VC224pm

VC226pm

**Digital Four or Six Room
Stereo Volume Control System**

INSTALLATION AND OPERATION MANUAL

Version 1.2

Congratulations and thank you for choosing the Knöll digital stereo volume control system. This system is designed to individually control stereo speakers in up to four or six rooms with many advanced features. This product is a member of the proprietary Knoll transformer-free family which are widely regarded as the finest stereo volume controls made anywhere. The VC224pm has four room capability and the VC226pm has six room capability. The VC220pm has one room capability.

Key Features:

1. **Transformer-free sound quality.** Being transformer-free means the best sound quality possible in all rooms without the phase and level problems associated with conventional volume controls.

2. **Contemporary keypad styling.** The VC201 keypads feature the latest Decora styling with six led power level indicators. Colors are white, almond and ivory and the VC201 can be ordered with internal infrared receivers (VC201i). VC201 keypads are all single gang.

3. **Individual room start mute and turn on level adjustment.** Each room can "boot-up" muted or with the sound on. The level of each room when the sound comes on can be installer preselected (and changed later if required) from either a quiet position 6 (of 17 total) or a louder position 12.

4. **One or two VC201 keypads can be connected in each room.** Ever need volume controls on both ends of a great room? This feature is available on all Knoll digital volume controls without any extra adaptors.

5. **Individual room infrared remote control.** Each room can have its volume raised or lowered, sound muted or unmuted and power on or off with the RB8 remote when a VC201i keypad is installed in that room. The VC201i also passes component remote control signals to the source, such as play, skip, AM/FM, etc.

6. **Any or all rooms can be controlled by an external controller instead of a keypad.** Using the VC224 or VC226 infared inputs to each room, a common ground IR based controller can send remote commands.
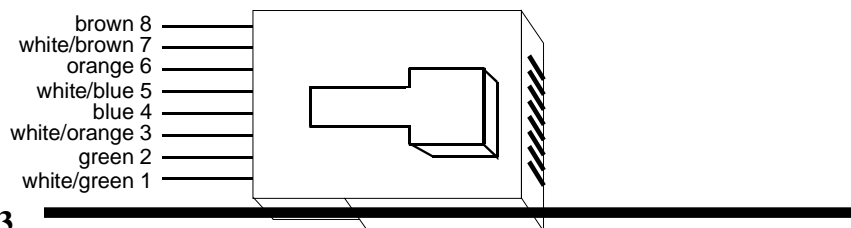
Installation

Installing the digital volume control system should be relatively easy. With a bit of planning, it will give trouble free service for years.

Basic System Layout and Pre-Wiring: See "Typical Wiring Diagram" on the centerfold page. The VC224pm and VC226pm make a noticeable "click" sound when changing volumes. We suggest mounting it in a low voltage panel, electrical room, closet, etc. We do not suggest connecting morethan one VC224pm or VC226pm to a single amplifier or receiver, even if it a high power model because a variety of power sharing problems can occur. One or two VC201 keypads can work on a single room or zone but only one VC201i can be connected to a single VC224pm or VC226pm room or zone. The VC200 keypad does not work with this system.

Use the standard T568A wiring practices to run a cat 5 or cat 3 wire from the keypad or controller to the VC224pm or Vc226pm. If more than one keypad controls a single VC224pm or Vc226pm room, daisy chain the cat wire from keypad to keypad. If the VC226pmi is **not** located next to the stereo, run a single eight-conductor cat 3 or cat 5 wire run and four speaker wire conductors from the stereo to the controller for the power supply, the infrared system, future upgrades such as paging override and of course the steeo speaker sound.

From each speaker run a home run **fire rated** two-conductor speaker wire to the VC224pm or VC226pm. To save time and money, most installers run a four-conductor speaker wire from the VC224pm or VC226pm to the closest appropriate speaker and then run a short two-conductor speaker wire to the other speaker. If there is more than one pair of speakers connected to a single VC224pm or VC226pm zone, the speakers can be wired in series or parallel whichever makes the impedance closest to 4 or 8 ohms. **Do not attempt** to make the final combined speaker impedance less than 4 ohms.

