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**ADDENDUM**  
**to**  
**AFP-300/AFP-400, AFC-600 & NFS-640**  
**for**  
**Factory Mutual Applications**

**WARNING**

When used for CO<sub>2</sub> releasing applications, observe proper precautions as stated in NFPA 12.  
Do not enter the protected space unless physical lockout and other safety procedures are fully completed.  
Do not use software disable functions in the panel as lockout.

**SECTION 1 – RELEASING SERVICE**

This supplement describes the requirements of using the FACP in Factory Mutual releasing or pre-action/deluge applications. For complete information on installing, programming, and operating the appropriate FACP manuals:

AFP-300/AFP-400: Document 50523

AFP-600: Document 51031

NFS-640: Document 51332

The FACP may be used as a control panel for agent release or pre-action/deluge applications. When used with compatible, approved actuating and initiating devices, the system meets the requirements of the following standards:

NFPA 12	CO <sub>2</sub> Extinguishing Systems (High Pressure Only)
NFPA 12A	Halon 1301 Extinguishing Systems
NFPA 13	Sprinkler Systems
NFPA 15	Water Spray Systems
NFPA 16	Foam-Water Deluge and Foam-Water Spray Systems
NFPA 17	Dry Chemical Extinguishing Systems
NFPA 17A	Wet Chemical Extinguishing Systems
NFPA 2001	Clean Agent Fire Extinguishing Systems

**SECTION 2 – HARDWARE REQUIREMENTS**

**Releasing Device Circuit Resistance**

When using the panel for releasing or pre-action/deluge applications, the wiring for the releasing circuits must be configured to maintain a minimum of 20.4 VDC at the releasing device. The formula shown below may be used to calculate the maximum allowable resistance due to wiring on the releasing circuit.

$$R_{\max} = \frac{22.0V - 21.3V}{I_s}$$

Where:

**R<sub>max</sub>** equals the maximum allowable wiring resistance; and

**I<sub>s</sub>** equals the solenoid current.

**Factory Mutual Releasing Requirements**

- Factory Mutual requires 90 hours of standby in all pre-action/deluge applications.
- Factory Mutual also requires redundant wiring (NFPA Style 6 for SLC loop and NFPA Style D for initiating loop) on all initiating device circuits used in pre-action/deluge applications.
- For NFPA 13 and 15 applications, the soak timer must be disabled.
- For NFPA 16 applications, the soak timer must be set to 10 or 15 minutes.
- Do not program an abort switch for deluge/pre-action applications.

### FM Approved Releasing Devices

The following is a list of FM approved releasing solenoids for use with the AFP-300/AFP-400, the AFC-600, and the NFS-640.

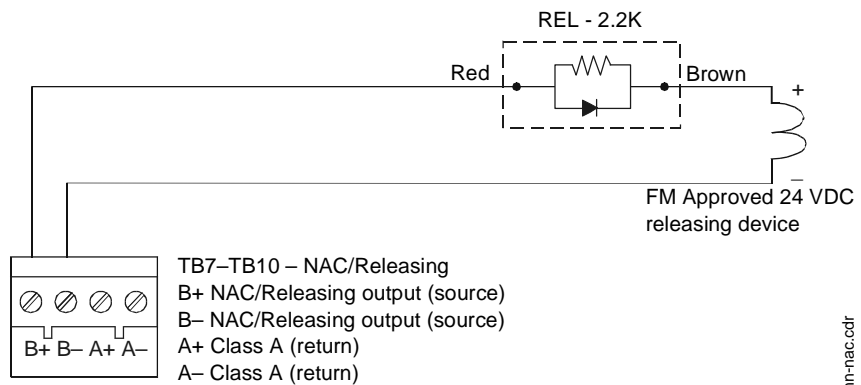
- Skinner valve, part number LV2L BX25, 73218BN4UNLVNOC111C2
- ASCO valves, part numbers T821A107, R8210A107, 8210A107, 8210G207
- STAR valve, part number 5550

### Connecting a Releasing Device to a Main Power Supply

When connecting a releasing device to a Main Power Supply, note the following:

1. All releasing circuit wiring is supervised for opens, shorts and ground faults.
2. Connect REL-2.2K end of line device as shown in.
3. For a list of FM-approved releasing solenoids, refer to “FM Approved Releasing Devices”.
4. Circuit must be programmed for Type Code “REL CKT ULC”.

