

Features

Releasing control using the Simplex 4100ES (or 4100U) Fire Alarm Control Panel to provide**:

- Coverage for multiple areas of Automatic Extinguishing Release and/or Deluge and Preaction Sprinkler System Release including audible escalation of events
- Control of compatible Listed/Approved valves and actuators
- Releasing appliance circuits (RACs) by connecting Notification appliance circuits (NACs) to Suppression Release Peripherals for actuator supervision and control

Audible Escalation of Events:

- Temporal or 20 bpm March Time pattern for first cross-zone alarm
- 120 bpm March Time pattern to indicate releasing timer active
- On steady to indicate releasing timer expired and actuator is activated

Note: Requires NACs dedicated to conventional horn control (not SmartSync operation) with strobes controlled on separate NACs

4090-9005/4090-9006 Suppression Release Peripheral (SRP) with Dual Command Control:

- **Dual** command control requires that **both** IDNet communications commands **and** an activated NAC are present to initiate the desired release
- NAC provides wiring supervision to the actuator including monitoring of coil continuity and short circuit supervision to the coil supervision module

Suppression Release Peripheral control features:

- An on-board DC-DC regulator compensates for voltage drops to the peripheral and ensures proper control circuit voltage over a wide operating range
- Provides a single RAC for control of actuators for up to 2 A using a 3 A NAC input (1 A using a 2 A NAC input)

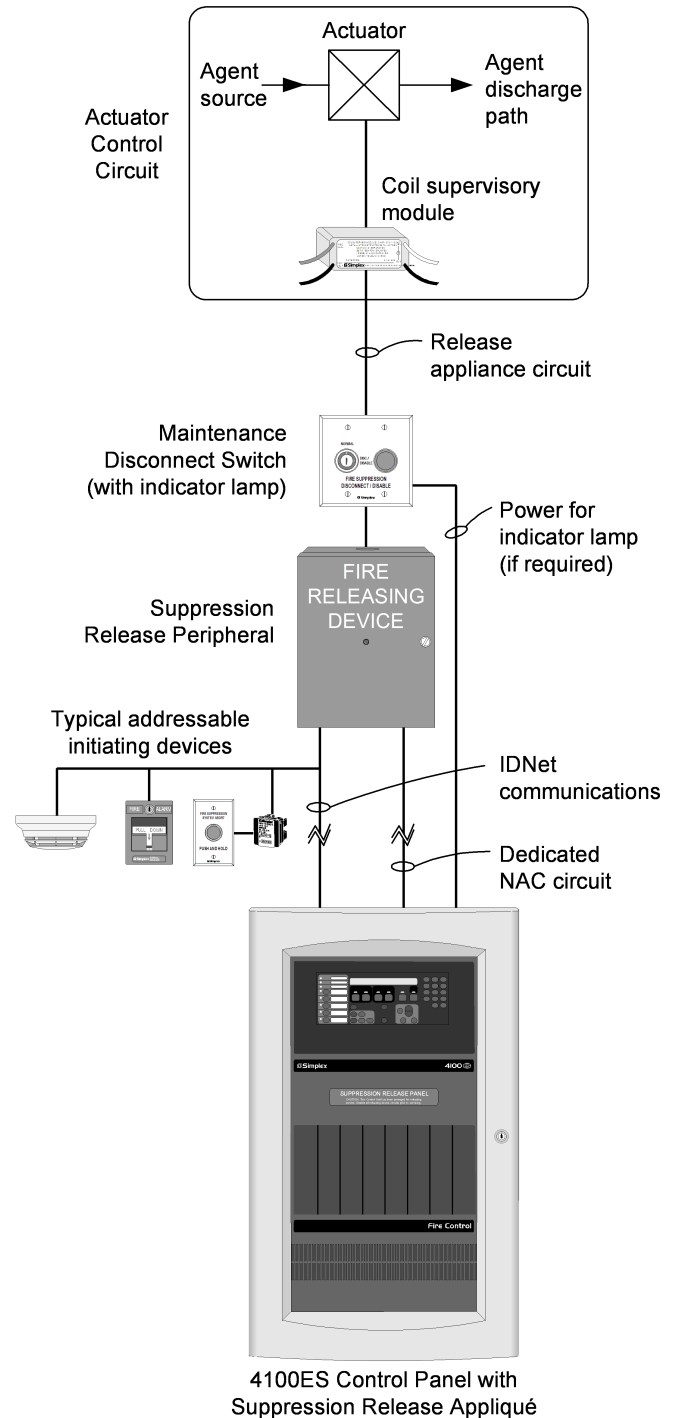
Related system components:

