# CERBERUS PYROTRONICS CZM-1 Remote Conventional Zone Module Owner's Manual



Contents



## CERBERUS PYROTRONICS CZM-1 Remote Conventional Zone Module


## ENGINEER AND ARCHITECT SPECIFICATIONS

- Provides Distributed Conventional Zoning
- One Conventional Initiating Device Circuit
- Connects to MXL ALD Circuits
- Powers Up to 15 Series 3 Smoke Detectors
- Unlimited Shorting Devices per Circuit
- Class A (Style D) or Class B (Style B)
- Latching Alarm LED
- 32 Character Custom Alphanumeric Message
- Alarm Verification Capability
- Walk Test Capability
- No Mechanical Address Programming Required
- Includes Metal Cover Plate
- Circuits Power Limited per NEC 760
- Listed, ULC Listed, CSFM, NYMEA Approved
- FM Approved as Intrinsically Safe with ISI-1

## Description

The CZM-1 is an intelligent device which connects to an ALD loop and provides one remote conventional initiating device circuit. This circuit can power up to 15 Series 3 two wire ionization or photoelectric smoke detectors. It can also monitor listed alarm causing shorting devices such as waterflow switches, thermal detectors, and manual station, etc. Each CZM-1 can be assigned a 32 character custom alphanumeric message. It also includes a latching alarm indicator LED which is visible through the cover plate. The CZM-1 supports both Class A (Style D) or Class B (Style B) wiring. It includes a trim cover plate. The CZM-1 occupies one address on the ALD circuit. It does not require any mechanical address programming. It is programmed and tested using the Cerberus Pyrotronics FPI-32 Programmer/Tester. The ISI-1, an Intrinsically Safe, FM Approved, Isolation Barrier, now makes it possible to convert a conventional zone into an Intrinsically Safe zone.

## Application

Use of CZM-1 modules allows a system to be designed using a combination of intelligent and conventional devices with a substantial reduction in wire. Intelligent devices can be employed in those areas requiring pin-point annunciation as well as analog detection features. Common or other areas can be protected using conventional zoned detection connected to the CZM-1 circuits. This method of “distributed conventional zoning” through the use of modules connected to intelligent circuits can result in a substantial installed cost savings. The ISI-1, an Intrinsically Safe, FM Approved, Isolation Barrier, now makes it possible to convert a conventional zone into an Intrinsically Safe zone. The ISI-1 is designed to work with a CZM-1 and in conjunction with the MXL and MXL-IQ systems.

The detectors that are approved to use in Class I Div. I locations with the ISI-1 are the DI-3IS Ion Detectors and the S-121 and S-122 Flame Detectors. A maximum of ten (10) DI-3IS detectors are allowed and a maximum of five (5) S-121 or S-122 Flame Detectors are allowed. Since the ISI-1 is a passive device, no power is required. Only mechanical (non-energy storing) shorting devices such as the MS-51 Manual Station may be used. In addition, S-121 and S-122 are also approved for use in Class II and Class III Groups E, F and G. For guidance on installation see ANSI/ISA RP 12.6, “Installation of Intrinsically Safe Instrument Systems in Class 1 Hazardous Locations”. For DI-3IS information, see the DI-3 Series installation instructions, P/N 315-081943. For S-121 and S-122 information, see the installtion instructions, P/N 315-085258.

## Engineer and Architect Specifications

The CZM-1 Intelligent Remote Conventional Zone Module shall connect to an MXL ALD intelligent analog detection circuit and provide one (1) conventional initiating device circuit. This circuit shall support the use of up to 15 Series 3 two wire smoke detectors and an unlimited number of listed alarm causing shorting devices such as waterflow switches, thermal detectors, manual stations, etc. The CZM-1 shall support either Class A (Style D) or Class B (Style B) wiring. Its circuits shall be supervised for open circuit and ground fault. Faults and alarm shall be reported at the MXL display(s) with a 32 character custom alphanumeric message. Through the use of the MXL degrade mode capability, the CZM-1 shall be capable of reporting a local alarm condition even in the event of main processor failure or loss of network communication. The CZM-1 shall be powered by a power limited 24 VDC provided by the MXL or PSR-1 remote network supplies.