Connecting VC201/VC201i keypads to VC224pm and VC226pm controllers: Use a single cat5 wire using all eight conductors (usually run inside a wall). Always use standard T568A Cat 5 wiring practices (shown below). Use the correct wire pairs. Polarity is VERY important! The stereo signal is not routed to the keypad, just the digital control signals. Signals from an infrared receiver (if used) are routed down the same Cat 5 wire. If more than one keypad (VC201, not VC201i) is to be connected to a VC224pm or VC226pm controller, the wires to the keypads are paralleled.


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brown 8
white/brown 7
orange 6
white/blue 5
blue 4
white/orange 3
green 2
white/green 1
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Cat wires from rooms with more than one VC201 are run from one VC201 to the other then home run back to the controller.

> It is very important to use a top quality RJ45 8/8 crimper tool. We strongly suggest using a cat 5 RJ45 electronic tester to verify the wire conductors.

Connection to Stereo Equipment: Remove the VC224pm orVC226pm green four-position speaker connector labelled "INPUT". The stereo amplifier or receiver outputs (left and right) are connected to this VC224pm or VC226pm connector. Be very careful to observe the correct polarity. This controller uses independent floating grounds so bridged amplifiers can be used safely.

> VC224pm and VC226pm controllers are rated for use with maximum 120 watt per channel amplifiers. DO NOT use higher-powered amplifiers with this product for safety reasons.

The amplifier or receiver must be rated for four ohm speaker use to work properly with the VC224pm or VC226pm controller. Connect the controller to the amp or receivers speaker A or speaker B terminals. Wire the VC224pm or VC226pm connectors labelled "ROOM1", "ROOM2" etc. directly to the correct room speakers, again strictly observing polarity.

Power Requirements: The VC224pm and VC226pm are shipped with a 12VDC 500mA (or more) power supply (supplies power to the keypads). If possible, connect the 12vdc power supply to the switched outlet on the rear of the amplifier or receiver. This wiring causes the VC224pm or VC226pm controller to reset to its selectable "boot up" every time the receiver or amplifier is turned on but when the power is off the IR section of the VC201i will not work. If the IR is required to work all the time, then the controller power supply must connected to an unswitched outlet.

Installer Selectable "BOOT UP": The VC224pm and VC226pm allow the installer to select how the volume control "boots up" in each room when the controller first receives 12vdc power. For this feature to work, be sure to plug the 12vdc power supply to the switched AC outlet on the rear of the receiver or amplifier.

To always **S**tart **MUTE**ed make sure the shunt on the right side of the controller room number labelled "S/MUTE" is in place. Remove this shunt and this room starts with the music on.

To always start up in a quiet position #6 (of 17) sure the shunt on the right side of the controller room number labelled "# 6/12" is in place. Remove this shunt if this room is to start in the louder position #12.

To restore the boot up defaults, replace the appropriate shunts.

IR (Infrared) Outputs: The VC224pm and VC226pm feature infrared outputs from any VC201i keypads. The signal gathered from most remote controls can be routed to back to the source components to control various aspects of those components (play, fast forward, change disk, change tuner channel, etc.). To connect the VC224pm or VC226pm controller IR outputs, simply connect the VC224pm or VC226pm IR connector to an infared connection block's IR receiver input (without needing an IR connection block power supply). Then connect single or dual infrared emitters to the connection block and place the emitters on the stereo components to be controlled at the stereo location.

Operation: The Knöll digital volume control is very easy to use. It has a total of 17 different volume settings. Volume settings affect only the room that they are in.

After the stereo is turned on, you may or may not have sound depending on how the system was set up during installation.

To **increase the volume** (in this room only), push the rocker button up. Hold the button up continuously and the volume will increase until maximum.

To **lower the volume**, push the rocker button down. Hold the button down continuously and the volume will decrease until it mutes.

At any time firmly press the center of the switch to **mute the volume**. To restore the volume press the rocker button up or down.

