

INSTALLATION INSTRUCTIONS
ZONE CONTROL MODULE (3 ZONES)
MODEL NUMBER ZC-3

FCC REGULATIONS

This equipment complies with Part 68 of the FCC Rules. On the back of this equipment is a label that contains, among other information, the FCC Registration Number and the Ringer Equivalence Number (REN) for this equipment. You must, upon request provide this information to your telephone company.

The REN is also useful to determine the quantity of devices that you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, the sum of the REN's of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices that you may connect to your line, you may want to contact your local telephone company.

Should the equipment cause harm to the telephone network, the telephone company shall, if possible, notify the customer that temporary discontinuance of service may be required. However, where prior written notice is not possible, the telephone company may temporarily discontinue service without notice, if such action is necessary under the circumstances. The telephone company may make changes in its communication facilities, equipment and operations procedures, where such action is reasonably required in the operation of its business and is not inconsistent with the rules and regulations of the Federal Communications Commission.

Do not attempt to repair or modify this equipment. Repairs to this product will be performed by Wheelock Inc. 273 Branchport Ave, Long Branch, NJ 07740 in accordance with Wheelock Inc.'s published Terms and conditions of Sale. This equipment should not be used on coin telephone lines. Connection to party line service is subject to state tariffs.

If trouble is experienced, disconnect this equipment from the telephone line to determine if it is causing the malfunction. If the equipment is determined to be malfunctioning, its use shall be discontinued until the problem has been corrected.

APPLICATION INFORMATION

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The ZC-3 Zone Control Module provides the central control, switching and signaling required to perform the following functions when connected to an unused loop start CO port of electronic (EKSU), mechanical (1A2) key PBX telephone systems. It can also be connected to a 600 OHM low power audio page port which transmits DTMF touchtones and provides a contact closure.

1. Three zones of paging (one-way and/or Talkback)
2. All-Call
3. Background music input to any or all zones
4. Background music mute:
 - A. Per Zone - only within the paged zone
 - B. Total system - on All-Call
5. Alert tone prior to page:
 - A. Per zone - only within the paged zone
 - B. Total system - on All-Call
6. Alert tone volume adjustment (with "OFF" position)
7. Talkback Inhibit on All-Call
8. Provides talk battery to an unused CO line/trunk port.

The Zone Control Module can be used with:

1. Speaker Amplifiers
2. Wheelock TBM-101 Talkback Speaker Module and TBH-104 Talkback Horn System.
Modules - maximum of one per zone
3. Zone Amplifiers (one per zone) for 25V/70V paging systems.
4. Any combination of items (1) thru (3) (Not mixed in the same zone).

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A maximum of 10 Speaker Amplifiers (including TBM-101 and TBH-104 Talkback Modules) can be connected to one Zone Control Module, based upon a minimum audio input signal of -15dBm (0.1VRMS) at each speaker-amplifier. Depending upon the paging systems configuration, and the available audio output signal from the host telephone system, the audio input signal may be less. If additional volume is required, use Wheelock's PRM-150

Preamplifier. Expanded systems can have up to 150 Speaker Amplifiers connected to each zone, by installing a Wheelock PRM-150 preamplifier in each zone's output. The PRM-150 is used for one-way paging zones only.

NOTES

1. The ZC-3 Zone Control Module is designed for indoor use.
2. The ZC-3 is designed for use with touch-tone (DTMF) systems only.

FIGURE 1.
TYPICAL APPLICATION DIAGRAM

POWER SUPPLY REQUIREMENTS

The ZC-3 requires:

1. "A" Battery - 18 to 28VDC filtered talk battery.
2. "B" Battery - 20 to 28V peak unfiltered relay battery.

The Wheelock RPS-2406 Power Supply is regulated and filtered ("A" Battery). One RPS-2406 can provide the ZC-3 "A" and "B" battery requirements.

Parameter	Minimum	Nominal	Maximum	Units
Supply Voltage	-20	-24	-28	VDC
Idle Current	"A" Battery	0		mA
	"B" Battery		25	mA
Operating Current	"A" Battery	60		mA
	"B" Battery		100	mA
Alert Tone Frequency		700		Hz
Alert Tone Duration		500		m sec
Alert Tone Level			-11	dBm
Page Input/Output Level (T&R)	-15		10	dBm
Page Input/Output Impedance (T&R)		600		Ohms
Music Input/Output Level	-15		10	dBm
Music Input/Output Impedance		600		Ohms
Operating Temperature	0		55	C
Operating Humidity	TO 85% RH			
Zone Control Access	* PRESS CO LINE BUTTON, OR TOUCH DIAL NUMBER ASSIGNED TO PAGE			
Page Zone 1	Dial "1"			
Page Zone 2	Dial "2"			
Page Zone 3	Dial "3"			
All - Call	Dial "0"			
Off-Hook Detection Sensitivity	1125 Ohms DC Resistance (780 to 1460 Ohms)			

* CO LINE BUTTON - FOR EKSU AND KSU (1A2) KEY TELEPHONE SYSTEMS.
NUMBER ASSIGNED - FOR PBX TELEPHONE SYSTEMS.

MOUNTING INFORMATION

The ZC-3 is designed for surface wall mounting near the telephone system. Remove the top cover by pushing on the latch at the bottom of the housing base with a small screw driver. See Figure 2.

