VALCOM

(540) 427-3900

V-2001
INTEGRATED SINGLE ZONE (PLUS)
PAGE CONTROL UNIT

INTRODUCTION

The V-2001 is an Integrated Single Zone Paging Control Unit for use with any electronic key or PABX. The Control Unit provides external power of 1 amp of -24vdc (20 Valcom power units) for powering Valcom One-Way Amplified Speakers.

These instructions contain the specifications and information necessary to install, operate, and maintain the Integrated Single Zone (Plus) Paging Control Unit.

The V-2001 Page Control Unit is manufactured by Valcom, Inc., 1111 Industry Avenue, Roanoke, VA 24013.

"WARNING: To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture."

"WARNING: Shock Hazard - Do Not Open."

"AVIS: Risque de Choc Electrique ne pas Ouvrir."

"PELIGRO: Corriente Electrica - No Abra."

SPECIFICATIONS

Purpose

- Provides telephone system access to a single zone of one-way paging.

Applications

- Electronic Key Systems
- PABX's
- 1A2 Key Systems (400 type line card required)
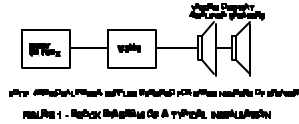- Stand Alone Systems

Refer to Figure 1 for a block diagram of a typical installation.

Features

- Electronic key system line key access
- PABX loop start trunk port access
- Page port access
- Page override capability (using C. O. line position or loop start trunk port)
- Switchable battery feed for loop start operation
- RJ11 for Tip and Ring connections
- Power on LED
- AGC on all voice outputs
- Directly drives up to 150 Valcom one-way amplified speaker assemblies per output
- Background music input
- Voice operated switch to mute music during page
- Removable screw terminals provided

- Supplies 20 Valcom power units for powering
  Valcom One-Way Amplified speakers
- Page + music outputs (2 provided) (music mutes
  during page)
- Page w/o music output
- Battery Backup input (use Valcom VPB-260
  battery backup supply)
- AC powered
- AC input fused at 1 amp
- UL Listed

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Figure 1 - Block Diagram of a Typical Installation

- Time clock tone - single tone
- Night ring - interrupted warble tone
- Priority sequence of tones:
  Page will override music;
  Night ring mixes with music and with page;
  Time clock overrides page but mixes with music

Capacity
- The V-2001 is a one zone single talkpath unit with override input.
- Each V-2001 will drive up to 150 Valcom One-Way amplified speaker assemblies (audio per output) and provides 20 Valcom power units (1 amp of -24 VDC) for the amplified speaker assemblies. (The V-2001 could also be used to access 25 or 70 volt conventional amplifiers).

Dimensions & Weight
- 7.06"H x 9.0"W x 2.4"D)
  (17.93 cm X 22.86 cm X 6.12 cm)
  Weight: 5.0 lbs (2.27 kg.)

Nominal Specifications
Input Impedance:	600 ohms
Input Level:	-10dbm nominal
Voice Switch Sensitivity:	-21dbm
Music Input Impedance:	8 to 600 ohms
Music Input Level:	-10dbm nominal
Output Impedance:	8 ohms
Output Level:	-10dbm nominal
DC Output:	-24VDC at 1 amp

Nominal Power Requirements
- Voltage:	120 VAC
- Current:	1 Amp
- Watts:	120 watts max. at peak power

NOTE: The V-2001 is equipped with a standard 3-prong polarized MOLEX connector to allow the main unit and a limited number of speakers to work with a fused output (3 amp) battery backup supply (Valcom VPB-260 or equivalent) in case of AC power failure.

Environment
Temperature:	0 to 40 Degrees C
Humidity:	0-85% non-precipitating

SYSTEM DESIGN
General
The Valcom V-2001 Integrated Single Zone (Plus) Page Control Unit provides access to paging from a standard PABX loop start trunk port, an Electronic Key System C. O. line button, or a 1A2 Key system C. O. line button (a 400 type line card is required). In most cases, access is also possible from a PABX or Electronic Key System page port.

Electronic Key or PABX Access
When using the V-2001 with an electronic key system or PABX, the following equipment will be required:

1) 1 - V-2001 Integrated Single Zone (Plus) Page Control Unit.
2) 1 - C. O. Line Circuit (Electronic key system) or 1 Loop Start Trunk Circuit (PABX)
3) Valcom One-Way Amplified Speaker Assemblies (quantity and style determined by specific installation).

Operation: Press the appropriate line key (electronic key system) or dial the appropriate trunk access code (PABX). You will immediately be connected to the paging speakers. Make announcement. The V-2001 automatically disconnects when you hang up.

