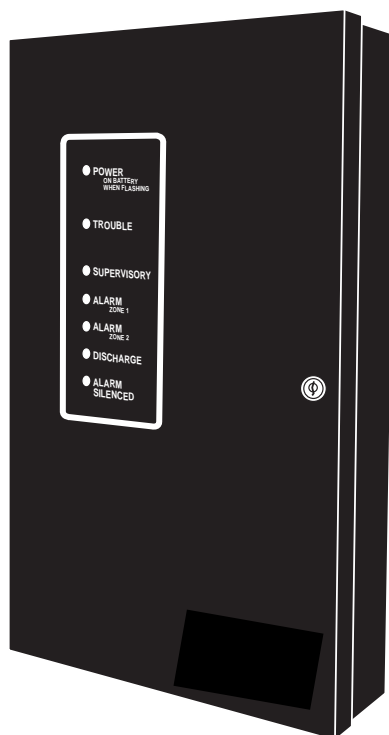


SIEMENS

Fire Safety

Model CP-2ER Control Panel

Operation, Installation, and Maintenance Manual



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OPTION DIPSWITCHES

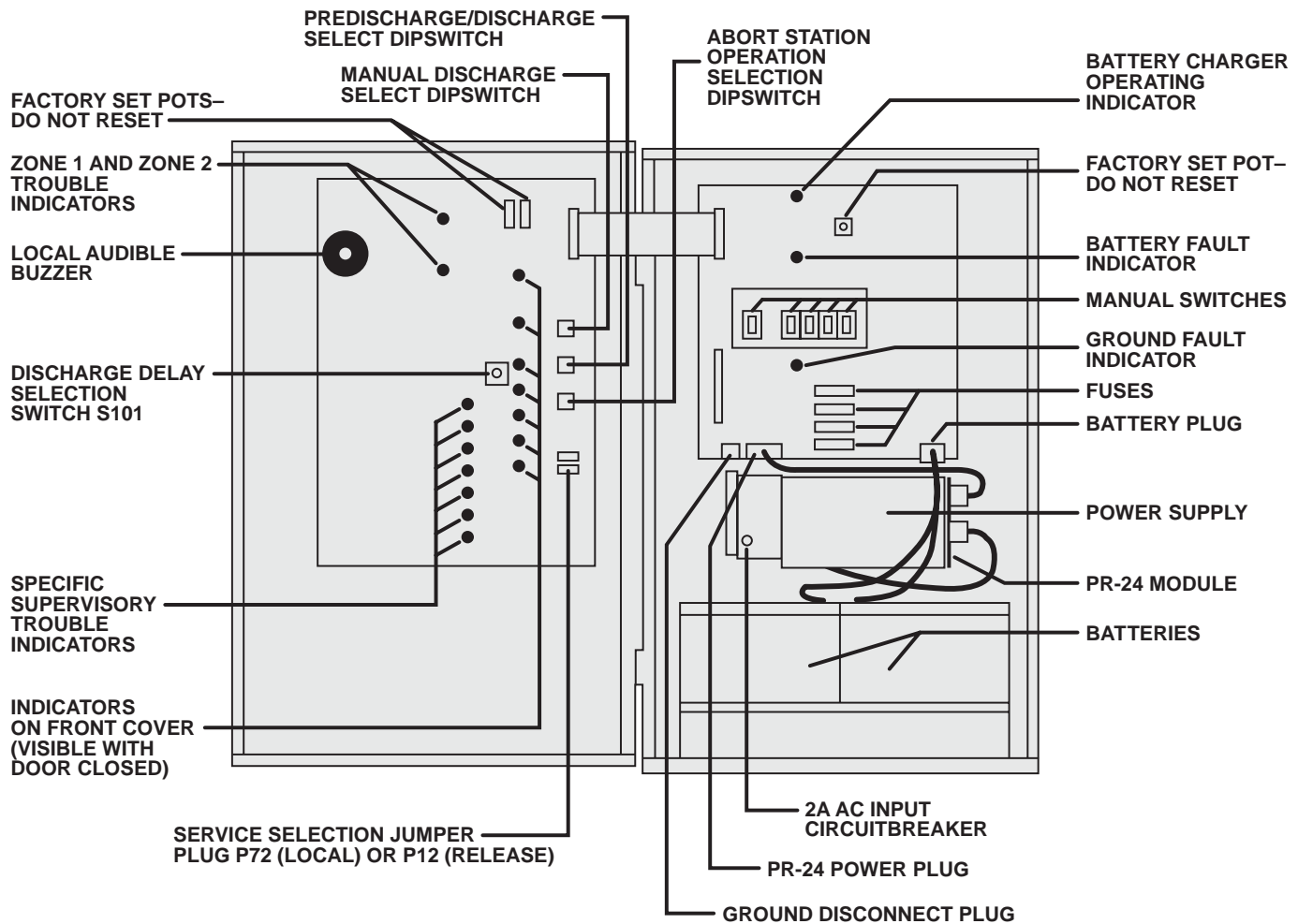


Figure 1
Model CP-2ER

INTRODUCTION

The **SIEMENS** Model CP-2ER Control Panel is a two-zone local control unit which meets the requirements of NFPA 72 Local for a two-zone releasing device panel approved in accordance with NFPA 12A, 13, and 2001 for cross zone protection. The two initiating zones, Zone 1 and Zone 2, may be connected for either Class A or Class B operation. The two zones are arranged so that both must be activated in order to discharge the agent automatically into the protected area.

As shipped from the factory, the CP-2ER is set to meet the NFPA 72 requirements; that is, an alarm in either of the two initiating zones causes the general alarm to sound. Once the general alarm is silenced, an alarm in the other initiating zone causes the general alarm to sound again.

