

Automatic Extinguishing, Deluge and Preaction FM Approved* Sprinkler System Release Control for 4020/4100/4120 Fire Alarm Control Panels

FEATURES

- **Release control using 4020/4100/4120 Series Fire Alarm Control Panels to provide:**
 - Automatic extinguishing release
 - Deluge and preaction sprinkler system release
- **Control panel compatibility:**
 - 4020 Series control panel with 25.5 V Limiter Module (4020-0129)
 - 4100/4120 Series control panel with regulated power supply or 25.5 V Limiter Module (4100/4120-0129)
- **Compatible with FM Approved 24 VDC automatic water control valves**
- **Required system components:**
 - Coil supervision module (2081-9046) one per solenoid control NAC
 - Service Disconnect Switch (2080-9029) one per solenoid control NAC
- **Recommended accessory (where appropriate):**
 - Abort Switch (2080-9030)

INTRODUCTION

Automatic Extinguishing Release Systems.

These systems automatically activate solenoid control valves for the release of a fire extinguishing agent (such as dry chemical, water spray, foam, CO₂, or Halon) in response to fire detection device input.

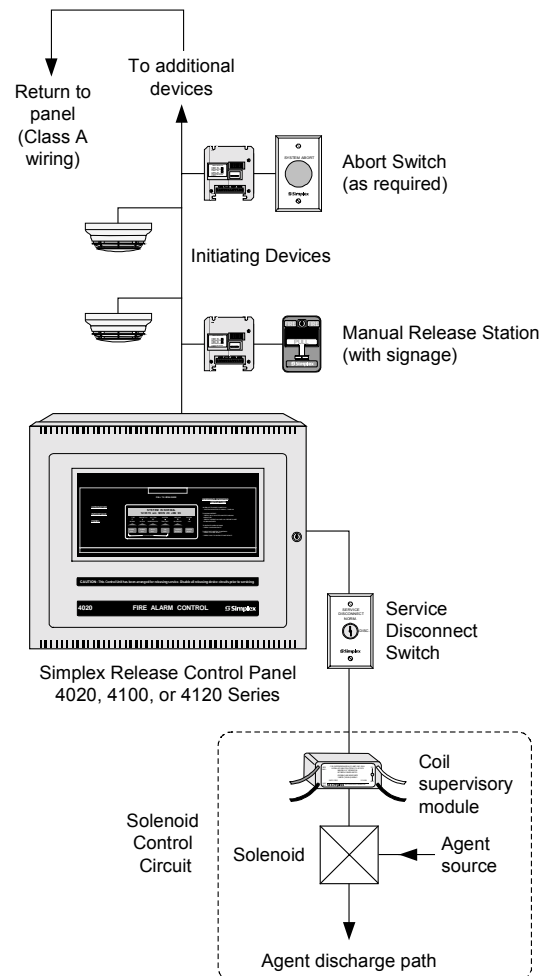
FM Extinguishing System Release Panels must

have a minimum of 24 hours of standby power. Initiating devices must be FM Approved for the application and may be wired either Class A or B. Solenoid control valves must be electrically compatible with the control panel circuits and power supplies, and are wired Class B to provide coil supervision.

Deluge and Preaction Sprinkler Systems

automatically activate water control valves in response to fire detection device input.

FM Approved requirements for Fire Alarm Systems for Automatic Release of Deluge and Preaction Sprinkler Systems require operation of specific compatible FM Approved Automatic Water Control Valves, a minimum secondary power capacity of 90 hours, and all circuits for the automatic release initiating devices must be capable of operation during a single open circuit fault condition (Class A).



4020/4100/4120 Series Release
Control Panel Typical Block Diagram

Deluge Sprinkler Systems employ open sprinkler heads and provide water flow when the fire detection system activates a common automatic water control valve. They are used to deliver water simultaneously through all of the system sprinkler heads. This type of system is applicable where the immediate application of large quantities of water over large areas is the proper fire response.

Preaction Sprinkler Systems are similar to deluge systems except that normally closed sprinkler heads are used and supervisory air pressure is maintained in the pipe. Operation requires both an activated sprinkler head and an activated fire detector (or fire detectors).

* This application is FM approved only. Contact Simplex for additional information.

RELEASE CONTROL SYSTEM REQUIREMENTS

Simplex 4020 Series Fire Alarm Control Panel Requirements:

- Suppression Release Option (4020-6007).
- 25.5 VDC Limiter Module (4020-0129) connected to the power supply "B" tap, rated 4 A maximum, with "B" tap dedicated for solenoid control notification appliance circuits (NACs).
- Power supply loading and wiring distances must be per control panel Field Wiring Diagram 841-940.