#### Typical connections:



Each circuit is power-limited and supervised.

relconn-nac.cdr

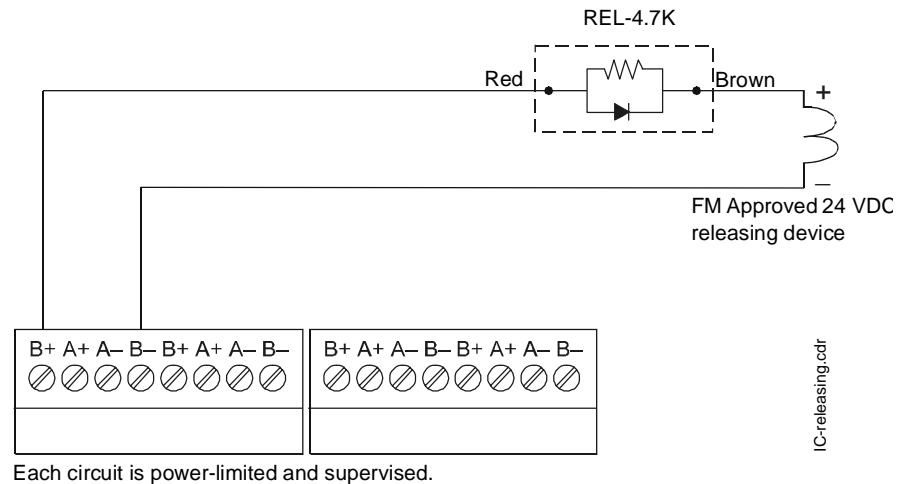
**Figure 1 Releasing Device to a Main Power Supply**

### Connecting a Releasing Device to an ICM-4/ICE-4 Module

When connecting a releasing device to an ICM-4 or ICE-4 module, note the following:

5. All releasing circuit wiring is supervised for opens, shorts and ground faults.
6. Connect REL-4.7K end of line device as shown in.
7. For a list of FM-approved releasing solenoids, refer to “FM Approved Releasing Devices”.
8. Circuit must be programmed for Type Code “REL CKT ULC”.

#### Typical Connections



**Figure 2 Releasing Device to an ICM-4/ICE-4 Module**

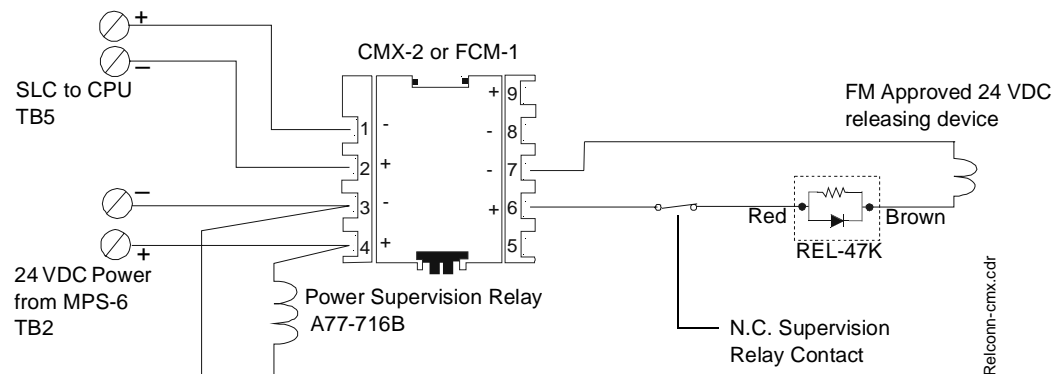
### Connecting a Releasing Device to a CMX-2 or FCM-1 Module

You can use either module for releasing circuits. Each module can control 1 A of current. Make sure to keep total system current within the limits of the power supply. You can power the modules from the MPS-400, MPS-6 or any FM Approved 24 VDC power-limited power supply for Fire Protective Signaling. For more information, refer to the Notifier Compatibility Document (15378).