To set the CP-2ER to meet NFPA 12A, 13, or 2001 requirements for a releasing panel, place the **SERVICE SELECTION** plug in position P12 (Release). With the plug in this position, both a general alarm associated with the first initiating zone actuation and a predischARGE/dischARGE alarm with actuation of the second initiating zone will sound. The

position of the plug in P12 voids the NFPA 72 Local listing since the general alarm circuit silences upon actuation of the second initiating zone.

The Control Panel provides for the external connection of a supervised manual discharge station for agent release, as well as for several other supervised input and output functions. Essentially, every supervised feature has its own separate fault indicator for ease of troubleshooting the system, should a fault occur.

Displayed through the front cover are the usual visual indicators for power, system alarm, and system trouble, as well as several additional specific function indicators. Within the Control Panel are a fire alarm **RESET/LAMP TEST** switch, an **ALARM SILENCE** switch, a **SUPERVISORY SILENCE** switch, a **TROUBLE SILENCE** switch, and a **RELEASE DISCONNECT** switch. The separate visual fault indicators are displayed within the panel for all supervised features.

Isolated relay contacts are provided for: System alarm - DPDT, System trouble - SPDT, PredischARGE/dischARGE - SPDT and SPST (normally open). For information regarding functional options, refer to the **OPERATION** section.

OPERATION

External Output Loading

It is critical that sufficient battery energy be provided for either 24 hour or 60 hour system operation. All circuit loading is fixed except for the following (See the **CONNECTION DIAGRAM** on pages 4-5, also).

1. Class B Supervised General Alarm Audibles
TB2, terminals 1 and 2
Rated 24 VDC, 1.5A max
2. Class B Supervised Discharge Audibles
TB2, terminals 3 and 4
Rated 24 VDC, 1.5A max
3. Class B Supervised Discharge Circuit
TB2, terminals 5 and 6
Rated 24 VDC, 2.0A max

The table below provides a listing of the various visual indicators provided within the CP-2ER Control Panel unit. The labels appearing on the unit are printed in capital letters.

SERVICE SELECTION Jumper

The **SERVICE SELECTION** jumper is provided so that a CP-2ER system can be operated under NFPA 72 Local or NFPA 12A, 13 or 2001.

For NFPA 72 Local Service:

- Do not place **SERVICE SELECTION** plug in P12 position.
- NOTE:** Plug may be either in P72 or not used for 72 Local service.

- Connect 5.6K ohm, 1/2W, end-of-line resistor across TB2, terminals 3 and 4.
- Connect 1K ohm, 1W, end-of-line resistor across TB2, terminals 5 and 6.

Initiating Circuit and Local Protective Signaling Panel Operation (Selection Plug Placed on P72).

A single zone alarm results in the following:

1. An alarm lock-in of that zone.
2. A visual alarm condition of that zone.
3. A general alarm condition of the panel which includes:
 - a. Change of state of fire alarm relay contacts (TB3, terminals 4 through 9).
 - b. General alarm audible circuit actuated.

Since neither the discharge audible circuit nor the discharge device circuit is used, an initiation of the second zone results in only a visual display indicating that the second zone has alarmed.

| VISUAL INDICATORS | COLOR |
|--|---|
| Visual Indicators Externally Visible <ul style="list-style-type: none"> • POWER — Steady on indicates main power is normal. — Flashing on/off indicates panel is operating from the backup battery supply. • System TROUBLE — Indicates a general system trouble. • System SUPERVISORY — Indicates a general system supervisory • ALARM ZONE 1 • ALARM ZONE 2 • PredischARGE/DISCHARGE alarm operates in flashing mode upon cross zone (Zone 1 and Zone 2) activation condition until preselected time delay has expired. Operates in steady mode upon, and following, actual discharge. • Audible ALARM SILENCED indicates that either the general alarm audible device or predischARGE/dischARGE audible device circuit has been silenced. | Green Yellow Yellow Red Red Red |
| Visual Indicators Internally Visible (Must open panel door to be viewed) <ul style="list-style-type: none"> • BATTERY FAULT indicates high/low (or open) battery fault condition or open battery circuit. • GROUND FAULT • Abort station circuit fault (ABORT TROUBLE) • Manual release station circuit fault (MANUAL DISCHARGE TROUBLE) • Release circuit fault (AGENT DISCHARGE TROUBLE) • Zone 1 initiation circuit fault (ZONE 1 TROUBLE) • Zone 2 initiation circuit fault (ZONE 2 TROUBLE) • General alarm audible circuit fault (GENERAL ALARM TROUBLE) • PredischARGE/dischARGE audible alarm circuit fault (PREDISCHARGE TROUBLE) • CYLINDER PRESSURE TROUBLE • CYLINDER PRESSURE SUPERVISORY • BATTERY CHARGER Charging current operation | Red |
| Internally Operated Switch Functions <ul style="list-style-type: none"> • System RESET/LAMP TEST switch (momentary) • Audible ALARM SILENCE switch (momentary) • System audible SUPERVISORY SILENCE switch • System audible TROUBLE SILENCE switch • RELEASE DISCONNECT switch | Yellow Yellow Yellow Yellow Yellow Yellow Yellow Yellow Yellow Yellow Light Red |

If the **ALARM SILENCE** switch has been operated after initiation of the first zone alarm, a second zone alarm results in reactivating the general alarm audible circuit, which may then be silenced again.

For NFPA 12A, 13, or 2001 Service:

- Place **SERVICE SELECTION** plug in P12.
- Connect TB2, terminals 5 and 6 as shown in the Connection Diagram. An open circuit will cause a trouble condition.