The CZM-1 initiating device circuit shall also be power limited per NEC 760. The CZM-1 shall be equipped with a latching alarm indicator LED which is visible through the cover plate. Each CZM-1 shall occupy one address on the ALD-2 circuit. CZM-1 modules shall be capable of being programmed to operate with the alarm verification feature. (NOTE: Shorting devices shall not be used with the alarm verification feature.) The CZM-1 shall be capable of reset through the MXL. Devices connected to the CZM-1 shall be capable of being tested using the “One Person Walk Test” feature. The CZM-1 shall not require any mechanical address programming. It shall be fully software addressed using the Cerberus Pyrotronics model FPI-32 Programmer/Tester. A jack shall be provided for connection of this programmer. The CZM-1 shall be Underwriters Laboratories Inc. listed.

## Technical Data

### CZM-1 ELECTRICAL RATINGS

1. **Initiating Device Circuit Electrical Ratings:**
    1. Supervisory Voltage 18-24.5 VDC
    2. Supervisory Current 4mA max.
    3. Alarm Current 45mA max.
    4. Zone Resistance 35 ohms total
2. EOL devices 4.7K, 1/4W, P/N 140-8201888
3. All circuits are power limited to NFPA 70, per NEC 760. Each detector or group of detectors must use a two wire circuit of at least 18 AWG thermoplastic fixture wire enclosed in conduit, or 18 AWG limited energy shielded cable without conduit, is permitted by local building codes.

## ELECTRICAL CONNECTIONS

1. **Initiating Devices**

   The CZM-1 supports one zone of initiating devices in either Class A or Class B (Style D or B) configuration. Up to fifteen 2 wire conventional smoke detectors, any combination of those listed in No. 4 below, may be used; an unlimited number of shorting devices may be used

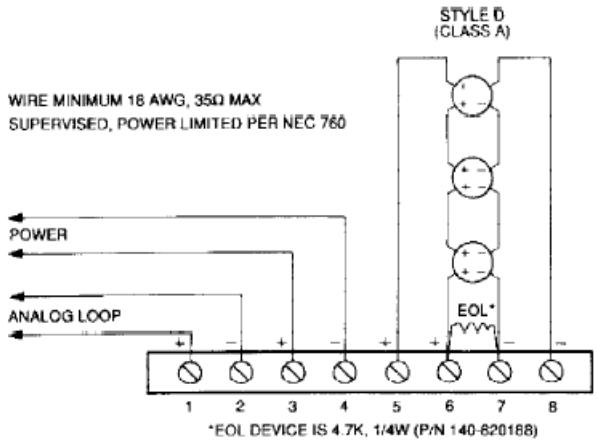
2. **Analog Loops:**

   The CZM-1 communicates with the MXL via the MXL's analog loops, which may be on the MMB-1 or the optional ALD-2 module. The analog loops may be wired Class A or Class B.

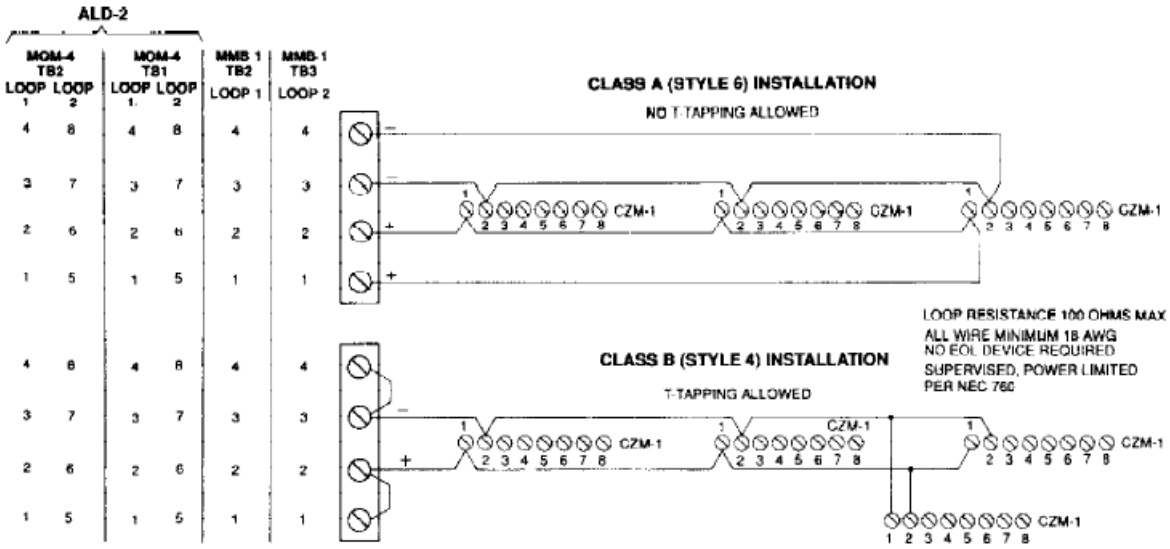
3. **24 Volt DC Power:**

   The CZM-1 derives its power from the CZM-1 power output on the MMB-1. This power is available on TB5 of the MMB-1 on terminals 9-12. The power may be wired as Class A or Class B. Since the CZM-1 monitors the power at its screw terminals, it is possible to star or T-tap the power connection; this can be done only in the Class B configuration.

