

# SIEMENS

## Installation Instructions

### Model ZIC-4AC

Zone Interface Card (500-035850 / S24235-B110-A2)

#### INTRODUCTION

The **SIEMENS** Model ZIC-4AC is a zone interface card that provides notification appliance circuits (NAC) for the system. It has 4 outputs that can be configured for Class A or Class B and control of audible and visual notification appliances such as speakers, strobes, horns, bells, etc.

Each zone can be configured independently for different usages as programmed in the Zeus tool and can be controlled automatically by program logic or manually using the PMI. During the initial power-up condition, each zone on the ZIC-4AC is configured as a steady NAC, Class A configuration with 2A current limit. The ZIC-4AC then sends a message to the PMI indicating that it is unconfigured.

The ZIC-4AC supports one or two channel bulk amplification as well as synchronized and non-synchronized strobes. This selection is available in the Zeus tool under the detail properties for each ZIC-4AC circuit. Synchronization across multiple ZIC-4AC cards is automatic as a part of the system operating characteristics.

#### Features

ZIC-4AC features are as follows:

- Zones can be configured independently for audio or strobe use
- Zones can be configured independently for Class A or Class B
- Can have independent input sources for each output
- Zone input voltage supervision
- Zone output supervision
- Intelligent self-restoring power limiting
- Coded signal synchronization capability
- Card level Ground Fault detection
- Communicate CAN protocol
- Uploadable firmware update
- Ability to pass through up to 4A per circuit

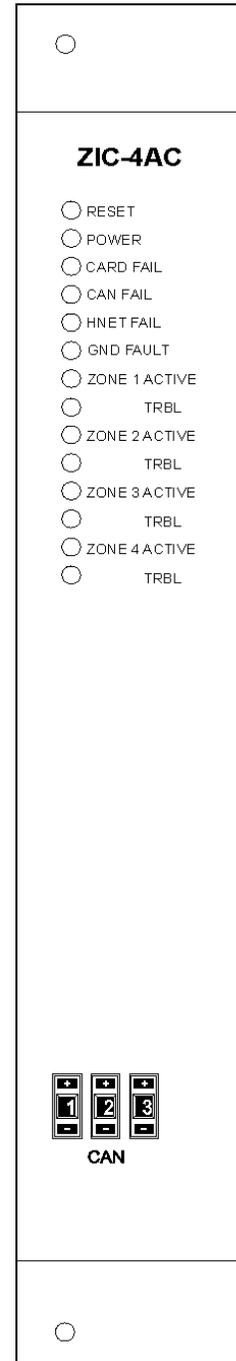


Figure 1:  
ZIC-4AC Zone  
Interface Card

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## OPERATION

The ZIC-4AC contains four Class A circuits. Each circuit is rated at 4A at 24VDC and has an input connected to the power source and an output where the NAC devices are connected. The zone inputs are isolated from one another and are supervised for the presence of power. This allows the use of different power sources with different ground references. The zone output is supervised for open and short circuit conditions while the zone is inactive and allows different combinations of output configurations (Standard NAC or Speaker) per card. Each ZIC-4AC card occupies any one card slot in the CC-5/CC-2 cardcage. The ZIC-4AC also has the capability to detect ground fault on its zone output as indicated by a diagnostic LED.

### **Strobe unsynchronized:**

Input 1 is connected directly to output 1, output is ON steady. Same for In-/Outputs 2, 3 and 4

### **Strobe synchronized**

Input 1 is connected directly to output 1, Output is ON for about 1 second, then a ZIC-4AC onboard relay switch output polarity (+24V is now GND and GND is now +24V). This will cause the strobes to flash. All ZIC-4AC outputs configured as strobe sync will switch output polarity at the same time, also outputs from other ZIC-4AC. Same for In-/Outputs 2, 3 and 4

### **Bulk amplification 1 channel:**

Input 1 is connected directly to output 1, output is ON steady. Same for In-/Outputs 2, 3 and 4

### **Bulk amplification 2 channel:**

This mode provides the possibility to choose between two different signal for one speaker line. Signal one (A) has to be connected to input 1. Signal two (B) has to be connected to input 2. A ZIC-4AC onboard input relay switches automatically the correct signal to the outputs 1 and 2. The functionality is identical for IN-/Output pairs 3 and 4.