- 4100ES Series control panel with Releasing Appliqué
- Dedicated NAC output from 4100ES (or compatible NAC Extender)
- Coil supervision module, one per RAC
- Maintenance Switch, one per RAC
- Abort Switch connected via an addressable interface module

Introduction

When combined with Suppression Release Peripherals, the 4100ES series fire alarm control panel provides actuator supervision and control for use in automatic extinguishing, and deluge or preaction releasing systems. Hazard area initiating and notification devices are controlled using either conventional or addressable circuits per standard 4100ES capabilities. The necessary releasing system logic is implemented within the 4100ES control panel as required for the local application.

Figure 1: 4100ES Series Releasing Control Typical Block Diagram



** Release Control operation described in this document is also available with 4100U Control Panels with software revision 11.05 or higher. Refer to data sheet **S4100-0031** for model 4100ES control panel details including IDNet communications information.

Agency listings

- UL 864 - Control Units, System (UOJZ); Control Unit Accessories, System, Fire Alarm (UOXX); Control Units, Releasing Device Service (SYZV); Smoke Control System Equipment (UUKL)
- UL 1076 - Proprietary Alarm Units (APOU)
- UL 1730 - Smoke Detector Monitors and Accessories (UULH)
- UL 2017 - Emergency Alarm System Control Units, CO detection (FSZI); Process Equipment Management (QVAX)
- ULC-S527 - Control Units, System, Fire Alarm (UOJZC); Control Unit Accessories, System, Fire Alarm (UOXXC); Control Units, Releasing Device Service (SYZVC); Smoke Control System Equipment (UUKLC)
- ULC-S559 - Central Station Fire Alarm System Units (DAYRC)
- CSA 6.19 - Gas Alarms and Accessories (CZHFC)
- ULC/ORD-C1076 - Proprietary Burglar Alarm System Units (APOUC)
- ULC/ORD-C100 - Smoke Control System Equipment, UUKLC
- UL2572 - Mass Notification Systems

Automatic Extinguishing Release Systems

These systems automatically activate electrically controlled actuators for the release of a fire extinguishing agent (such as dry chemical, water spray, foam, CO₂, or clean agent) in response to fire detection device inputs as determined by programming of the host fire alarm control panel.

Automatic Extinguishing Release System Panels are required to have a minimum of 24 hours of standby power. Initiating devices must be Listed/Approved for the application, and may be wired either Class A or B. Control actuators must be electrically compatible with the control panel circuits and power supplies, and are wired Class B to provide coil supervision.

Deluge or Preaction Sprinkler Systems

These systems automatically activate water control actuators in response to fire detection device inputs.

Deluge Sprinkler Systems employ open sprinkler heads and provide water flow when the fire detection system activates a common automatic water control actuator. 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 alarm initiating device with specific programming determined at the host fire alarm control panel.

Releasing System Requirements

1. **Releasing actuators** are controlled from a Suppression Release Peripheral (4090-9005 or 4090-9006). Connections are 2-wire, Class B releasing circuits **with only one 24 VDC actuator per circuit**. Where applicable, two 12 VDC actuators in series or one 12 VDC actuator per circuit may be used (refer to the actuator manufacturer's installation documentation for additional details and requirements).
2. **Coil Supervision Module 2081-9046** must be wired electrically before the actuator and located in the actuator wiring junction box. The connected RAC provides continuity supervision of the actuator coil and wiring and provides short circuit supervision to the coil supervision module.
3. **Cross-zoning or other alarm initiation logic** per system requirements, is to be implemented by programming at the fire alarm control panel.
4. **UL Listed Automatic Extinguishing Releasing operation** requires that: battery standby must be a minimum of 24 hours with 5 minutes of alarm and that listed actuators are used.
5. **FM Approved Automatic Extinguishing Release** requires secondary standby to be a minimum of 24 hours with 5 minutes of

alarm. Actuators must be electrically compatible.