Initiating Circuit and Agent Release Operation (Selection Plug Placed on P12). The two initiating zones provided are arranged so that both zones (cross zoning) must be alarmed before the agent release discharge sequence begins.

A single zone alarm condition results in:

1. Alarm lock-in of that zone.
2. Visual alarm indication of that zone.
3. General alarm condition of panel which includes:
 - a. Change of state of fire alarm relay contacts.
 - b. General alarm audible circuit activated.

Upon initiation of both zones, the agent discharge delay sequence begins. The discharge delay period may be preselected by rotating the Discharge Delay Selection switch S101 to one of the following time-in periods: 0, 5, 10, 15, 20, 25, 30, 35, 40, or 45 second delay. (Refer to Option No. 1 below.)

As the discharge delay period begins (both zones alarmed), and the general alarm audible circuit is de-energized, the predischARGE relay contacts (TB3, terminals 10 through 14) change state (See Option No. 4). The predischARGE audible circuit, along with its associated visual indicator, is cycled at a 2 Hz rate with a 50% duty cycle during the selected discharge delay period. At the conclusion of the discharge delay period, the agent release circuit is energized for approximately 1 minute, while the discharge audible is energized in a steady-on condition until either it is silenced or the panel is reset to a non-alarm condition.

MANUAL SWITCHES

System **RESET/LAMP TEST**

Upon initiation of either Zone 1 or Zone 2 and/or operation of the manual **DISCHARGE PRESSURE** switch, the Control Panel locks into an alarm condition. This alarm condition may only be reset by operation of the internal momentary **RESET/LAMP TEST** switch. While this switch is held in the Reset position, all indicating lamps, except **POWER** and charge current operation **BATTERY CHARGER** are lit. It should be noted that the Control Panel cannot be reset while the manual **DISCHARGE PRESSURE** switch is in the closed position.

ALARM SILENCE

The internal momentary **ALARM SILENCE** switch is operated to silence an existing energized audible alarm circuit. The general alarm audible circuit may be optionally silenced by momentary operation of the **ALARM SILENCE** switch at any time after it has become energized. The predischARGE/discharge audible alarm circuit may be optionally silenced by momentary operation of the same **ALARM SILENCE** switch, but only after the selected predischARGE period has timed out.

Silencing the general alarm circuit prior to operation of the predischARGE audible circuit does not inhibit the predischARGE circuit audible from its normal operation. To silence the discharge audible circuit in this case requires a second **ALARM SILENCE** switch activation. After silencing either the general alarm circuit and/or the discharge audible circuit, both remain silenced until the panel is reset (if alarm condition cleared). "Silence" operation of either alarm circuit does not change the state of the general alarm relay contacts. Operation of the **ALARM SILENCE** switch, when the panel is not in an alarm state, has no effect.

SUPERVISORY SILENCE

Operation of the **SUPERVISORY SILENCE** switch to its Silence position results in silencing the internal supervisory buzzer when the panel is in a supervisory condition, as indicated by the supervisory light on the front panel. Operation of the **SUPERVISORY SILENCE** switch to its Silence position when a panel supervisory condition does not exist causes the supervisory buzzer to operate as it does when the **SUPERVISORY SILENCE** switch is in Silence position and the panel supervisory condition is cleared to a normal supervisory condition.

TROUBLE SILENCE

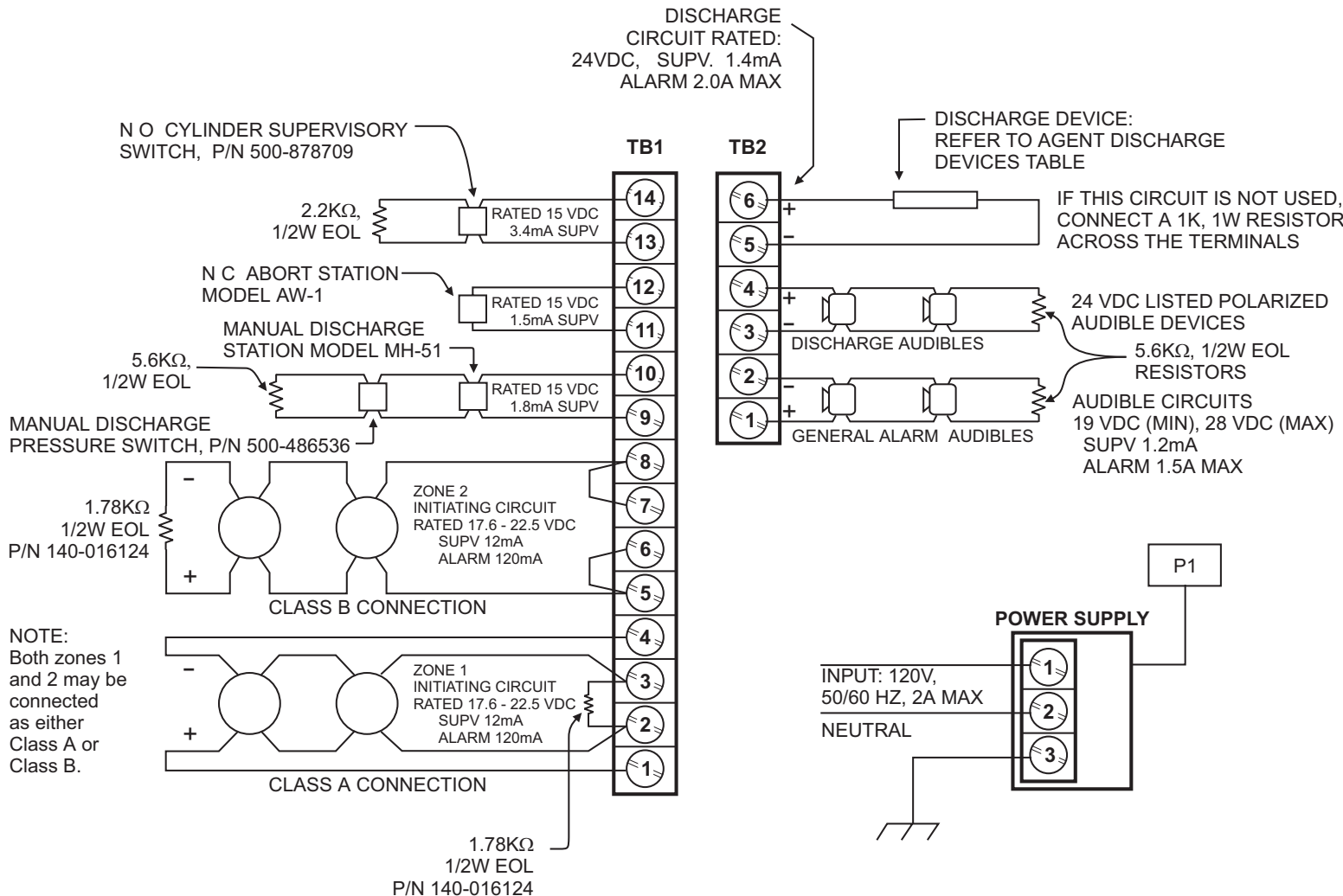
Operation of the **TROUBLE SILENCE** switch to its Silence position results in silencing the internal trouble buzzer when the panel is in a trouble condition, as indicated by the trouble light on the front panel. Operation of the **TROUBLE SILENCE** switch to its Silence position when a panel trouble condition does not exist causes the trouble buzzer to operate as it does when the **TROUBLE SILENCE** switch is in Silence position and the panel trouble condition is cleared to a normal supervisory condition.