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## Controls and Indicators

The **Front Panel** of the ZIC-4AC contains one reset switch, thirteen LEDs, and one CAN address switch as shown in Figure 1.

A **Reset Switch** is located on the top of the front panel. Pushing the reset switch re-initializes the ZIC-4AC operation.

The **LEDs** follow the reset switch and their functions are defined as follows:

POWER	(Green)	Normally ON. When illuminated, indicates that power for the ZIC-4AC is applied to the card.
CARD FAIL	(Yellow)	Normally OFF. When illuminated, indicates that the card microprocessor has failed.
CAN FAIL	(Yellow)	Normally OFF. When illuminated, indicates that the CAN communication with the ZIC-4AC has terminated and the card goes into degrade mode
HNET FAIL	(Yellow)	NOT USED

GND FAULT	(Yellow)	Normally OFF. When illuminated, indicates that the ZIC-4AC has detected either a negative or positive ground fault on its field wiring.
ZONE 1 (2, 3, 4) ACTIVE	(Red)	Normally OFF. When illuminated, indicates that Zone 1 (2, 3, 4) is active.
TROUBLE	(Yellow)	Normally OFF. When illuminated, indicates that the ZIC-4AC has detected a trouble on Zone 1 (open circuit or short circuit).

A **Three-Position Switch** at the bottom of the front panel is used to set the CAN network address of the ZIC-4AC.

PRE-INSTALLATION

The following components must be set prior to inserting the card to the CC-5 (refer to Figure 2):

**S1: Not used**

Switch position has to be off (upper position)

**S2: Not used**

All four switch positions have to be off (left position)

**S3: Reset Switch**

Momentarily Closed switch that when pressed will initiate a hard reset to the ZIC-4AC (similar to a cold boot).

**S4: Network Address Switch**

Set the three-digit CAN network address for the ZIC-4AC using the three-position switch located near the bottom of the front panel. (Refer to Figure 1 for the location of the switch.)

**P1, P2, P3, P4 Input Supervision active / in-**

These headers selects NAC input zone supervision being active or inactive. If the usage application is set for speaker function, remove the shunt jumpers. If the usage application is set for strobe place the two shunt jumpers of each header between pins 1-3 and 4-6.

- P1 selects NAC input supervision for Zone 1
- P2 selects NAC input supervision for Zone 2
- P3 selects NAC input supervision for Zone 3
- P4 selects NAC input supervision for Zone 4

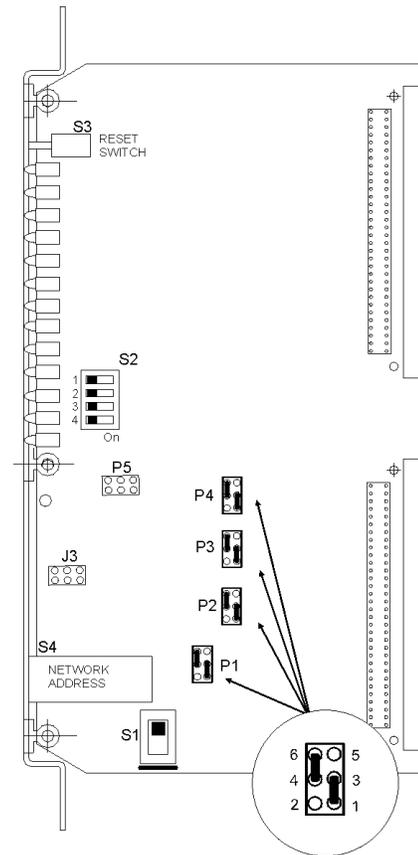


Figure 2  
ZIC-4AC Switch and Jumper Location  
for Strobe usage





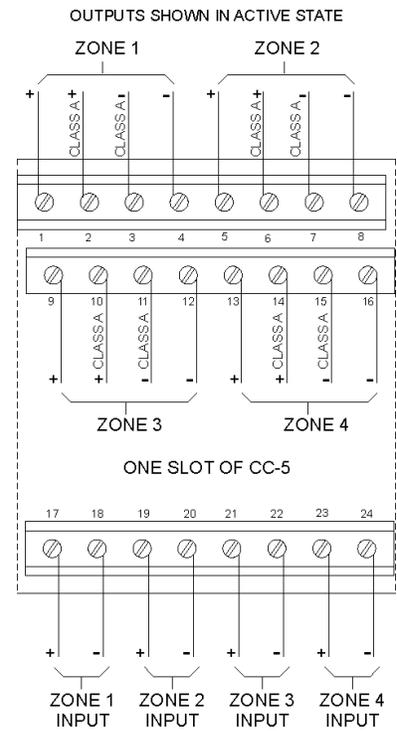
**Disconnect BATTERY and AC prior to working on equipment**