When connecting a releasing device to an FCM-1 or CMX-2 Module, note the following:

1. All releasing circuit wiring is supervised for opens, shorts and ground faults.
2. Connect REL-47K end of line device as shown in.
3. For a list of FM-approved releasing solenoids, refer to “FM Approved Releasing Devices”.
4. Circuit must be programmed for Type Code “REL CKT ULC”.

#### Typical Connections



**Figure 3 24 VDC Releasing Device to a Control Module**

## Releasing Circuits

### Releasing Circuits Using Clip or FlashScan Monitor and Control Modules

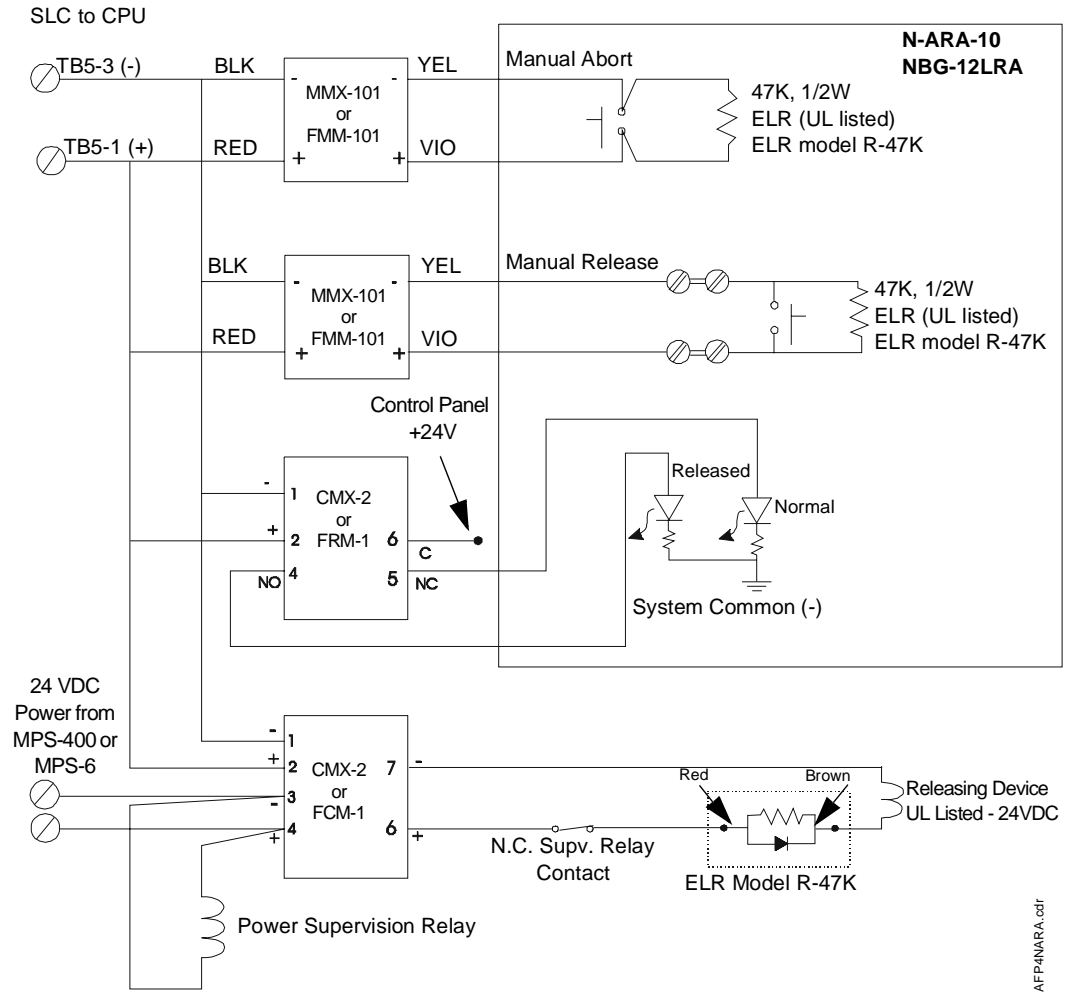
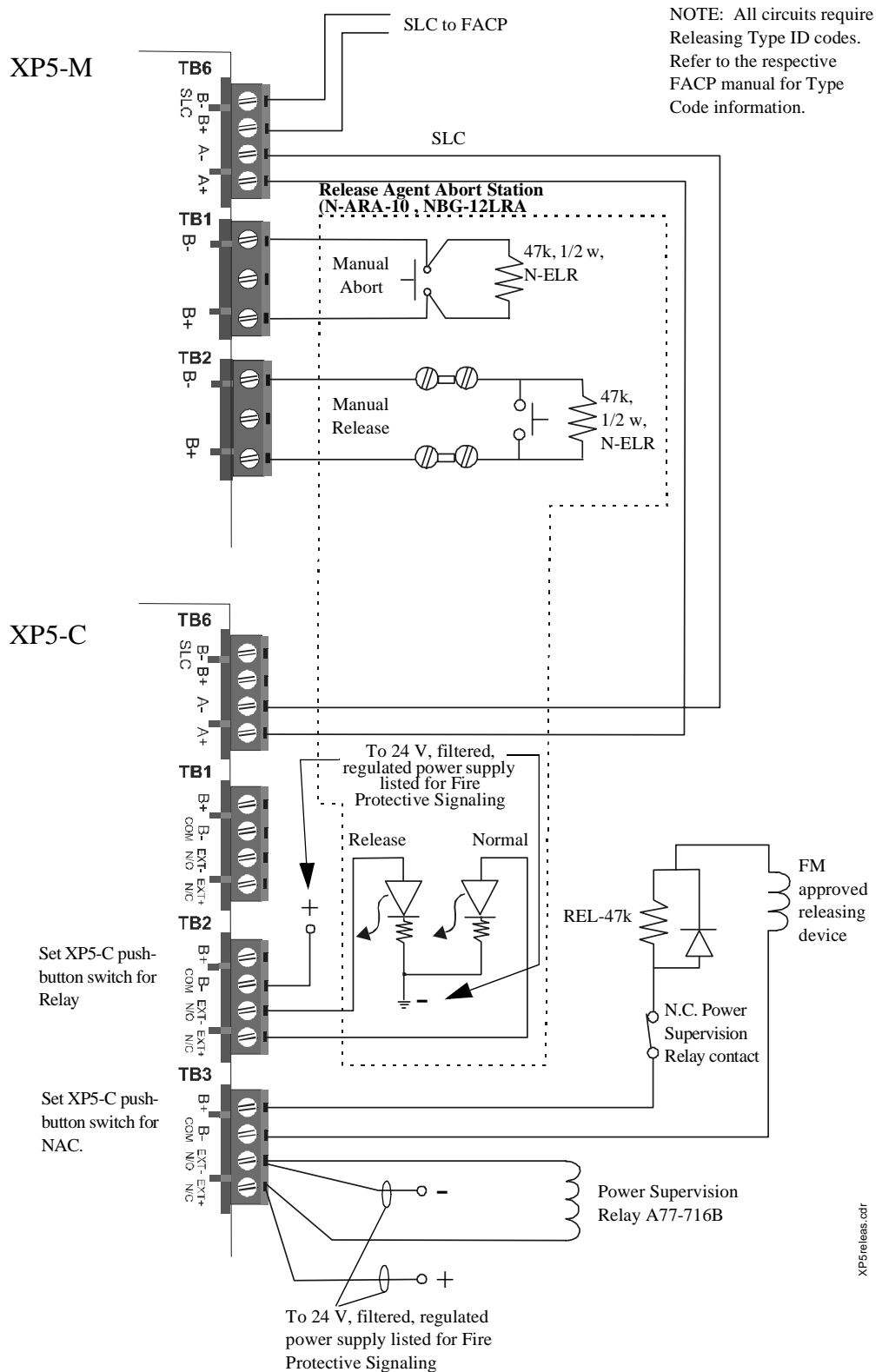