6. **FM Approved Deluge and Preaction Sprinkler operation** requires that: initiating device circuits be Class A and wired to listed/approved devices; standby power capacity must be a minimum of 90 hours with 10 minutes of alarm; and that compatible Automatic Water Control Valves must be used. (Refer to [Compatible UL Listed Valves and Actuators](#).)
7. **Maintenance Switches**, one per RAC, are required per NFPA 72. Their use may not be allowed in some jurisdictions, always confirm local requirements. When used, Simplex Maintenance Switches are required to ensure that operation initiates a supervisory condition.
8. **Abort Switches** are available when abort operation is required. Connect to an addressable Supervised IAM model 4090-9001 or similar addressable adapter module.
9. **Addressable Manual Releasing Stations** are used to initiate activation of the releasing actuators with the appropriate time delay implemented by the fire alarm control panel.
10. **Notification Requirements**. Each hazard area typically requires general audible and visible fire alarm notification and additional dedicated NACs for area releasing status notification. Suppression releasing is compatible with conventional panel mounted NAC modules as well as for use with the 4009 IDNet NAC Extender.
11. **Additional Suppression Release Peripheral Reference**. Refer to Installation Instructions 579-385.

Additional Releasing Systems Reference

For additional information, refer to Factory Mutual Research Corporation (FMRC) *FMRC Approval Guide*, FM Approval standard *Automatic Releases for Preaction and Deluge Sprinkler Systems*.

Note: Proper operation of a releasing control system 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.

Product Selection

Table 1: 4100ES Releasing Control System Modules

SKU	Description		Reference
2081-9046	Coil Supervision Module		Required , one per RAC, mounts in the releasing actuator wiring junction box; see Specifications for details
*	Maintenance Switches		One per RAC; flush or surface mount; indicator lamp models require separate 24 VDC wiring
2080-9056*	Flush mount	Abort Switch	As required, connects via an IDNet addressable interface module; mounted on a single gang stainless steel plate; installation requires a single gang box, 2-1/2" (64 mm) minimum depth
2080-9057*	Surface mount		

* Refer to data sheet **S2080-0010** for Abort and Maintenance switch details.

Table 2: Releasing Appliqués, Required for 4100ES Suppression Releasing Applications

SKU	Description	
4010-9830	English	Suppression Releasing Appliqué; field applied (same appliqué as is used on the Simplex model 4010)
4010-9830CAF	French	Suppression Release Panel)