All field wiring to the ZIC-4AC is connected to the terminal blocks of the CC-5/CC-2 card cage slot in which it is installed (Refer to Figure 3).

**To Connect External Wiring**

1. Lift the WHITE cover on the terminal block.
2. Loosen the screw of the terminal by turning it counterclockwise.
3. Insert the wire into the side of the terminal block.
4. Tighten the screw of the terminal block by turning it clockwise.

The top terminals (1 through 8 and 9 through 16) are connected to the notification appliance devices such as bells, horns, strobes, speakers, etc. Each zone has four terminal connections: (+), Class A (+), (-), Class A (-). These terminals are power limited.



*Figure 3  
ZIC-4AC Wiring The 24VDC Power Lines To The ZIC-AC Slot In THE CC-5*

The bottom terminals (17 through 24) are connected to the input power source of the NAC devices. Each zone has a (+) terminal and (-) terminal. These terminals are not power limited.



**Care must be taken when installing the zone input and zone output field wiring to prevent possible cross wiring. This can cause severe damage to the system when powered up or when zone is activated.**

The screw terminals can accommodate one 12-24 AWG (Ø 0.5mm – 2.5mm<sup>2</sup>) or two 16-24 AWG (Ø 0.5mm – 1.5mm<sup>2</sup>).



If the total output of all 4 zones exceeds 12 amps, a single PSC-12C cannot be used to supply the ZIC-4AC. Refer to the PSC-12C Installation Instructions A24205-A334-B798 for information when the total system load exceeds 12 amps.

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## INSTALLATION

The ZIC-4AC plugs perpendicularly into one slot in the CC-5 card-cage via two 96-pin DIN connectors and can occupy any slot in the card cage. (Refer to Figure 4.)

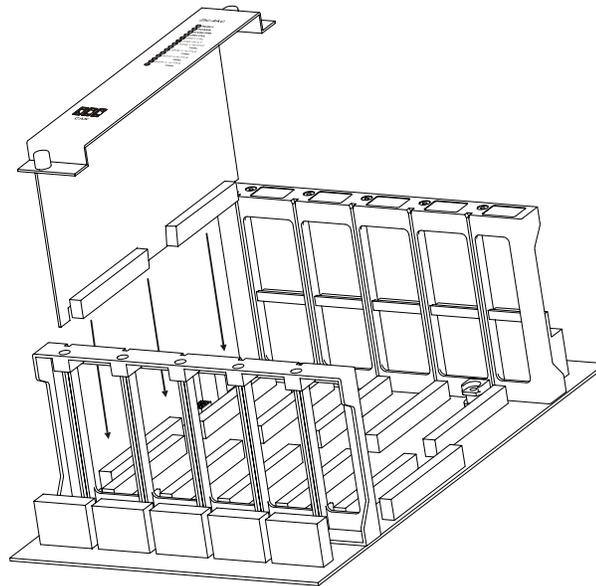
Insert the ZIC-4AC card into the card guides rightside up (lettering on the front panel is legible)

Slide the card in until the card edge connectors contact the receptacles on the motherboard.

Verify that the DIN connectors of the card and the card-cage aligned properly. The card can only plug in one direction to the card cage, if it does not align, DO NOT FORCE the card.

Place thumbs on the front panel adjacent to the captive screws and gently apply even pressure on the card until the connectors seat in the receptacles on the motherboard.

Secure with the captive screws.



*Figure 4  
Installing The ZIC-4AC*

ELECTRICAL RATINGS

24V Back Plane Current	see NOTE below
Screw Terminal 24V Current	Total Device Current
6.2V Back Plane Current	0
24V Standby Current	Same as 24V Back Plane Current



The 24V backplane current is dependent on the usage and wiring type of each ZICckt of the ZIC-4AC. Listed below are the required current draws for each zone and wiring type.