Simplex 4100/4120 Series Fire Alarm Control Panel Requirements:

- Suppression Release Option (4100/4120-6007).
- Regulated power supply (4100/4120-0105 or 4100/4120-0115). Refer to page 3 for details.
- Or 25.5 VDC Limiter Module (4100/4120-0129) connected to the power supply "B" tap, rated 4 A maximum, with "B" tap dedicated for solenoid control NACs.
- Power supply loading and wiring distances must be per control panel Field Wiring Diagram 841-941.

FM Approved Automatic Extinguishing Release:

- Battery standby must be a minimum of 24 hours with 5 minutes of alarm.
- Solenoid valves must be electrically compatible.

FM Approved Deluge and Preaction Sprinkler Operation:

- Battery standby must be a minimum of 90 hours with 10 minutes of alarm.
- Initiating device circuits (IDCs) must be Class A, wired to Listed/Approved devices.
- Compatible Automatic Water Control Valves must be used. Refer to the diagram on page 4 for details.

General Requirements:

- **Solenoid Valves** are connected to compatible 2-wire, Class B notification circuits **with only one solenoid valve per circuit** to ensure supervision.
- **Coil Supervision Module** (2081-9046) is required for each solenoid control circuit, must be wired electrically before the solenoid valve, and must be located in the solenoid valve wiring junction box. Refer to diagram on page 4.
- **Initiation Logic.** Cross zoning, counting circuits, or other alarm initiation logic is to be implemented as required in the fire alarm control panel hardware and software.
- **Battery Standby** must be selected for a minimum alarm operating voltage of 22.8 VDC to ensure proper valve operation. (Contact Simplex for specific battery requirements per panel application.)

- **Service Disconnect Switches** (2080-9029) are required to ensure that notification circuits dedicated for release operation can be properly disabled prior to service. Mounting requires a single gang box, 2 1/2" minimum depth. (Refer to NFPA 72, the *National Fire Alarm Code*, Section 3-10.4, 1996 edition or Section 3-8.4.3.4, 1999 edition.)
- **Abort Switches** (2080-9030) are available when abort operation is required. When used, wire on separate IDC, Class A or B, the same as required for other non-addressable initiating devices. Mounting requires a single gang box, 2 1/2" minimum depth.
- **Manual Release Stations** used for initiation of the release solenoids require that the appropriate time delay be implemented at the fire alarm control panel (typically 15 or 30 seconds). Contact Simplex for specific requirements and custom station wording.

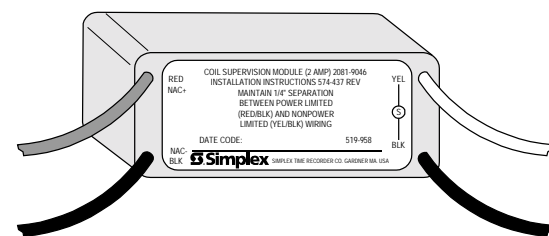
ADDITIONAL INFORMATION

For additional information, refer to Factory Mutual Research Corporation (FMRC) "FMRC Approval Guide" and FM Approval Standard "Deluge Systems and Preaction Systems."

NOTE: *Proper operation of release control systems requires that the system design, installation, and maintenance be performed correctly and in accordance with all applicable local and national codes, and equipment manufacturer's instructions. No liability for total system operation is assumed or implied.*

COIL SUPERVISION MODULE 2081-9046

Solenoid control NACs provide supervision of the solenoid coil and wiring by connecting Coil Supervision Module 2081-9046 into the solenoid circuit. This module is located at the valve wiring electrical junction box and includes the coil resistance as part of the supervision loop. Refer to the diagram on page 4 for details.



Coil Supervision Module 2081-9046

2081-9046 SPECIFICATIONS

Construction	Epoxy encapsulated
Dimensions	1 3/8" W x 2 7/16" L x 1 1/16" H (34 mm x 62 mm x 27 mm)
Wiring	18 AWG wire leads, color coded
Current Rating	2 A Maximum

PRODUCT SELECTION CHART

Release Control System Modules

Model	Description	Reference
2081-9046	Coil Supervision Module	One of each required per solenoid control circuit
2080-9029	Service Disconnect Switch	
2080-9030	Abort Switch	As required

4020 Fire Alarm Control Panel Required Options

Model	Description
4020-6007	Suppression Release Option
4020-0129	Voltage Limiter Module, 25.5 VDC, 4 A maximum