RELEASE DISCONNECT

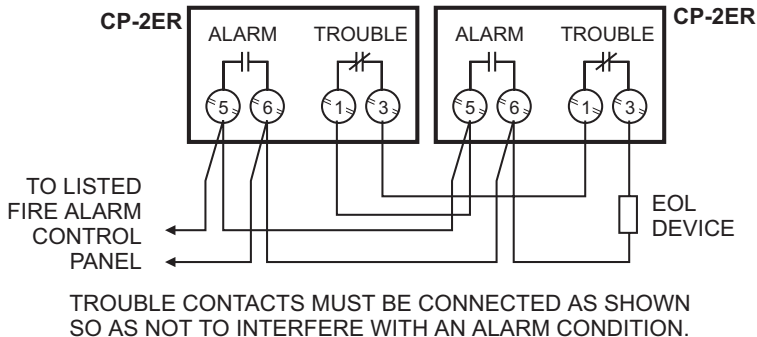
The **RELEASE DISCONNECT** switch is a normally closed single pole switch in series with the release circuit output. Moving the switch from its normally closed position during a non-discharge or circuit activation condition causes an open circuit trouble indication of the release circuit. This prevents the associated discharge devices from activating.

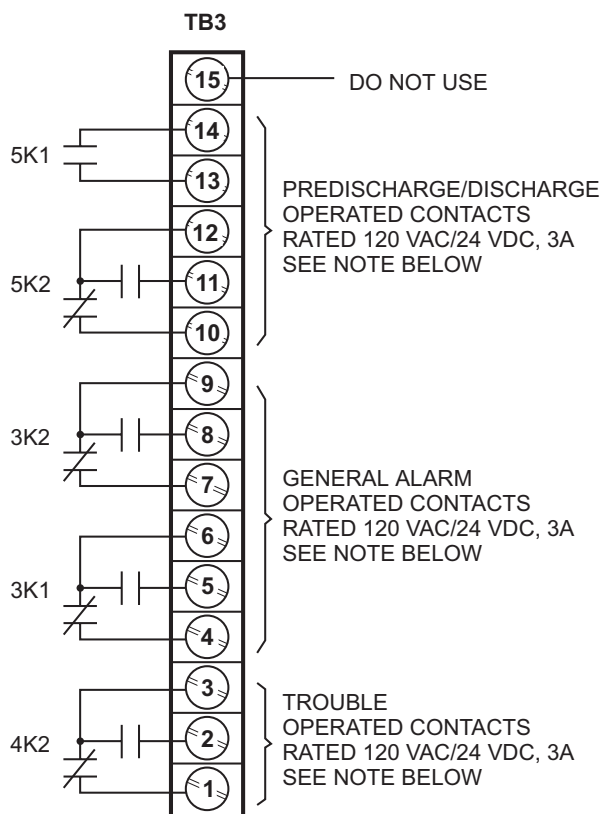
SIEMENS Model CP-2ER CONNECTION DIAGRAM

Approved for Manual or Automatic alarm for the following categories: Local control unit in accordance with NFPA 72 Local; suitable for NFPA connection; suitable also for releasing device service in accordance with NFPA 12A, 13, and 2001. Refer to Note 3e.



TYPICAL CONNECTION TO FIRE ALARM SYSTEM (When CP-2ER panels are arranged for NFPA Releasing Service)





NOTE: The contacts are shown in supervisory condition (5K and 3K relay de-energized; 4K relay energized).