**ZIC-4AC Backplane Current Requirement**

<b>Zone Usage</b>	<b>Output Current Requirement</b>	<b>Class A Current Requirement</b>
Not Used	0	0
Strobe – Sync.	17mA	6mA
Strobe – Unsync.	17mA	6mA
Speaker Zone	34mA	6mA
<b>ZIC-4AC Module Current = 89mA</b>		

To calculate the maximum backplane current, the following equation should be used:

$$\begin{aligned}
 \text{ZIC-4AC Module Current} &+ \text{Zone 1 Usage Req. (See Table above)} \\
 &+ \text{Class A current (if Class A)} \\
 &+ \text{Zone 2 Usage Req. (See Table above)} \\
 &+ \text{Class A current (if Class A)} \\
 &+ \text{Zone 3 Usage Req. (See Table above)} \\
 &+ \text{Class A current (if Class A)} \\
 &+ \text{Zone 4 Usage Req. (See Table above)} \\
 &+ \text{Class A current (if Class A)}
 \end{aligned}$$

Example 1: If a ZIC-4A has the following ZICckt setting:

- ZICckt#1 - Speaker Zone Class A
- ZICckt#2 - Speaker Zone Class A
- ZICckt#3 - Speaker Zone Class A
- ZICckt#4 - Speaker Zone Class A

By applying the equation above, the maximum backplane current requirement for this card will be determined.

$$\begin{aligned}
 \text{Maximum Backplane Current} &= \\
 &89 + (34 + 6) + (34 + 6) + (34 + 6) + (34 + 6) = 249\text{mA (worst case)}
 \end{aligned}$$

Example 2: If a ZIC-4A has the following ZICckt setting:

ZICckt#1 - Strobe Unsync., Class A

ZICckt#2 - Strobe Sync., Class A

ZICckt#3 - Strobe Sync., Class B

ZICckt#4 - not used

Maximum Backplane Current =

$$89 + (17 + 6) + (17 + 6) + (17 + 0) + (0 + 0) = 152\text{mA}$$

CONFIGURATIONS

The ZIC-4AC zones can be configured for the following usages (Refer to Figures 5 - 8):

NOTES

1. Wiring for each zone can either be Class A or Class B.
2. All output circuits are power limited
3. Electrical Ratings:  
Output Zone Supervisory:  
4mA max @ 24VDC  
Output Zone Alarm:  
4A max @ 24VDC
4. EOL resistor , 24k ohms ,  
1 watt , 5%, (comes with module package)  
EOL-Kit S24135-D55-A1
5. Polarity shown in active state.
6. Maximum line resistance is dependent upon the maximum current draw of connected notification appliances when activated. The field wiring resistance cannot exceed the maximum line resistance specified for any given NAC current draw. (See Table)