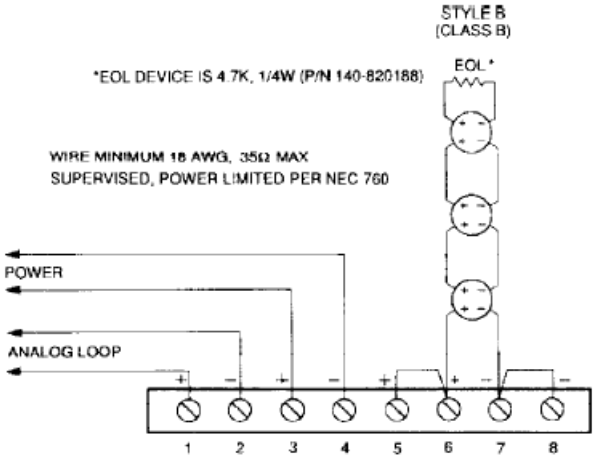
4. The UL identifiers for compatibility are the same as the model names specified below. Compatible Cerberus Pyrotronics detectors are:
   1. Detector Installation Instructions
   2. DI-3/3H P/N 315-081943
   3. DI-A3/A3H P/N 315-081943
   4. DI-B3/B3H P/N 315-086590
   5. P/N 315-086591
   6. P/N 315-086592
   7. PE-3000/3000T P/N 315-086441
   8. PEC-3/3T P/N 315-086545



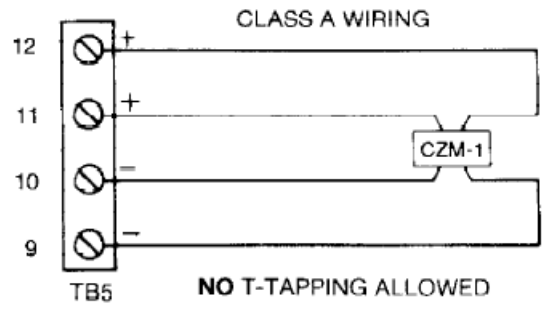

**CZM-1 STYLE D (CALSS A) INITIATING DEVICE CIRCUIT WIRING**



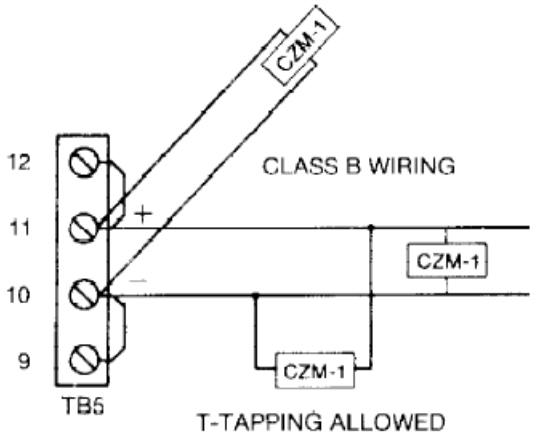

**MMB-1 CZM-1 POWER (TB5, 9-12)**




1. CZM-1 power is available on TB5 terminals 9 through 12.
2. All wiring must be in accordance with Article 760 of NEC or local building codes.
3. CZM-1 power is power limited to NFPA 70, per NEC 760.
4. Electrical Ratings: 18-31 VDC 1A max.
    1. You may connect a maximum of 20 CZM-1s to this power source. You must follow the guidelines below when wiring.
    2. This power may be wired Class A, as shown in wiring diagram labeled CZM-1 Power, Class A Wiring. Class A wiring can support a maximum of 10 CZM-1s, total wire resistance of 4 ohms max. T-tapping is not allowed.
    3. Refer to wiring diagram labeled CZM-1 Power, Class B Wiring. Class B wiring can be used to obtain the maximum of 20 CZM-1s. Each Class B wire run can support a maximum of 10 CZM-1s, 4 ohms max. Multiple Class B power connections can be used provided you do not exceed the ratings above (20 CZM-1s max. and 4 ohms per run, max.). For example, you could have four individual Class B power runs, for a totalof 20 devices (6, 4, 3, and 7 CZM-1s, each of the 4 runs not exceeding 4 ohms resistance). T-tapping is allowed, provided the total resistance of all wires does not exceed 4 ohms