AGENT DISCHARGE DEVICES

| Application | Siemens Model | Vendor Part Number | Number of Solenoids in Series | Max Line Resistance |
|-------------------------------|---------------|--|-------------------------------|---------------------|
| NFPA 13 (Preaction Deluge) | N/A | Skinner LV2LBX25 | One 24 VDC | 3 ohms |
| | N/A | ASCO TB210A107 | One 24 VDC | 3 ohms |
| | N/A | ASCO R8210A107 | One 24 VDC | 3 ohms |
| | N/A | ASCO 8210A107 | One 24 VDC | 3 ohms |
| NFPA 12A (Halon) | HSV-24 | N/A | One 24 VDC | 8 ohms |
| | HSV3-24 | N/A | One 24 VDC | 8 ohms |
| | CPSS-C-24 | N/A | One 24 VDC | 8 ohms |
| | CPSS3-C-24 | N/A | One 24 VDC | 8 ohms |
| NFPA 2001 (FM-200) | N/A | ECHS-24 EXP | One 24 VDC | 10 ohms |
| | N/A | ECHS-24 | One 24 VDC | 1 ohm |
| | CPYEC-6 | ASCO | Four 6 VDC | 3 ohms |
| | CPYEC-12 | HV218532-6* SNAPTITE | Two 12 VDC | 3 ohms |
| | CPYEC-24 | P/N 2823A-2NB-A4F5** SNAPTITE P/N 2823A-X06-A2F6 | One 24 VDC | 3 ohms |

Any solenoid not described in the table is not permitted.

*Four series connected 6V solenoids must be used.

**It is not permitted to mix one 12 VDC solenoid with any combination of the 6 VDC solenoids.

NOTES:

- To obtain proper agent releasing operation, both audible circuits must be utilized.
- All external circuits on TB1 and TB2 are supervised.
- See **OPERATION, INSTALLATION, AND MAINTENANCE MANUAL**, P/N 315-093523 for details regarding:
 - Abort Mode Selection
 - Manual Discharge Mode Selection
 - Time Delay Adjustment
 - 5K Relay Operation Selection
 - Service Selection: Removing the plug from position P72 will void NFPA 72 Local approval
- Jumper terminal 11 to terminal 12 of TB1 when abort station is not used.
- Place EOL resistor across associated terminals when designated devices are not used.
- TB2, terminals 3, 4, 5, and 6 are not used for 72 Local Service.
- Refer to **OPERATING INSTRUCTIONS**, P/N 315-193524.
- To use power limited wiring to NFPA 70, NEC, the audible circuits, terminals 1-4 of TB2 must use the PLM-35 module. Refer to Instructions P/N 315-093495. Initiating circuits, TB1, terminals 1-14, are power limited as they are.
- For a list of **COMPATIBLE NOTIFICATION APPLIANCES**, refer to P/N 315-096363.

DETECTORS

May use up to 30 smoke detectors (selected from any of the compatible detectors listed below) or may use shorting devices, detector relays, or remote lamps (Refer to the related detector instructions).

COMPATIBLE DETECTORS

| DETECTOR COMPATIBILITY IDENTIFIER | BASE COMPATIBILITY IDENTIFIER | INSTALLATION WIRING INSTRUCTIONS |
|-----------------------------------|-------------------------------|----------------------------------|
| DI-3/3H | DB-3S | P/N 315-081943-17 |
| DI-4A | DB-4 | P/N 315-085257-11 |
| DI-6 | DB-4 | P/N 315-085257-11 |
| DI-A3/A3H | DB-3S | P/N 315-081943-17 |
| DI-B3/B3H | AD-3I/3ILP | P/N 315-093234-6 |
| | AD-3RI/3RP | P/N 315-086591-7 |
| | SA-3I/3P | P/N 315-086593-6 |
| DT-3P | DB-3S | P/N 315-084401-5 |
| DT-11 | DB-11 | P/N 315-095429-2 |
| PE-3/3T | DB-3S | P/N 315-090875-7 |
| PE-11/11T | DB-11 | P/N 315-094198-9 |
| | DB-3S with DB-ADPT | P/N 315-094198-9 |
| | AD-11P | P/N 315-095659-7 |

CP-2ER is the compatibility identifier

| DESIGNATION | RATING | CIRCUIT |
|-------------|--------|------------------------|
| F1 | 5A | Battery |
| F2 | 2A | General Alarm Audibles |
| F3 | 2A | Discharge Audibles |
| F4 | 3A | Discharge Circuit |

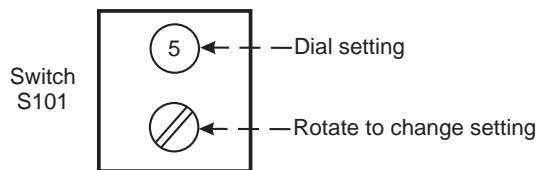
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OPTIONS

1. Discharge Delay Selection Switch S101



| Dial Setting | Discharge Delay Period (seconds) |
|--------------|----------------------------------|
| 0 | 0 |
| 1 | 5 |
| 2 | 10 |
| 3 | 15 |
| 4 | 20 |
| 5 | 25 |
| 6 | 30 |
| 7 | 35 |
| 8 | 40 |
| 9 | 45 |

2. Abort Station Operation Selection Dipswitch PS1

- Position I Closed; II and III Open*
When used, abort function is operational if, and only if, one, but not two, of the associated initiating device circuits has activated. Release of the **ABORT** station switch, after both initiating device circuits have activated, results in the regular preselected discharge delay sequence as selected on S101.
- Position II Closed; I and III Open*
Discharge may be aborted at any time before selected discharge delay period has expired and discharge has begun. Release of the **ABORT** station switch after both initiating device circuits have activated results in continuation of the unexpired discharge delay period as selected on S101.
- Position III Closed; I and II Open*
Discharge may be aborted at any time before selected discharge delay period has expired. Release of the **ABORT** station switch after both initiating device circuits have activated results in a complete discharge delay period as selected on S101.

