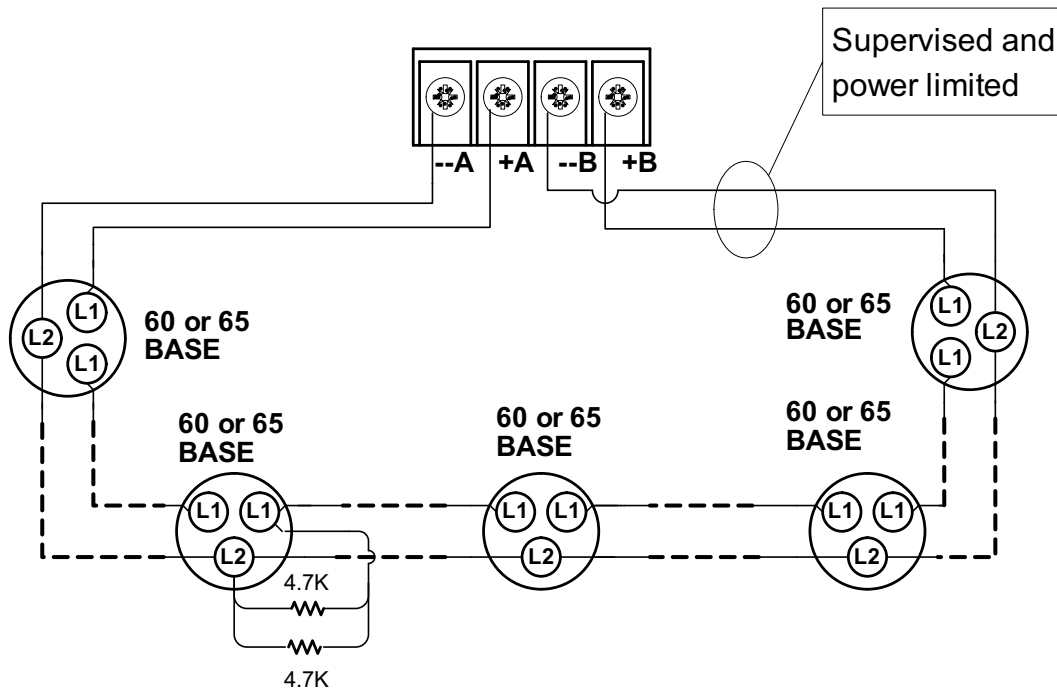


Fig. 8. The detectors and EOL resistor wiring in Class A