Table 3: Suppression Release Peripheral and Accessories

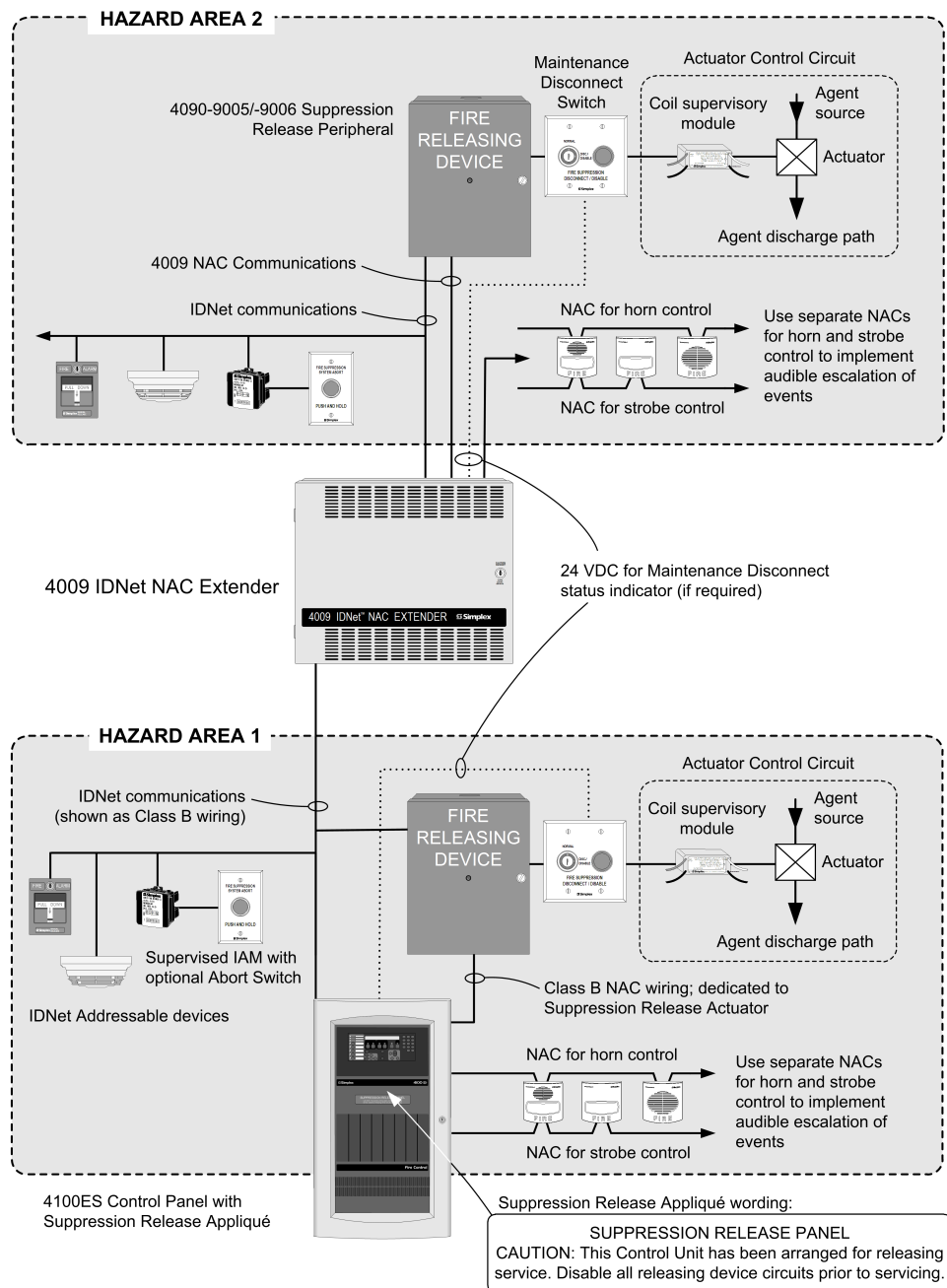
SKU	Description	Reference
4090-9005	Basic Suppression Release Peripheral on mounting plate	Requires mounting box , ordered separately
4090-9006	Suppression Release Peripheral mounted in NEMA 1 red box; required for ULC listing	Includes LED indicator on front of door
	NEMA 1 red mounting box; required for 4090-9005	
4090-9812	Red LED IDNet communications indicator option kit; mounts on door of box	These items are included with model 4090-9006

Additional Product Data Sheet Reference

Subject	Data Sheet
Addressable Manual Stations for Releasing Applications	S4099-0006
Releasing System Abort and Maintenance Switches	S2080-0010
4100ES Basic Control Panels	S4100-0031
NDU with SPS Power Supplies for 4120 Network	
InfoAlarm Command Center with SPS Power Supplies	
NDU with SPS Power Supplies for ES Net	
4100ES Basic Panels with EPS Power Supplies	S4100-0100
InfoAlarm Command Center with EPS Power Supplies	
NDU with EPS Power Supplies for 4120 Network	S
NDU with EPS Power Supplies for ES Net	