Page Port Access
When accessing the V-2001 from a telephone system page port, the following equipment will be required:

1) 1 - V-2001 Integrated Single Zone (Plus) Page Control Unit
2) Telephone system page card (if required for external page outputs)

3)   Valcom One-Way Amplified Speaker Assemblies (quantity and style determined by specific installation).

Operation: Follow the telephone system manufacturer's instructions for access to external paging. Make your announcement. The V-2001 will automatically disconnect when you hang up.

Background Music
Background music may be connected to the V-2001 when using any of the above configurations. The background music will cut off on the "page + music" outputs when the party making the page is speaking.

C. O. Audible Ring and Time Clock Tone
C. O. audible ringing (electronic warble tone) over the paging system is available when a common audible contact closure or 90VAC ringing is supplied by the telephone system.

A single tone over paging is provided when the V-2001 is connected to a contact closure (time clock).

Battery Backup
The V-2001 is equipped with a standard 3-prong polarized MOLEX connector to allow the main unit and a limited number of speakers to work with a fused output (3 amp) battery backup supply (Valcom VPB-260 or equivalent) in case of AC power failure.

Page Override
A page override feature is available on the V-2001. It requires the use of a vacant C. O. line position or vacant loop start trunk port for access in addition to the page port, vacant C. O. line position or vacant loop start trunk port used for primary access of the V-2001.
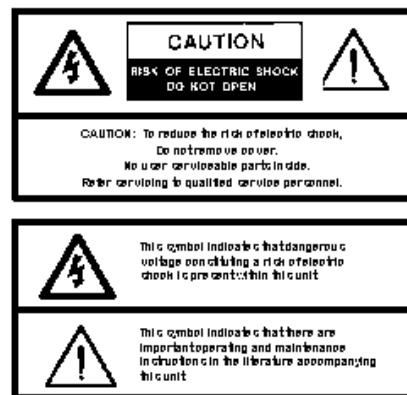
Operation: Press the appropriate line key (electronic key system) or dial the appropriate trunk access code (PABX) for page override access.   You will immediately be connected to the paging speakers (overriding any page in progress).   Make your announcement.   The V-2001 will automatically disconnect when you hang up, re-establishing the overridden page announcement.

INSTALLATION
Precautionary Designations
Mounting
The V-2001 was designed for wall or table mounting. When wall mounting this unit, secure it to wall studs or a suitable brace. (A plywood backboard 2' square and at least 1/2" thick attached to wall studs would be considered a suitable brace). Make certain the unit is

not mounted near heat sources or strong magnetic fields.   Ascertain control and terminal strip accessibility.

Four #10 x 3/4" cross-tip round head wood screws are included for mounting. Fasten the top two screws at the appropriate location on the mounting surface (approximately 8-3/8" apart and parallel to the floor), allowing the screwheads to protrude 1/8" to 1/4". Place the chassis of the unit onto the screwheads at the mounting slots. Posi- tion the two remaining screws and fasten through the remaining mounting slots. Complete the mounting by tightening all screws.

Power Connections
The V-2001 is provided with a three conductor line cord. **After all required connections have been made, plug the power cord into an appropriate AC wall socket.**

Volume Adjustments
There are two volume controls on the V-2001. One is used to adjust the background music volume level. It is located directly below the battery feed ON/OFF switch and is screwdriver adjustable. (See Figure 2 for location).   The second is used to adjust the warble/single tone volume level.   It is located approximately 1" above the PAGE TIP screw terminal connection and is manually adjustable. (See Figure 2 for location). Each volume control is set by turning it clockwise   to   increase   the   volume   and counterclockwise to decrease the volume.

The sequence of volume level adjustments are as follows:

__ a)   Page level: During initial system set up, individual speaker volume controls on the

amplified speaker assemblies be adjusted to 1/2 volume first, access the V-2001 and page. Adjust the volume control on each amplified speaker assembly to the desired page level.

__ b)   Background music level volume control: Adjust this control to the desired background music volume on the paging speakers.

__ c)   Warble/single tone level volume: Adjust this control to the desired warble or single tone volume.

Wiring Instructions (For Electronic Key System Line Button Access or PABX Loop Start Trunk Access)

NOTE: The telephone system referred to in the following instructions is the customer premise equipment such as an electronic key system or a PABX. The V-2001 CANNOT be connected directly to the public telephone network (a central office line).

If a modular telephone cord is used for Tip and Ring connections start at step ONE. For screw terminal connections start at step TWO. (See Figure 3).