CZM-1 POWER, CLASS A WIRING



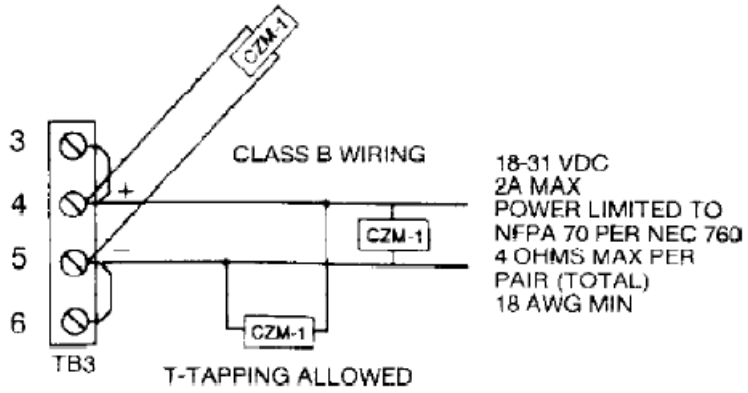

CZM-1 POWER, CLASS B WIRING

**PSR-1 CZM-1 Power (TB3)**
A Class A power limited output is provided on TB3 for use with the CZM-1.

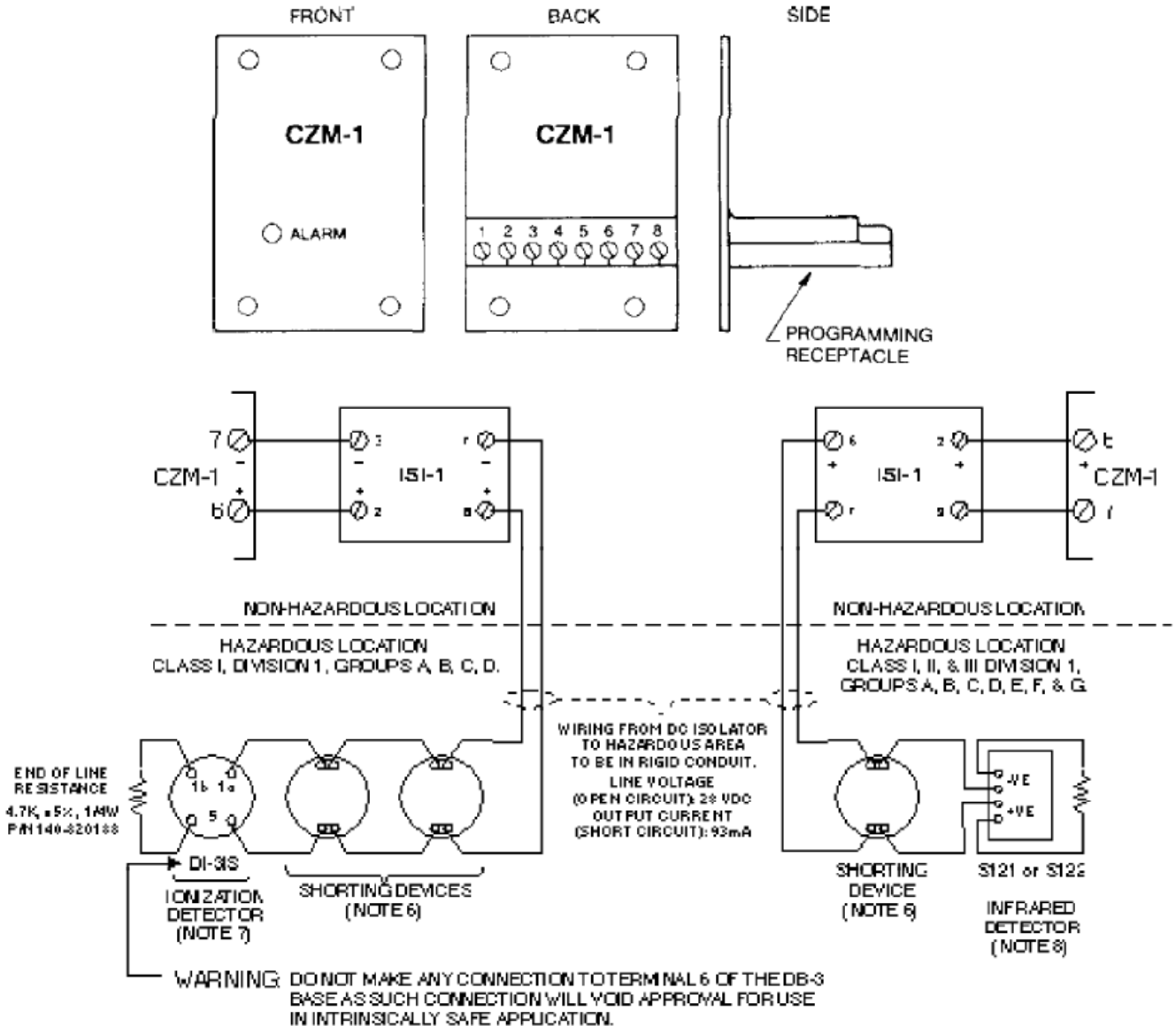
1. This power is available on TB3, terminals 1 through 4.
2. All wiring must be in accordance with Article 760 or NEC or local building codes.
3. The power for CZM-1 and PS-5 is power limited to NFPA 70 per NEC 760.
4. Electrical Ratings: 18-31 VDC 2A max.
    1. You may connect a maximum of 40 CZM-1s to the TB3 power source. Follow the guidelines below when wiring.
    2. This power may be wired Class A, as shown in wiring diagram labeled CZM-1 Power, Class A Wiring. Class A wiring can support a maximum of 20 CZM-1s, with total line resistance of 4 ohms max. T-tapping is not allowed.
    3. Refer to wiring diagram labeled CZM-1 Power, Class B Wiring. Class B wiring can be used to obtain the maximum of 40 CZM-1s. Each Class B wire run can support a maximum of 20 CZM-1s, 4 ohms max. Multiple Class B power connections can be used if you do not exceed the ratings above (40 CZM-1s max. and 4 ohms per run max.) For example, you could have four individual Class B power runs, for a total of 40 devices (for example 12, 8, 6 and 14 CZM-1s), with each of the four runs not exceeding 4 ohms resistance. T-tapping is allowed, provided the total resistance of all wires does not exceed 4 ohms.