4100ES Conventional NAC Panel Releasing System One-Line Connection Reference

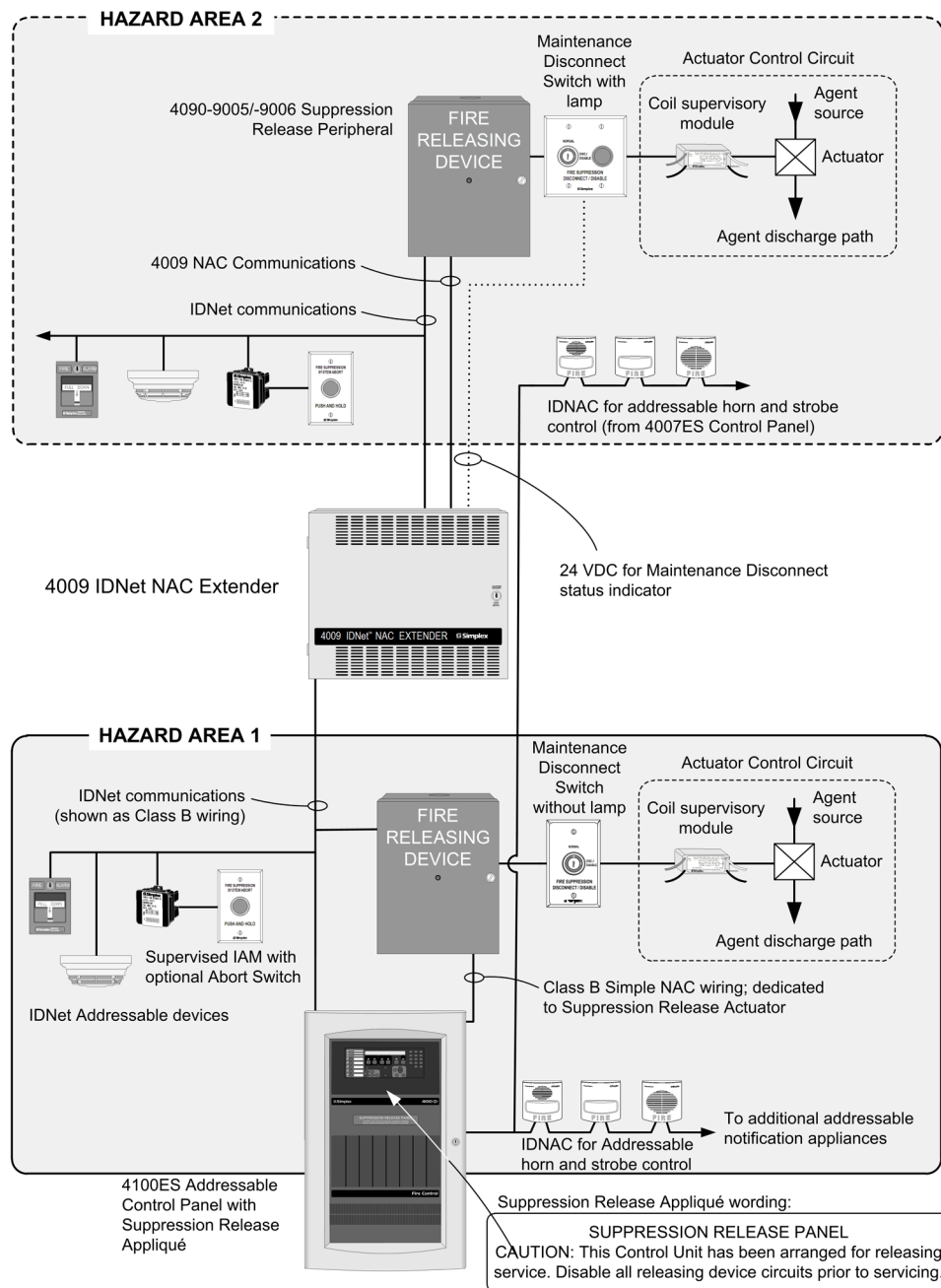
Figure 2: Hazard areas one and two



Note: Image shows 4090-9005/4090-9006 suppression release peripheral.