3. Manual Discharge Operation Selection Dipswitch PS2

- Position I Closed; II Open*
Operation of the **MANUAL DISCHARGE** station results in a discharge delay period, as selected, before actual discharge begins, provided the delay selected is 30 seconds or less. When the discharge delay selector is set for more than 30 seconds, the **MANUAL DISCHARGE** switch operation gives a 30-second delay period maximum.

Closure of the Manifold Discharge Monitor (mechanical release) will result in an instant discharge.

- Position II Closed; I Open*
Operation of the **MANUAL DISCHARGE** station results in immediate discharge, regardless of delay period selected.

NOTE: Opening the closed manual station contacts (or resetting) restores the control panel to a non-alarm state if the initiating zones have not been activated.

4. PredischARGE/Discharge Delay Operation Selection (TB3, Terminals 10 through 14) Dipswitch PS3

- Position I Closed; II Open*
Relay contacts change state on any of the following conditions without any delay period.
 - Both initiating device circuits have activated.
 - MANUAL DISCHARGE** station has been operated.
 - Normally open **MANIFOLD DISCHARGE** monitor switch has closed.
- Position II Closed; I Open*
Relay contacts change state at conclusion of selected discharge delay period when operated by activating both initiating device circuits, by activating manual discharge station, or by operating the Manifold Discharge (mechanical release).

5. New York Option

To meet the requirements of the City of New York Fire Prevention Directive 3-74 and the New York Board of Standards and Appeals, it is necessary to modify the CP-2ER Control Panel by deactivating the 10K ohm resistor R174.

When R174 is not operational, certain responses of the control unit are altered: the general alarm sounds when the first of the two zones alarms. When the second zone alarms, two possible sequences may be followed:

- If the **ABORT** switch is not pressed.*
 - Discharge audibles operate in a pulsing manner and the general alarm circuit is silenced.
 - A 30 second discharge delay is provided by setting switch S101 at **6**.
 - After the delay period, when the agent is released, the discharge audibles sound in a steady manner.
- If the **ABORT** switch is depressed before the 30 second time-in period ends.*
 - The discharge audibles are silenced during the 90 second abort duration period.

NOTE: The 90 second delay period associated with the external abort switch is provided by others.

- 2) The general alarm audibles sound in a steady manner (as if only one zone had alarmed).
- 3) After the 90 second abort delay period ends, the internal 30 second discharge delay begins. At that time the general alarm audibles silence, and the discharge audibles begin to pulse as described in No. 1a above.

INSTALLATION AND WIRING

The reliability of any system depends to a great extent on the proper installation of the control units, detectors, associated equipment, and wiring. These instructions outline the requirements for a satisfactory installation. Careful completion of each detail will provide an automatic fire and smoke detection system that is dependable and gives reliable operation.

Connection instructions are mounted inside the cover of the CP-2ER. Additional wiring information is provided in the manual. Any questions regarding the equipment or installation should be directed to Siemens Building Technologies, Inc. or an authorized representative; do not make any alteration without first consulting one of the above.

Mounting Control Units (Refer to Figure 2)

Securely fasten the control unit to a shock and vibration free surface in a clean, dry area. It must be mounted farther than 3 feet, but less than 6 feet, from the floor. The location should be easily visible, readily accessible for maintenance, and should allow sufficient clearance to open the hinged front door.

Local regulations or codes generally require all wiring to, from, and between units to be carried in 1/2-3/4 inch conduits. Knockouts are provided in the top and bottom of the control unit. No. 18 AWG, 300V insulation, color coded wire is recommended for the detector circuits. A larger size may be used if desired; e.g., 16 AWG. For the power input, audible, and release circuits, use at least 14 AWG, 300V wire.

Power Requirements

The Model CP-2ER Control Unit is designed to be operated from a 120 VAC power source with the neutral line grounded. The 120 VAC input powers all internal circuitry. The AC voltage may vary between the limits of 102 and 132 volts, and the limits should not be exceeded. The CP-2ER ungrounded

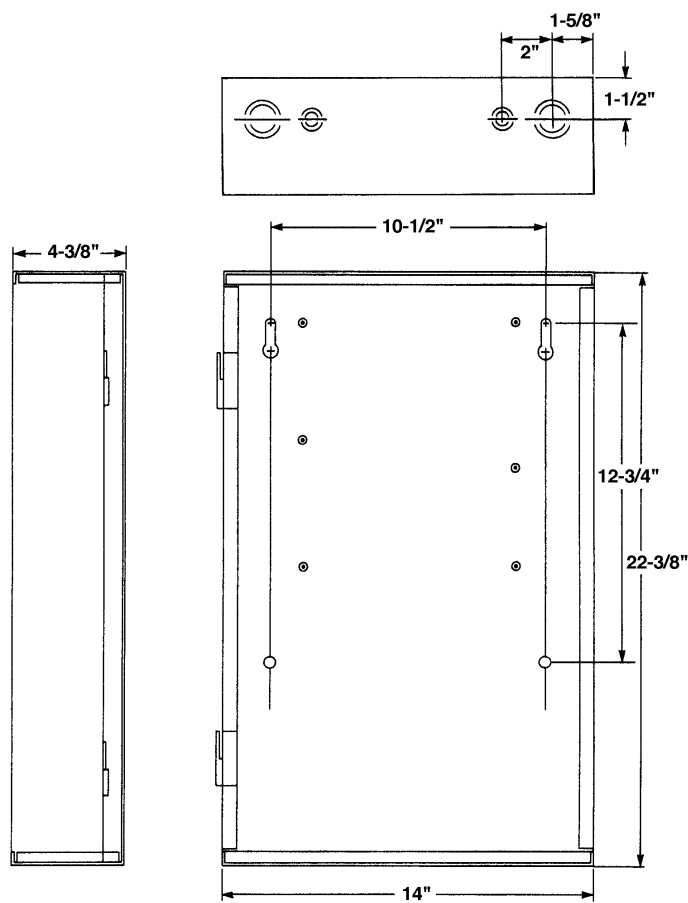


Figure 2
Mounting Data

leg must be connected, through a separate circuitbreaker or fuse, directly to the power supply. No other equipment should be supplied from this separate circuitbreaker or fuse. Wire must be run continuously from power source to terminals in the control unit. A 24V battery provides emergency power. Refer to the **CONNECTION DIAGRAM** on pages 4-5, for terminal connections.