## MECHANICAL INSTALLATION

1. Mount the CZM-1 in a standard two gang electrical box. The box must have a depth of at least 3½ inches.
2. When the field wiring is connected, press the CZM-1 into the box and fasten it with the four screws provided.
3. Attach a dress bezel if necessary, making sure that the ALARM LED is aligned with the hole in the bezel.




**CZM-1 POWER, CLASS B WIRING**




**WIRING DIAGRAM OF INTRINSICALLY SAFE ZONE**

**NOTES:**

1. **Intrinsically Safe Output:**
    1. **Open Circuit Voltage**: 28 VDC
    2. **Short Circuit Current**: 93mA

2. Maximum loop resistance must not exceed 35 ohms.
3. A maximum of ten DI-3IS Ionization Detectors or up to five S121 or S122 Flame Detectors can be used in addition to mechanical (non-energy storing) shorting devices.
4. Maximum safe system voltage is 250 VAC.
5. For mounting and installation of the ISI-1, see the ISI-1 instructions.
6. Only mechanical (non-energy storing) shorting devices such as the MS-51 Manual Station may be used.
7. **WARNING**: Do not make any connection to terminal 6 of the DI-3IS base. Such a connection would void use in an intrinsically safe application.
8. In addition, S121 and S122 are also approved for use in Class II and Class III, Groups E, F and G.
9. For guidance on installion see ANSI/ISA RP 12.6, “Installation of Intrinsically Safe Instrument Systems in Class I Hazardous Locations”.
10. For DI-3IS information, see the DI-3 Series installion instructions, P/N 315-081943.
11. For S121 and S122 information, see the installion instructions, P/N 315-085258.

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March 1996 Supersedes sheet dated 5/95



## Documents / Resources

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|  | CERBERUS PYROTRONICS CZM-1 Remote Conventional Zone Module [pdf] Owner's Manual<br>CZM-1 Remote Conventional Zone Module, CZM-1, Remote Conventional Zone Module, Conventional Zone Module, Zone Module |

## References

- Fire Alarm Resources | Download fire alarm documents