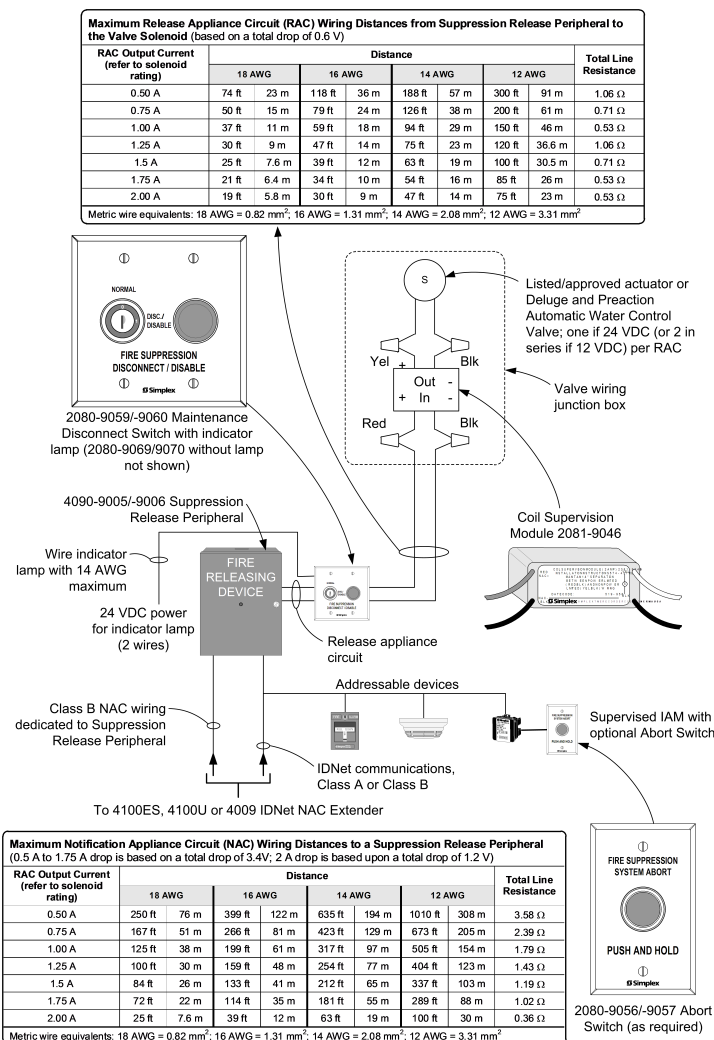
4100ES Fully Addressable Panel Releasing System One-Line Connection Reference

Figure 3: Hazard areas



Note: Image shows 4090-9005/4090-9006 suppression release peripheral

Suppression Release Peripheral Wiring Reference



Note: Image shows:

1. / maintenance disconnect switch. / without lamp not shown.
2. 4090-9005/4090-9006 suppression release peripheral.
3. 2081-9046 coil supervision module.
4. 2080-9056/2080-9057 abort switch.

Specifications

Table 4: Suppression Release Peripheral 4090-9005 and 4090-9006

Specification		Rating			
Communications		IDNet, one address			
RAC Output Rating	with 4100ES	2 A maximum	At nominal 24 VDC, regulated; refer to NAC Power Requirements for more detail		
	with 4009 IDNet NAC Extender	1 A maximum			
NAC Power Requirements	Voltage	16 to 32 VDC (nominal 24 VDC)			
	Supervisory Current	No additional current required, circuit appears as standard end-of-line (EOL) NAC loading			
Note: 4100ES NACs are rated at 3 A; 4009 IDNet NAC Extender NACs are rated at 2 A, Extender expansion NACs are rated 1.5 A	Alarm Current Reference (RAC current = actuator current)	RAC Current	NAC Current	RAC Current	NAC Current
		0.5 A	0.845 A	1.25 A	2.14 A
		0.75 A	1.28 A	1.5 A	2.56 A
		0.87 A	1.5 A	1.75	3 A
		1 A	1.71 A	2 A	
Wire Connections		Screw terminals for input and output wiring, 18 to 12 AWG wire (0.82 mm² to 3.31 mm²)			
IDNet Wiring Distance Reference		Up to 2500 ft (762 m) from the IDNet source module			
		Up to 10,000 ft (3048 m) total Class B wiring distance including T-Taps			
		Compatible with Simplex 2081-9044 Overvoltage Protectors			

Table 4: Suppression Release Peripheral 4090-9005 and 4090-9006

Specification	Rating
Dimensions	See Suppression Release Peripheral Installation Reference Diagram
Operating Temperature	32° F to 120° F (0° C to 49° C) indoor operation only
Operating Humidity Range	10 to 90% RH at 90° F (32° C)