The RB8 remote control source buttons do not work with the VC224pm and VC226pm as they have no source selection capabilities.
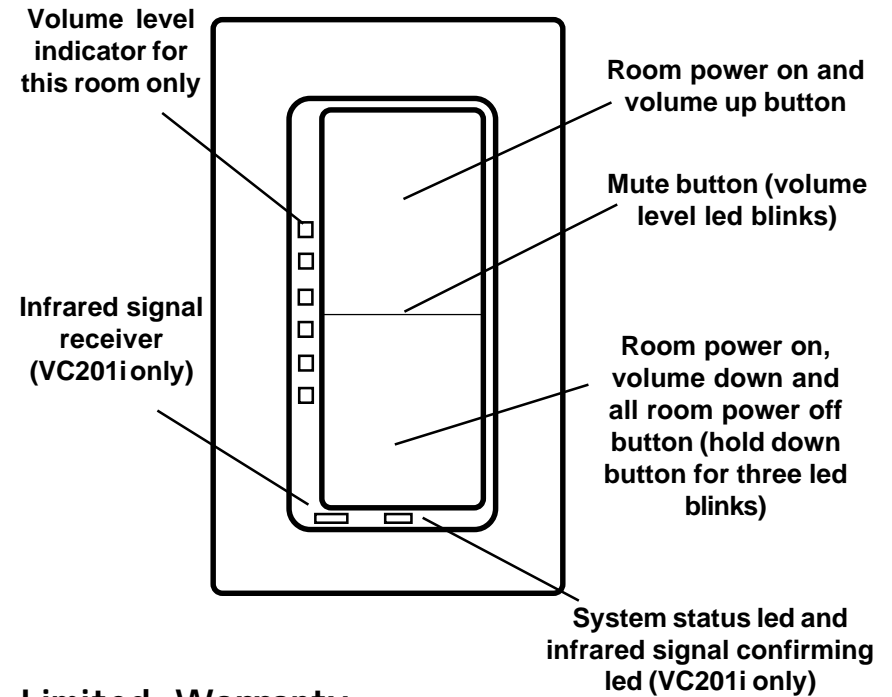
If infrared emitters where installed other (source) remote controls aimed at the VC201i keypads will control the source components.

On VC201 keypads the lower led indicates that power to the system has been switched on. The six side leds show the relative selected volume. When in mute (center of rocker has been pushed) one of the side leds blinks. To restore the volume press the rocker button up or down.

On VC201i keypads the lower center led blinks red when any IR signal is passing through it.

Note: If the stereo is on and the Knöll digital volume controller has lost power, it defaults to position #12.

VC201 Keypad functions

Volume level indicator for this room only

Room power on and volume up button

Mute button (volume level led blinks)

Infrared signal receiver (VC201i only)

Room power on, volume down and all room power off button (hold down button for three led blinks)

System status led and infrared signal confirming led (VC201i only)

Limited Warranty

VC224pm and VC226pm typical wiring diagram

Power supply. Connect to the switched oulet on the receiver or amplifier if possible

To have a room or zone start with the music on when the VC226pm powers up, remove the shunt labelled S/MUTE. Otherwise the keypad has to be pushed or remote touched to turn on this room only.

One or two VC201 keypads or one VC201i keypad can control each rooms stereo speakers. Connect the one or two VC201 or one VC201i keypad to the VC226pm cabinet's correct RJ45 8 conductor connector using a home run of cat 5 wire. Be sure to use a good quality RJ45 8/8 crimper.

When the sound does come on (whether or not S/MUTE is selected) the sound always comes on in position #6 (of 17 total). To make the music start in this room only at position #12, remove the shunt labelled #6/12.

VC226pm Cabinet

S/Mute #6/12 S/Mute #6/12 IR OUT S/Mute #6/12 S/Mute #6/12 12VDC S/Mute #6/12 S/Mute #6/12

INPUT ROOM1 ROOM2 ROOM3 ROOM4 ROOM5 ROOM6

Connect the power amplifier's speaker outputs to the VC226pm jack labelled "INPUT" Make sure proper wire polarity is observed.

120 WATT MAXIMUM STEREO AMPLIFIER

VC201 Keypad 4-16 OHMS

ROOM #1

12vdc 500mA

IR55

Infrared connection module to emitters

Home run cat 5 wire

Home run four conductor speaker wire

VC201 Keypad Speakers

ROOM #6