Figure 3 is the mounting template. To mount the base (containing the PC Board Assembly) to the wall space the 2 mounting screws provided horizontally on 2.750" centers (See Figure 3).

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CAUTION: These devices are not intended for use in hazardous locations as defined by the National Electrical Code (NEC) and by the National Fire Protection Association (NFPA).

FIGURE 2.

FIGURE 3.

FIGURE 4.
SIMPLIFIED SCHEMATIC AND CONNECTION DIAGRAM.

* Connect only if Wheelock TBM-101 or TBH-104 Talkback Modules are used.

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The ZC-3 can be connected to an audio page port only if the audio page port provides:

- (A) A 600 OHM, low power audio output.
- (B) Transmission of DTMF touchtones.
- (C) A dry contact closure that closes when the port is selected, and opens when the paging telephone "hangs-up"

NOTE

Check telephone system manufacturer's installation instructions for any other audio page port connection considerations.

FIGURE 5.
CONNECTION TO 600 OHM AUDIO PAGE PORT

WIRING: See Figure 4.

- Make sure the 24VDC Power Supply is disconnected from the 115VAC power source.
- Connect Tip and Ring from telephone system to TB1, terminals 2 and 1 respectively.
- For Zone 1, connect Speaker Amplifiers, Paging Amplifier, or Wheelock Talkback Speaker Module Tip and Ring to TB2 terminals 4 and 3 respectively. If a Talkback Speaker Module is used, also:
 - (A) Connect its TB inhibit (TB1 terminal 6) to the required ZC-3 zone INH (terminal 13, 14, or 15).
 - (B) If Talkback Module and ZC-3 use separate power supplies, then also connect Talkback Module's GND (TB1 terminal 5) to ZC-3's "A" GND (TB1 terminal 4).
- Connect Zone 1 background music source to TB2, terminals 1 and 2. Background music may be connected to any or all zones. Zones 2 and 3 hook up in a similar fashion.
- Connect the "A" battery power supply positive (+) and negative (-) to TB1, terminals 4 and 3 respectively. Connect the "B" battery power supply positive (+) and negative (-) to TB1, terminals 6 and 5 respectively. One Wheelock RPS-2406 Power Supply ("A" battery) can be used for both "A" and "B" battery.
- Recheck all wiring.
- Connect the power supply to the 115VAC power source.
- Test the system using the following operation instructions.

OPERATION:

- Pick up the telephone handset and press the CO line button (EKSU, KSU), or number assigned to paging (PABX), to access the CO port to which ZC-3 has been connected).
- To initiate a zone page, dial "1", "2", or "3" (on the telephone's touchtone keypad) to select zone 1, 2 or 3 respectively.
- To initiate an All-Call page, dial "0" (on the telephone's touchtone keypad).
- Sequential selections can be made between zones, from zones to All-Call, or from All-Call to zones by simply dialing the next zone or All-Call. Sequential selections can be made in any order. It is not necessary to "hang-up" between selections.
- A zone page will mute background music only in the zone selected.
- All-Call will mute background music throughout the system.
- At the conclusion of page (i.e., phone "hangs-up", or another selection is made), the muted background music will automatically be restored.
- When any page is initiated, an alert tone is heard both in the telephone receiver, and at all selected speakers.

VOLUME ADJUSTMENTS:

- First adjust volume controls on Speaker Amplifiers and Talkback Speaker Modules for required paging volume. (If paging amplifiers are used with conventional speakers equipped with line matching transformers, then refer to the Paging Amplifier's instructions for volume adjustments).
- Next adjust page alert tone volume (internal adjustment in ZC-3), to required level. When control is turned fully counter clockwise, page alert tone is "OFF".
- Lastly, adjust volume on background music source (if applicable).

TROUBLE SHOOTING

CONDITION

CHECK

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Zone page or All-Call page cannot be accessed | <ol style="list-style-type: none"> 1. Telephone system must have touchtone (DTMF) dialing. 2. Check presence and polarity of -24VDC and GND for both "A" and "B" battery. 3. Check sidetone in handset. If there is no side tone, recheck "A" and "B" battery, at least -20VDC required. |
| <ol style="list-style-type: none"> 2. No background music. | <ol style="list-style-type: none"> 1. Verify unit has released from last page. 2. Check program source, and adjust its volume control, as desired. 3. Check presence of music audio input at "T" in and "R" in and if necessary also at the music source. 4. Check presence of music audio input at "T" out and "R" out and if necessary also at speaker amps. or paging amp. input. |
| <ol style="list-style-type: none"> 3. No sound or low page volume. | <ol style="list-style-type: none"> 1. Check presence and level of audio input at Tip Ring and if necessary also at the CO Port. 2. Check presence and level of audio at "T" out and "R" out and if necessary also at speaker amps. input. |
| <ol style="list-style-type: none"> 4. The alert tone is too high or too low. | <ol style="list-style-type: none"> 1. Set the alert Tone Volume to the desired level. |
| <ol style="list-style-type: none"> 5. Talkback does not function properly. | <ol style="list-style-type: none"> 1. If ZC-3 and TBM-101 or TBH-104 use separate power supplies, then check to insure there is a common GND connection between ZC-3 and TBM-101 or TBH-104. 2. TBM-101 or TBH-104 inhibit (INH) terminal must be connected to the ZC-3's proper zone inhibit (INH) terminal. 3. Refer TBM-101 or TBH-104 installation instructions. |

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