Table 5: Coil Supervision Module 2081-9046

Specification	Description
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 (0.82 mm ²) wire leads, color coded
Current Rating	2 A Maximum; internally fused at 3 A, non-replaceable

Compatible UL Listed Valves and Actuators

Table 6: Compatible UL Listed Valves and Actuators

Manufacturer	Model Number	Electrical Ratings
ANSUL	AUTOMAN II-C Assembly (solenoid 17728; coil 25924)	24 VDC, 750 mA
	AUTOMAN II-C Explosion-Proof Releasing Device (solenoid 31492; coil 31438)	24 VDC, 750 mA
	AUTOMAN II-C Assembly (solenoid 68739; coil 25924)	24 VDC, 750 mA
	Solenoid Electric Actuator (solenoid 73111; coil 73097)	24 VDC, 1 A
	*CV90 HF Electric Actuator 73327	24 VDC, 570 mA
	LP CO2 w/ASCO solenoid 422934	24 VDC, 442 mA
	LP CO2 double action 24 VDC solenoid 430948	24 VDC, 438 mA
	LP CO2 3-way selector valve solenoid 433419	24 VDC, 438 mA
	Electric Actuator 24 VDC solenoid 570537	24 VDC, 250 mA
LPG	Solenoid Electric Actuator (uses solenoid: Flow Control 609500/671S)	24 VDC, 542 mA
	Solenoid Coupling Assembly 21006401 (uses solenoid: Flow Control 609500/671S)	
	Solenoid Coupling Assembly 21006402 (uses solenoid: Flow Control 609500/671S)	
	LPG128/145/190/230-50/55 FM-200 valves (uses solenoid: Flow Control 609500/671S)	
	LPG128-90UL iFLOW and FM-200 valve (uses solenoid: Flow Control 609500/671S)	
Skinner	71395SN2ENJ1N0H111C2 (Skinner coil H111C2)	24 VDC, 420 mA
	73212BN4TN00N0C111C2 (Skinner coil C111C2)	24 VDC, 420 mA
	73212BN4TNLVN0C322C2 (Skinner coil C322C2)	24 VDC, 830 mA
	73218BN4UNLVN0H111C2 (Skinner coil H111C2)	24 VDC, 410 mA
	73218BN4UNLVN0C111C2 (Skinner coil C111C2)	24 VDC, 410 mA
ASCO	8210A107 (097617-005D coil)	24 VDC, 750 mA
	8210G207 (238310 coil)	24 VDC, 440 mA
	8211A107 (097617-005D coil)	24 VDC, 750 mA
	8262H182 (238910 coil)	24 VDC, 483 mA
	HV2628571 (23810 coil)	24 VDC, 442 mA
	HV2648581 (23810 coil)	24 VDC, 442 mA
	EF8210G001MBMO (238714 coil)	24 VDC, 450 mA
		See note 1
	R8210A107 (097617-005D coil)	24 VDC, 700 mA
Pyro-Chem	T8210A107 (097617-005D coil)	24 VDC, 700 mA
	ECH Electrical Control Head (551201)	24 VDC, 1700 mA
	Explosion-Proof Electric Actuator (570147)	24 VDC, 396 mA
Hygood	Removable Electric Actuator (570209)	24 VDC, 200 mA
	304.205.010 – Electrical Actuator Suppression Diode	24 VDC, 250 mA
	304.209.001 – Electrical Actuator Bridge Rectifier	24 VDC, 250 mA
Minimax	MX1230 without diode	24 VDC, 500 mA
Versa	CGS-4292-NB3-S20000	24 VDC, 438 mA

Table 6: Compatible UL Listed Valves and Actuators

Manufacturer	Model Number	Electrical Ratings
Burkert	5282 2/2-Way Solenoid Valve	24 VDC, 333 mA
Tyco Safety Products	TSP 304205030	24 VDC, 0.5 A
	TSP 304700001	24 VDC, 830mA
Masteco	MSC-01	24 VDC, 1.7 A
Kidde See note 2	85-890181-200	24 VDC, 2 A
	85-895630-200	24 VDC, 2 A
	85-486500-010	24 VDC, 200 mA
	WK-890181-200	24 VDC, 2 A