4100/4120 Fire Alarm Control Panel Required Options

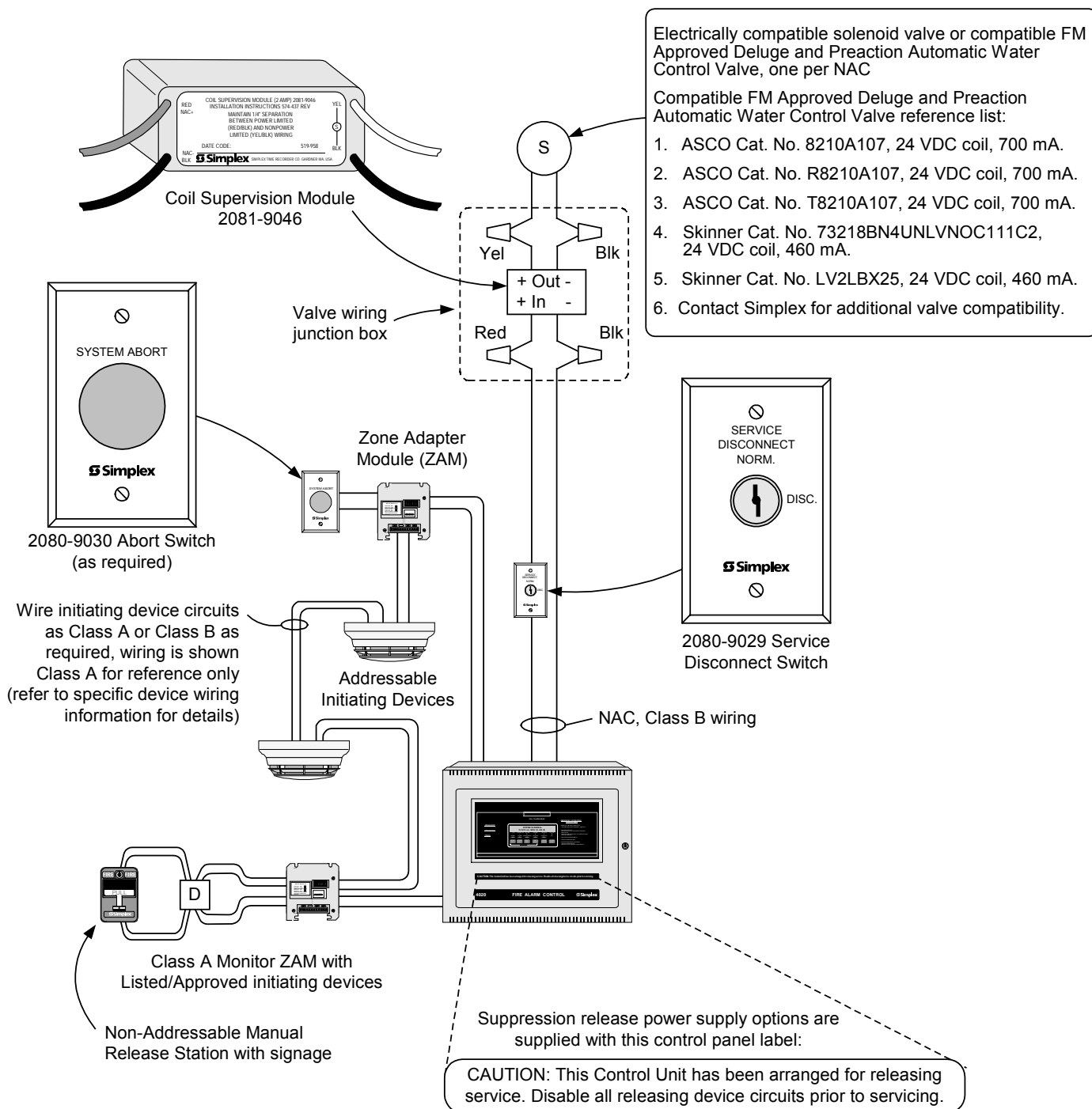
Model	Description	Selection Status	Reference
4100-6007	Suppression Release Option	Required	Select per system type, 4100 or 4120*
4120-6007			

4100/4120 Fire Alarm Control Panel Power Supply Options

Model	Description		Selection Status	Reference	
4100-0105	120 VAC input	Regulated Power Supply, 5 A	Select one per Release Panel application	Select per system type, 4100 or 4120*	
4120-0105					
4100-0115	240 VAC input				
4120-0115					
4100-0129	Voltage Limiter Module, 25.5 VDC, connects to “B” power supply tap to provide a dedicated 4 A solenoid NAC				
4120-0129					

* Selecting the 4120 prefix for a model number identifies that the fire alarm control panel is for use on a 4120 Network.

INSTALLATION REFERENCE DIAGRAM



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Westminster, Massachusetts 01441-0001 U. S. A.
Offices and Representatives Throughout the World
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