Installation of Conduit and Outlet Boxes

Install outlet boxes and run conduit between boxes and control unit. Use 4 inch octagonal boxes for ionization, photoelectric, flame, and plug-in thermal detectors. The depth of the boxes should be determined by the NEC requirements for the number and size of conductors used. Do not mount boxes in direct air flow from air conditioning or ventilating system supply registers.

The control unit, and all detectors and alarm circuit conduit, must be properly grounded. Insure that all conduit has clean threads and makes good electrical contact between the control unit and outlet boxes.

Installation of Detector Bases

*Wiring (Refer to **CONNECTION DIAGRAM**)*

Run wire in accordance with wiring diagram. Use at least No. 18 AWG, 300V insulation, color coded wire for the detector circuits. Wiring between control unit and first detector base, and all subsequent detector bases, must be continuous; no splices, wire nuts, solder, or any other type connection is permissible. On rare occasions an exception may be necessary due to an extremely long run. In this case, the splice must be soldered.

The wire interconnecting the detector bases is continuously supervised by a small electrical current flow through the circuit to the end-of-line resistor (1.78K ohms) mounted in the base of the last detector. In order to keep this supervision complete, no parallel branching of wires is permissible. Every base, except the last one, will have one set of incoming and one set of outgoing wires.

Installing Bases

Mount end-of-line resistor between appropriate terminals of last base on circuit, as indicated on the **CONNECTION DIAGRAM**. Mount all bases to outlet boxes. Manual stations, thermal detectors, air duct detectors, etc., are to be connected to the circuit at this time. Please refer to wiring diagrams for the specific equipment for connection details.

Wiring Test

NOTE: It is suggested that electrical tests be conducted jointly by the installer and the manufacturer's technician or representative. Written notice is requested 15 days prior to the tests so that the services of the technician may be scheduled.

The installation of the wiring should be checked as follows:

1. Detectors should not be in their bases. Temporary jumpers should be inserted in all bases if not already installed. Install end-of-line resistor to appropriate terminals of last detector on circuit for Class B wiring. For Class A wiring, install the end-of-line resistor between terminals 2 and 3 for Zone 1 and between terminals 5 and 6 for Zone 2. Wiring from bases should NOT be connected to the Control Panel at this time.
2. Check the wiring of the detector circuit with an ohmmeter. Resistance reading between wires connected to terminals 1 and 4 of the Control Panel or terminals 5 and 8 for the other zone should be approximately 1.8K ohms. Short the detector lines together and megger the combined lines to chassis and conduit. There should be at least 10 meg resistance reading between wires and conduit or ground.
3. Connect wires to appropriate terminals of the Model CP-2ER.
4. Remove the temporary jumpers from the bases. The manufacturer's Service Representative will then install the detectors and check sensitivity.

System Operation Test

CAUTION: Be sure to prevent release of the agent.

1. See that the CP-2ER control unit is in normal standby operation.
2. To test for supervision of initiating circuit, remove the detector connected to the last device and check that proper trouble indicators respond in the system. Reconnect detector.
3. To test operation of initiating circuit, actuate a detector. Check that system fire indicators and alarm relay contacts respond to the alarm.
4. Test operation of detector circuit: Activate each detector and manual station, one at a time, resetting each, and check that detector base lamp and control unit alarm controls operate. Each ionization detector may be activated by blowing smoke into the chamber. The manual station on the front panel should be checked independently.
5. Check all basic system operational functions, particularly the operation of the time delay functions, prior to arming the agent releasing circuits.

POWER LIMITED WIRING

Effective May 1, 1995, all power-limited fire protective signaling conductors must be separated a minimum of 1/4 inch from all of the following items located within a control panel: electric light, power, Class 1, and non-power limited fire protective signaling conductors .

To meet these requirements, the following guidelines **must be observed** when installing modules and wiring to this control panel.

NOTE: If power-limited wiring is not used within this enclosure, then the following guidelines do not apply. In that case, be sure to follow standard wiring practices.

Wiring Entering the Enclosure Non-power Limited Wiring

Wiring to the following CP-2ER terminations is considered non-power limited and must enter the enclosure through the knockout specified below (See Figure 3). Wiring between the knockout specified and the termination must be the shortest route, and must not overlap any other wiring.

| MODULE | TERMINATION | ENCLOSURE KNOCKOUT |
|--------|----------------------|--------------------|
| CP-2ER | TB-2 (All positions) | 3 or 4 |
| CP-2ER | TB-3 (All positions) | 3 or 4 |

Wiring in the Enclosure Non-power Limited Wiring

Wiring from the batteries and power supply is considered non-power limited. To maintain the required separation, route the wires as shown in Figure 3.

Wiring Entering the Enclosure Power Limited Wiring

Wiring to the following CP-2ER terminations is considered power limited and must enter the enclosure through the knockout specified below (See Figure 3).

| MODULE | TERMINATION | ENCLOSURE KNOCKOUT |
|--------|----------------------|--------------------|
| CP-2ER | TB-1 (All positions) | 1 or 2 |

PLM-35

If the PLM-35 module is required, mount it on the left side wall of the enclosure as shown in Figure 3 (Refer to *PLM-35 Installation Instructions*, P/N 315-093495).