Figure 4 Releasing Circuit with CLIP or FlashScan Modules

### Releasing Circuit Using XP5 Monitor and Control Modules

Figure 5 below illustrates releasing circuits using XP5 Series modules. Terminal and Software ID code information for the control panels may be obtained by referring to the FACP manuals.

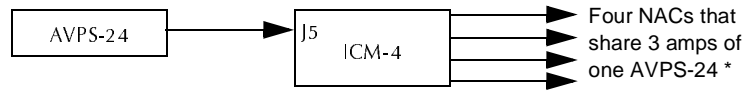


## Notification Appliance Circuit (NAC) Current Configuration

This section shows typical configurations for NACs.

### NAC Configuration using the ICM-4

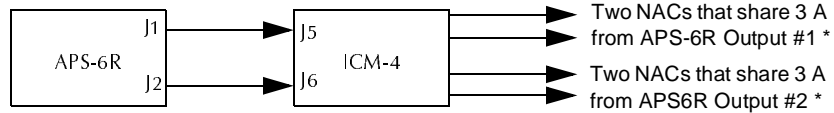
Configuration using one AVPS-24 to supply power to an ICM-4 or ICE-4:



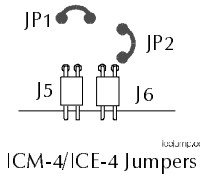
\* All NACs using a common power source are considered as one NAC.

**Figure 6 NAC-to-ICM/ICE Configuration (one AVPS-24)**

Configuration using an APS-6R to supply power to an ICM-4 or ICE-4:



**Note:** For this configuration, cut jumpers **JP1** and **JP2** located above J5 and J6.

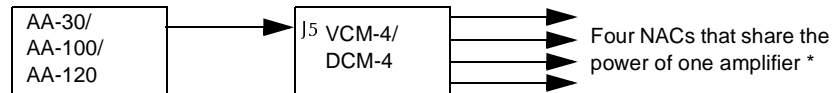


\* All NACs that are powered from the same APS-6R are considered as one NAC.

**Figure 7 NAC-to-ICM/ICE Configuration (one APS-6R)**

### NAC Configuration using a VCM-4/DCM-4

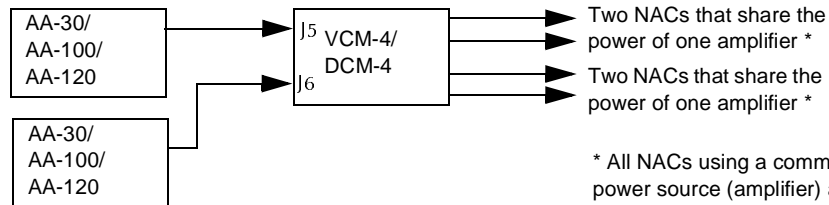
Configuration using one audio amplifier to supply power to a VCM-4 or DCE-4:



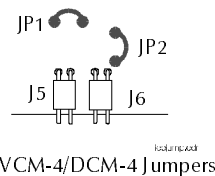
\* All NACs using a common power source are considered as one NAC.

**Figure 8 NAC-to-VCM/DCM Configuration (one amplifier)**

Configuration using two audio amplifiers to supply power to a VCM-4 or DCM-4:



**Note:** For this configuration, cut jumpers **JP1** and **JP2** located above J5 and J6.



\* All NACs using a common power source (amplifier) are considered as one NAC.

**Figure 9 NAC-to-VCM/DCM Configuration (two amplifiers)**