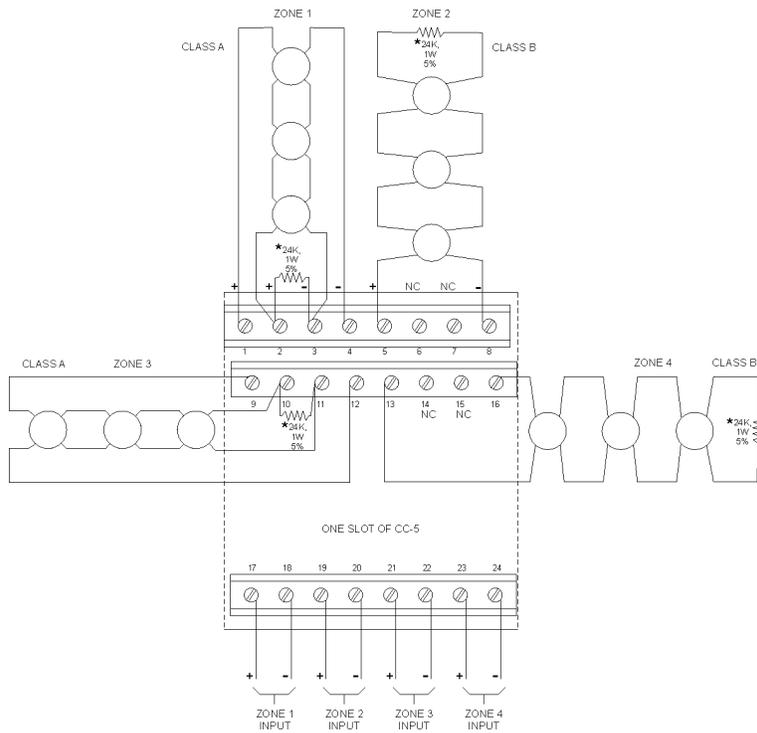


Figure 5  
ZIC-4AC Supervised Notification Appliance Wiring

<b>Current Draw</b>	4.0A	3.5A	3.0A	2.5A	2.0A	1.5A	1.0A	0.5A
<b>Max Line Resistance</b>	0.8	1.0	1.2	1.5	2.0	2.7	4.2	8.7
	ohms							

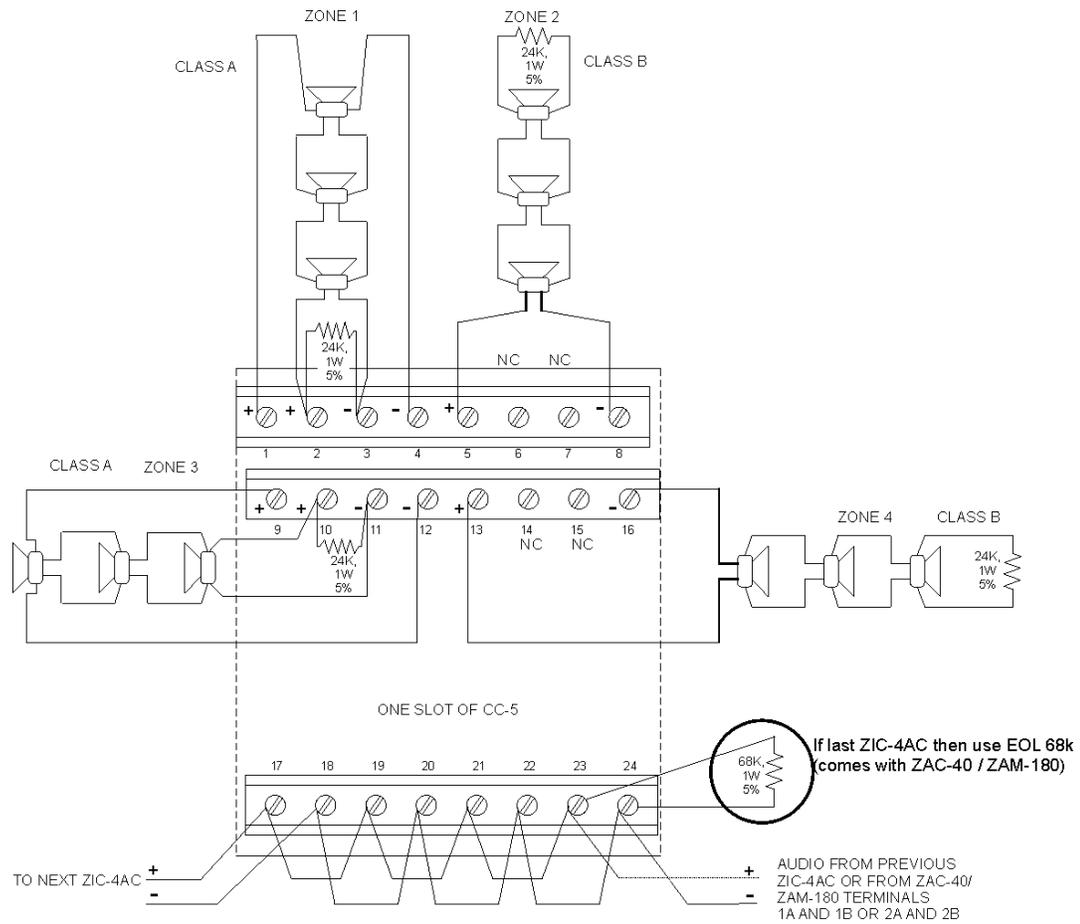


Figure 6  
ZIC-4AC Single-Channel Audio Wiring

NOTES

1. Wiring for each zone can either be Class A or Class B.
2. All output circuits are power limited.
3. Electrical Ratings:  
 Output Zone Supervisory: 4mA max @ 24VDC  
 Output Zone Active: 96 Watts max / zone
4. EOL resistor, 24k ohms, 1 watt, 5%, (comes with module package) EOL-Kit S24235-D55-A1.
5. Polarity shown in active state.