MAINTENANCE AND TESTING

To insure proper and reliable operation, refer to NFPA 72 Local, 12A, or 2001, as appropriate, for applicable maintenance and testing schedule and instructions.

CAUTION: **Make sure that release circuits and shunt trips are disconnected before testing.** Notify facility personnel and the fire department that a system test is being performed so that any alarm soundings can be ignored during the test.

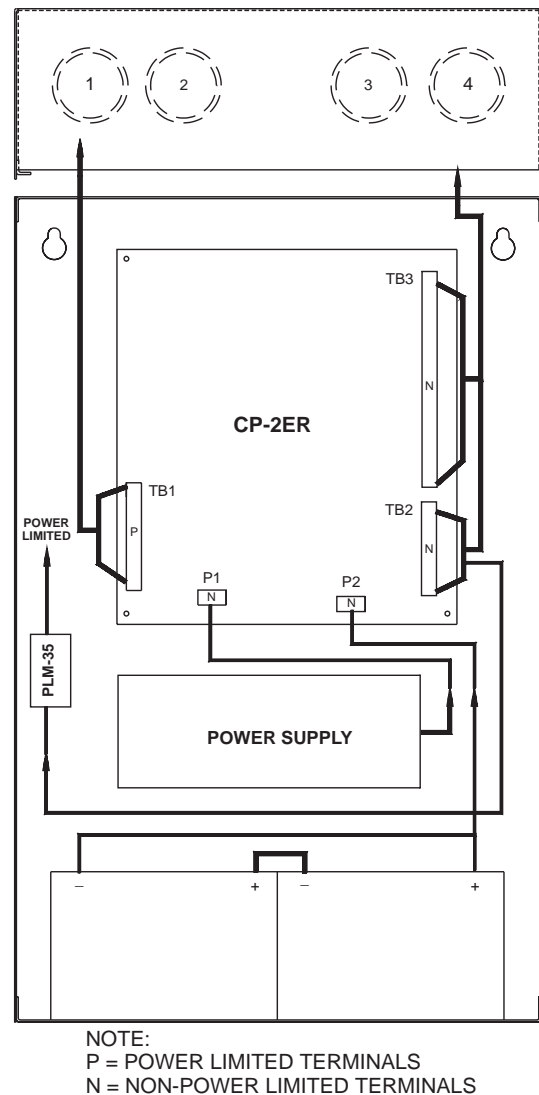


Figure 3
CP-2ER Power Limited Wiring

TROUBLESHOOTING THE SYSTEM

Refer to **OPERATION** section for identity of troubles by lamp indicator. Refer to ratings on specific circuit terminals for manual voltage readings. (See **CONNECTION DIAGRAM** on pages 4-5.)

A system trouble condition causes the following panel indications and conditions:

1. Illumination of the front panel visual trouble indicator.
2. Sounding of the internal trouble buzzer.
3. Change of state of the trouble relay contacts (TB3, terminals 1 through 3).

When the panel is in an “on battery” condition, the front panel visual trouble indicator on the internal trouble buzzer (Items 2 and 3 above) operate in a pulsing manner with two short On periods followed by a longer Off period. An additional system trouble is indicated by four short On periods followed by a longer Off period. In both these instances, the trouble relay contacts (Item 3 above) remain in a steady change of state condition.

A system trouble may result from any of the following fault conditions:

1. “On battery” condition as described above.
2. Battery fault.
 - a. High or low battery voltage condition.
 - b. Disconnected or open battery lines (includes an open or battery fuse F1, rated 5 amps).
3. Ground fault condition of any external wiring.
Panel ground fault condition may be alleviated by temporary removal of ground fault connection plug P3.
4. Abort station fault.
TB1, terminals 7 and 8, open circuit.
5. Manual discharge station.
TB1, terminals 5 and 6, open circuit or not terminated with 5.6K ohm resistor.
6. **With Class B wiring:** Zone 1 and/or Zone 2 initiating circuits.
TB1, between terminals 1 and 4 or between terminals 5 and 8 open circuited, or not terminated with a 1.78K ohm resistor.
With Class A wiring: Zone 1 and/or Zone 2 initiating circuits.
TB1, between terminals 2 and 3 or between terminals 6 and 7 open circuited, or not terminated with a 1.78K ohm resistor.

Wiring resistance between terminals 1 and 2, 3 and 4, 5 and 6, or 7 and 8 exceeds acceptable limits (Refer to **CONNECTION DIAGRAM** on pages 4-5).

7. General alarm audible alarm circuit.
TB2, terminals 1 and 2, open circuited or not terminated with a 5.6K ohm resistor.
NOTE: A trouble condition may result from a low line resistance value as well as from a high line value.
8. Predischage/discharge audible alarm circuit.
TB2, terminals 3 and 4 open circuited or not terminated with 5.6K ohm resistor. (See Item 7 above.)
9. Agent release (discharge devices) circuit.
Terminals 5 and 6, open circuit condition.
10. Cylinder pressure circuit.
TB1, terminals 13 and 14, open circuit or line not terminated with 2.2K ohm resistor.
11. System Reset switch S1 not in normal closed position.
12. **RELEASE DISCONNECT** switch in off-normal (down) position.

Each of the above circuits, except Item 11, has its own individual trouble indicating light located at various points on the panel PC boards. A system Supervisory will result if there is a short circuit condition (cylinder pressure) on TB1, terminals 13 and 14.

Recommended Spare Parts

| Fuse | Rating | Part No. |
|----------|--------|------------|
| F1 | 5A | 105-210734 |
| F2 F3 | 2A | 105-210758 |
| F4 | 3A | 105-215996 |