__ 1.   Connect one end of a modular telephone cord to the V-2001 RJ11 labeled T & R Page and the other end to a vacant C.O. line position or vacant loop start trunk port on the customer premise equipment. (Go to Step 4).

__ 2.   Connect Tip of the vacant key system C. O. line position or PABX loop start trunk to the Tip screw terminal of the V-2001.

__ 3.   Connect Ring of the vacant key system C.O. line position or loop start trunk port to the Ring screw terminal of the V-2001.

__ 4.   Connect Tip of the one-way amplified speakers to the screw terminal of one side of the desired page out on the V-2001. NOTE: There are three page outputs; two with music and one without music.

__ 5.   Connect Ring of the one-way amplified speakers to the remaining screw terminal of the desired page out on the V-2001.

__ 6.   Connect the -24vdc terminal or lead of the one-way amplified speakers to the -24vdc screw terminal on the V-2001.

__ 7.   Connect the GND terminal or lead of the one-

way amplified speakers to the GND screw terminal on the V-2001.

NOTE: The Valcom V-2001 provides external power of 20 power units (1 amp of -24vdc) to operate Valcom one-way amplified speakers. Additional power supplies are required for a quantity of speakers using power over the 20 power units. When using additional power supplies, make certain: 1) The -24vdc outputs are not connected to each other; 2) Each one-way amplified speaker is connected to only one power source.

__ 8.   Set the Battery Feed slide switch to the "ON" position on the V-2001.

__ 9.   Plug in the power cord; Power ON LED will illuminate.

Wiring Instructions (For connection to a Telephone System Page Port)

__ 1.   Connect one side of the telephone system page port audio output to the Tip screw terminal of the V-2001.

__ 2.   Connect the other side of page port audio output to Ring screw terminal of the V-2001.

__ 3.   Connect Tip of the one-way amplified speakers to the screw terminal of one side of the desired page out on the V-2001. NOTE: There are three page outputs; two with music and one without music.

__ 4.   Connect Ring of the one-way amplified speakers to the remaining screw terminal of the desired page out on the V-2001.

__ 5.   Connect the -24vdc terminal or lead of the one-way amplified speakers to the -24vdc screw terminal on the V-2001.

__ 6.   Connect the GND terminal or lead of the one-way amplified speakers to the GND screw terminal on the V-2001.

NOTE: The Valcom V-2001 provides external power of 20 power units (1 amp of -24vdc) to operate Valcom one-way amplified speakers. Additional power supplies are required for a quantity of speakers using power over the 20 power units. When using additional power supplies, make certain: 1) The -24vdc outputs are not connected to each other; 2) Each one-way amplified speaker is connected to only one power source.

__ 7.   Set the battery feed slide switch to the "OFF" position on the V-2001.

__ 8.   Plug in the power cord; Power ON LED will illuminate.

Optional Connections
a. Music Connections

Connect the output of a low level music source to the screw terminals marked Music on the Input terminal strip on the V-2001. Adjust music volume control on the V-2001 to the appropriate level.

b. Night Ring Connections

If a contact closure from the telephone system is used, connect the closure to the screw terminals marked UNA Closure on the V-2001 input terminal strip. Adjust the warble/single tone volume control on the V-2001 to the appropriate level.

If ringing voltage is used from the telephone system, connect the output to screw terminals marked UNA ringing on the V-2001 input terminal strip. Adjust the warble/single tone volume control on the V-2001 to the appropriate level.

c. Single Tone Connections

Connect the contact closure of the device that is to operate the single tone to the screw terminals marked clock closure on the input terminal strip. Adjust the warble/single tone volume control on the V-2001 to the appropriate level.

Battery Backup
The V-2001 is equipped with a standard 3-prong polarized MOLEX connector to allow the main unit and a limited number of speakers to work with a fused output (3 amp) battery backup supply (Valcom VPB-260 or equivalent) in case of AC power failure. Connect the molex connector cord from the VPB-260 (or equivalent) to the molex connector on the V-2001.

NOTE: The AC line cord of the VPB-260 **and** the AC line cord of the V-2001 should be plugged into the same AC circuit.

Page Override
A page override feature is available on the V-2001. It requires the use of a vacant C. O. line position or vacant loop start trunk port in addition to the page port, vacant C. O. Line position or vacant loop start trunk port used for primary access of the V-2001. Connect one end of a modular telephone cord to the V-2001 RJ11 jack labeled "Tip and Ring OVR" and the other end to the vacant C. O. line position or vacant loop start trunk port on the customer premise equipment to be used for page override.