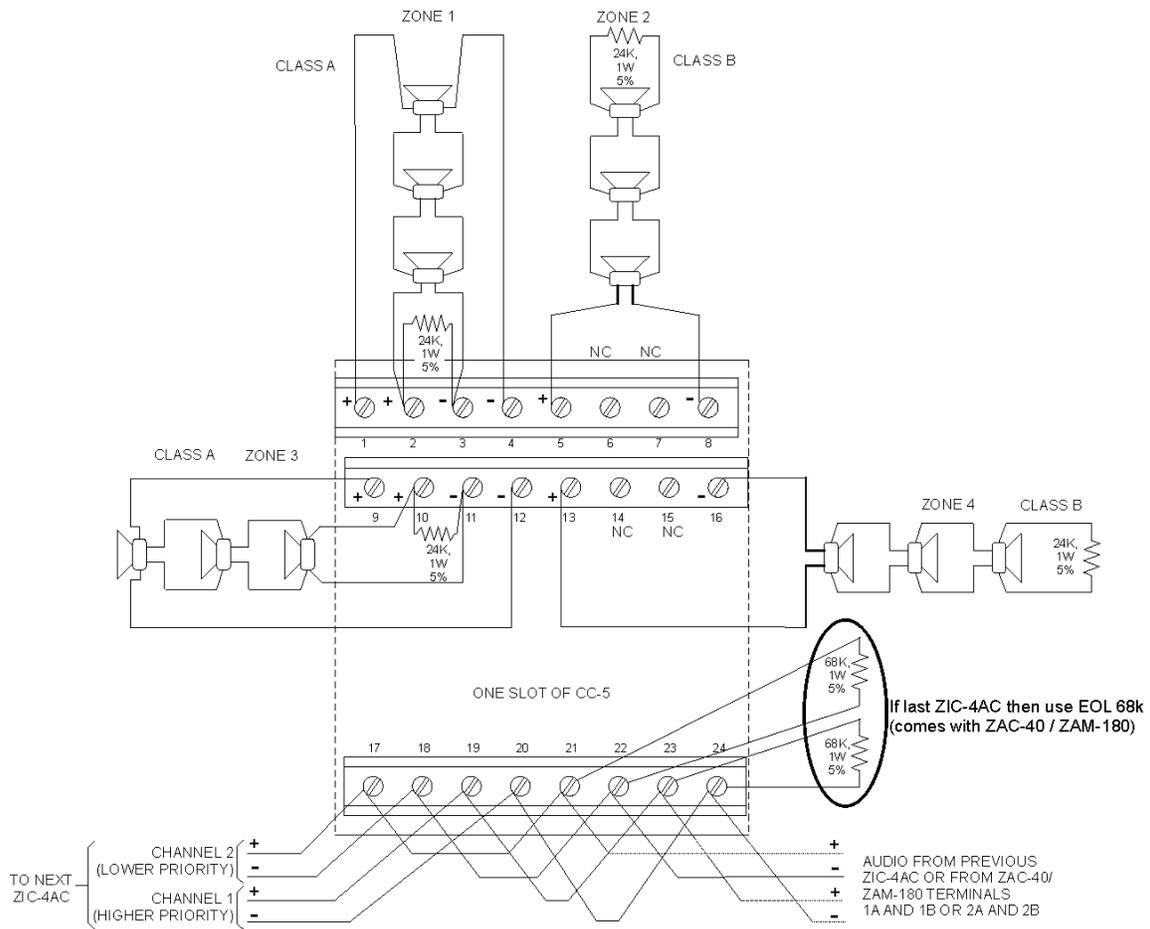


Figure 7  
ZIC-4AC Two-Channel Audio Wiring

NOTES

1. Wiring for each zone can either be Class A or Class B.
2. All output circuits are power limited.
3. Electrical Ratings:
 

Output Zone Supervisory:	4mA max @ 24VDC
Output Zone Active:	96 Watts max / zone
4. EOL resistor, 24k ohms, 1 watt, 5%, (comes with module package) EOL-Kit S24135-D55-A1.
5. Polarity shown in active state.
6. For two channel speaker application, the channel with higher priority (EVAC) must be connected to inputs 2/4 and the channel with the lower priority (ALERT) must be connected to inputs 1/3 to ensure proper switching operation of the ZIC-4AC.
7. Verify that P1 - P4 are in the proper location for speaker application.