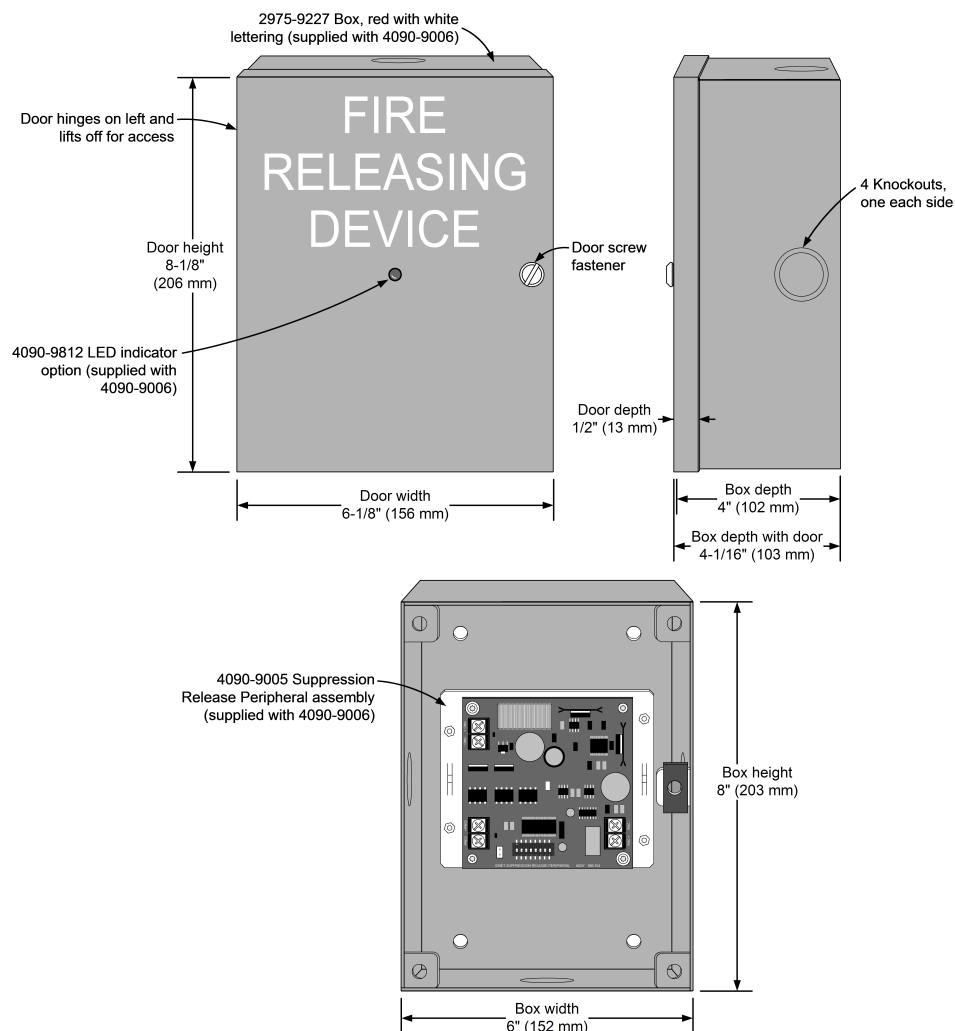
Note:

- For 24 VDC, 450 mA activation, requires one actuator connected in series with a 73866 (21.5 ohm, 23 watt) in-line resistor shipping assembly ordered separately. For additional information refer to the manufacturer's technical documentation.
- UL listing pending

FM Approved Solenoid Valves

4100ES Control Panels are assigned to FM Release Control Panel Group 3. Group 3 FM Approved Release Control Panels are compatible with all FM Approved Solenoid Valves rated at 22 Watts or less. For verification of agency listings and power requirements refer to the solenoid valve manufacturer's technical documentation.

Suppression Release Peripheral Installation Reference Diagram


Note: Image shows:

- box, supplied with 4090-9006.
- 4090-9812 LED indicator option, supplied with 4090-9006.
- 4090-9005 suppression release peripheral, supplied with 4090-9006.