OPERATION
General
When the V-2001 is connected to a C. O. line position or a loop start trunk port, Tip and Ring battery feed is provided with the BF switch in the "ON" position. The voice switching circuit is turned on when the person making the page begins to speak. Background music, if connected, will be turned off on the two outputs marked "page + music" and the persons voice will be present on all three paging outputs. The voice switching circuit remains on as long as the person is speaking. When the page is completed or the person stops speaking for more than 3 seconds, the paging circuit is turned off and background music is restored to the two "page + music" outputs.

The page override feature requires the use of a vacant C. O. line position or vacant loop start trunk port in addition to the page port, vacant C. O. line position or vacant loop start trunk port used for primary access of the V-2001.

The page override feature is accessed by pressing the appropriate line key (electronic key system) or by dialing the appropriate trunk access code (PABX). Connection to the paging speakers will be immediate (overriding any page in progress). The V-2001 will automatically disconnect when the phone is hung up, re-establishing any overridden page announcement.

A warble tone or a single tone over page can be provided by the V-2001. A contact closure or 90VAC ring signal is used to activate the warble tone. The single tone is activated by a contact closure and follows the contact operation.

Battery backup for the V-2001 is available through use of a standard 3-prong polarized MOLEX connector. The V-2001 is equipped with this connector to allow the main unit and a limited number of speakers to work with a fused output (3 amp) battery backup supply (Valcom VPB-260 or equivalent) in case of AC power failure.

The unit provides a page control (PC) lead that may be used with a customer provided 24VDC relay for paging amplifiers that require a contact closure. The page control lead provides a ground (+) whenever a person is paging.

NOTE: When the V-2001 is connected to a paging port, the BF switch should be in the "OFF" position. The operation of the unit is the same.

TECHNICAL ASSISTANCE

When trouble is reported, verify that power is being supplied to the unit and there are no broken connections. Check voltages for proper polarity to the one-way amplified speakers.

Table 1 identifies symptoms of some possible problems with solutions.

If a spare unit is available, continue to troubleshoot by substituting the spare unit for the suspected defective unit.

Assistance in troubleshooting is available from the factory. When calling, you should have a telephone test set, several clip leads and a VOM available and be calling from the job site. Call (540) 427-3900 and ask for an Applications Engineer.

The V-2001 is not field repairable. **Valcom equipment contains no user serviceable parts inside.** Valcom, Inc. maintains service facilities in Roanoke, VA. Should repairs be necessary, attach a tag to the unit clearly stating your company name, address, phone number, contact person, and the nature of the problem. Send the unit to the **Repair and Return Dept.** at the address below.

TABLE 1: TROUBLESHOOTING CHART

SYMPTOM	*PROBABLE CAUSE AND SOLUTION*
1. No output to speakers.	a. Using a test set, check for presence of audio on page outputs of the V-2001 during a page. Refer to Connection Section.
	b. Check AC line fuse on V-2001.
2. No music output.	a. Using a test set, check for music on the music input terminals.
	b. Check that speakers are connected to "page + music" outputs.
3. No warble tone output.	a. If a contact closure is used on the telephone system, use a ohm meter to check the continuity of the contact closure when they are operated when a call is ringing into the telephone system.
	b. Using an AC volt meter, check for presence of ring voltage when a call is ringing into the telephone system (if ringing is used).
4. No single tone output.	a. Using an ohm meter, check the contact closure on the device that is to operate the single tone.

VALCOM LIMITED WARRANTY

Valcom, Inc. warrants its products to be free from the defects in materials and workmanship under conditions of normal use and service for a period of one year from the date of shipment. The obligation under this warranty shall be limited to the replacement, repair or refund of any such defective device within the warranty period, provided that:

1. inspection by Valcom, Inc. indicates the validity of the claim,
2. the defect is not the result of damage, misuse, or negligence after the original shipment,
3. the product has not been altered in any way or repaired by others and that factory sealed units are unopened (A service charge plus parts and labor will be applied to units defaced or physically damaged),
4. freight charges for the return of products to Valcom are prepaid,
5. all units 'out of warranty' are subject to a service charge. The service charge will cover minor repairs (Major repairs will be subject to additional charges for parts and labor).

This warranty is in lieu of and excludes all other warranties, expressed or implied, and in no event shall Valcom, Inc. be liable for any anticipated profits, consequential damages, loss of time or other losses incurred by the buyer in connection with the purchase, operation or use of the product.

This warranty specifically excludes damage incurred in shipment. In the event a product is received in damaged condition, the carrier should be notified immediately. Claims for such damage should be filed with the carrier involved in accordance with the F.O.B. point.

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