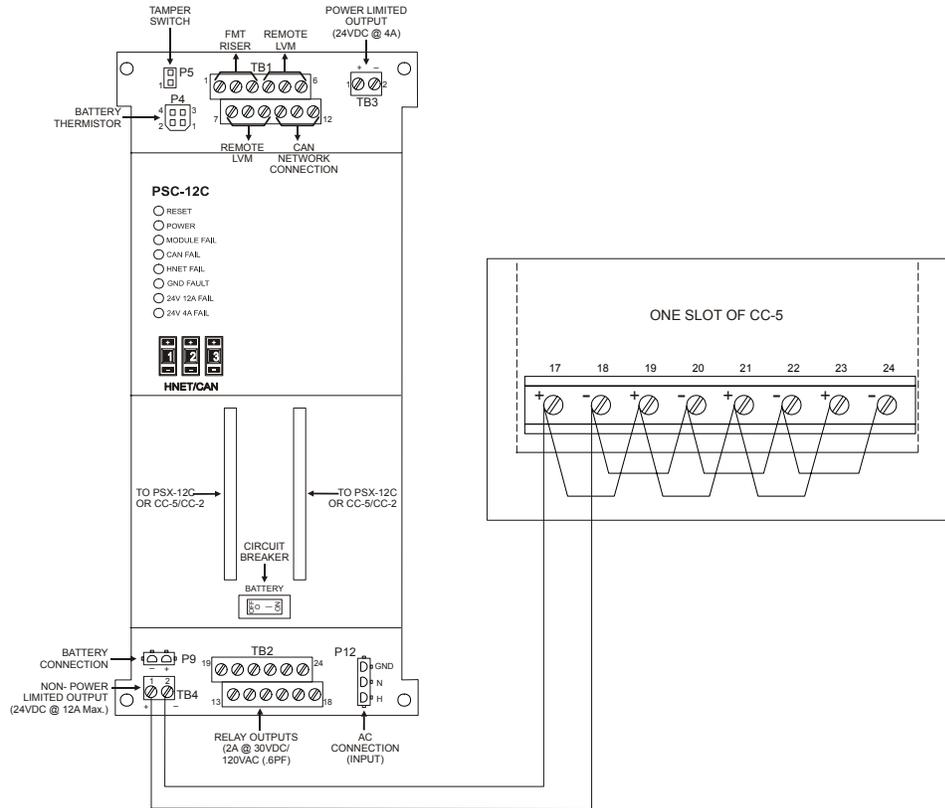


Figure 8  
ZIC-4AC Strobe Wiring With PSC-12C Power Supply

Notes

1. All output circuits are power limited
2. Electrical Ratings:  
 Output Supervisory Current:  
 2 mA max @ 24VDC  
 Output Alarm Current:  
 4A max @ 24VDC
3. Maximum line resistance: Refer to table on page 7.
4. Inputs can be daisy-chained provided that the power supply can sustain the power requirement of the output when activated.
5. Refer to Zeus Quick Start Guide (A24235-A334-A828 (German))) (A24235-A334-B828 (English)) for information about programming of releasing service.

For CE applications in Cerberus E100 systems refer to  
Installation Instruction A24205-A334-B844 (English) or A24205-A334-A844 (German)

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Siemens Building Technologies, Inc. Florham Park, New Jersey 07932  
Siemens Building Technologies, Ltd. Brampton, Ontario L6T 5E4 CN

Issued by Siemens AG  
I BT DE FS SYS  
D-81379 Munich

Delivery subject to availability;  
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**Order No. A24205-A334-B827**  
**(Edition 1)**

Printed in the Federal Republic of Germany  
on environmental chlorine-free paper.