INTRODUCTION
The ELAN VM and VMO are 12-step mono volume controls with selectable impedance match settings of 2X, 4X, 8X and 16X, allowing you to connect multiple speakers to an amplifier without going below the amplifier’s minimum load requirements.

ROUGH-IN
The VM and VMO fit easily into the majority of single-gang boxes or P-rings. If local building code allows, use of P-rings provides easier installation, as access to the full depth of the wall is unobstructed. Although some local building codes allow low voltage devices such as volume controls to be enclosed in the same electrical boxes as 110 volt devices, ELAN does not recommend this as interference in the form of hum or buzzing may be introduced to the audio signal. For the same reason, do not install volume controls adjacent to high wattage light dimmers.

WIRING
The VM and VMO can accommodate from 14 to 24 gauge speaker wires. 18-gauge wire is suitable for most applications. Heavier gauge wire should be a considered for a longer wire run. In-wall wire runs are also subject to local code fire rating requirements. Always use stranded, twisted-pair, copper speaker wire for in-wall wire runs. Never use lamp or zip cord for in-wall wire runs.

• Always check local building and fire rating codes for low voltage device installation & wiring requirements.
• In retrofit installations, always check for obstructions such as pipes, conduit or electrical wiring before cutting into drywall.

SELECTING THE CORRECT IMPEDANCE MATCH
A configurable jumper on the VM and VMO determines the impedance match setting of the volume control. What jumper position should be selected depends on three things:

1) the minimum impedance rating of the amplifier being used,
2) the number of speakers being connected to the amplifier channel,
3) the impedance of the speakers being connected to the amplifier channel.

Once all of the above has been established, all it takes is some simple math to determine the system impedance, and thus the impedance match settings for the volume control.

EXAMPLE
If the amplifier’s minimum impedance rating = 8 ohms, and you wish to connect four 8 ohm speakers to an amplifier channel:

8 OHM SPEAKERS:  = 2 OHM SYSTEM IMPEDANCE
4 SPEAKERS

Most speakers are rated at 4, 6 or 8 ohms. If connecting speakers of different impedances to an amplifier, an average impedance must be determined; i.e. one pair of 4-ohm speakers is the equivalent of two pairs of 8-ohm speakers. 6-ohm speakers should be entered into the equation as 4-ohm speakers. All volume controls connected to the amplifier should have the same impedance match setting. Never go below an amplifiers minimum impedance rating as this can cause damage to the amplifier. Both the VM and VMO have minimum impedance ratings of 4 ohms. If connecting more than one speaker to the VM or VMO make sure not to exceed this minimum.

The PATENTED ELAN OVERRIDE FEATURE
—VMO Model Only
Our volume controls with the override feature permit ELAN system paging and doorchimes to be heard even if the volume control is turned to the off position.

To do this, the VMO Mono Volume Control with Override requires a control voltage to trigger the relay incorporated into the VMO’s design. The control voltage originates from an ELAN controller any time a page or door chime is initiated.

Wiring Requirements For Override
For Volume Controls with Override, use CAT5 phone wire for the connection of the 12VDC signal distribution. Consult the wiring diagram on the inside of the printed card of the volume control package or your ELAN systems installation manual for hookup and wiring diagrams.

INSTALLATION TIPS, TESTS & PROCEDURES
CONNECT THE WIRING TO THE VOLUME CONTROL FIRST! The labeled, removable plugs make connecting wires to the volume controls much easier! Please refer to the wiring diagram on the reverse side.

1. Strip back 1/4” of insulation from each wire that is to be connect-ed to the volume control. Twist tightly, making sure there are no frayed ends.
2. Connect the speaker wires to the plug labeled SPEAKERS. Make sure to maintain proper polarity (speaker + to plug +, speaker - to plug -).
3. Connect the wires coming form the amplifier to the plug labeled AMPLIFIER (the amplifier should first be powered down). Make sure to maintain proper polarity (amplifier + to plug +, amplifier - to plug -).
4. Once all wires are connected, plug the connectors back on to the volume control, making sure that the markings on the plugs match the markings on the volume control. **REVERSING THE AMPLIFIER & SPEAKER PLUGS MAY LOOK, ACT AND SMELL LIKE A SHORT CIRCUIT AT THE AMPLIFIER!**

5. Install the volume control in the gang box or P-Ring using the screws provided. Be careful not to stress the wires as this may cause the plugs to dislodge.

**DO NOT CONNECT THE WIRES FROM THE VOLUME CONTROL TO THE AMPLIFIER UNTIL THE FOLLOWING CHECKS & TEST HAVE BEEN PERFORMED!**

- With an Ohmmeter, measure the resistance between the + and - of each pair of wires that is to be connected to the amplifier’s speakers outputs. Under no circumstances should this reading be below 3.5 Ohms. A reading of less than 3.5 Ohms may mean that the wiring input and output plugs on the volume control may have been hooked up backwards (which can cause serious damage to the amplifier). An open reading may indicate a polarity reversal.
- Confirm that the impedance select jumpers are set correctly.
- Confirm that the amplifier is powered down before connecting any volume control wires to it.

### Specifications

**Power Rating:** 75 Watts Peak Music Power per channel

**Frequency Response:** 20 - 20KHz, +/- 0.5 dB into 8 ohms

**Total Harmonic Distortion:** <1%

**Impedance Settings:** 2x, 4x, 8x, 16x

**Speaker Load Impedances:** 4, 6, or 8 ohms

**Dynamic Range:** 42 db