

# VibraLINK II Low Cost Switch Boxes

## VL Expandable Switchable Junction Boxes

### DESCRIPTION

The expandable junction box allows the customer to begin with a 12 channel junction box, and as needs arise, expand to a total of 48 channels in a single enclosure. Each card has:

- 12 inputs
- 2 part plug / socket type
- one selector knob
- a single BNC output connector for easy data collection
- cards can be purchased separately or as an assembly

Presently, the assembly is made up of one to four cards (VL12EX, VL24EX, VL36EX, VL48EX). The cards are encased in a Thermoplastic NEMA 4X enclosure. Thermoplastic is a material that withstands many types of industrial environments.

The junction box can be ordered with three options. The first option is a BOV meter. Each card comes complete with a receptacle for a BOV meter. Allowing the customer to monitor the Bias output Voltage (BOV) of each sensor that is terminated to that card.

Other options include cable grips or conduit fitting. The cable grip allows twelve individual cables to be routed into the box. One cable grip or conduit fitting is required for each card in the junction box.

The VL Expandable junction boxes permit easy interface of multiple sensors to portable data collectors, FFT analyzers, recorders, oscilloscopes, and vibration meters. They allow sensor readings to be recorded from a safe, central location, solving the problem of taking measurements in noisy, inconvenient, or harsh machinery locations.

### SPECIFICATIONS

#### Input

Connectors ..... 2 part plug / socket type  
Channels ..... 12 channels each / card

#### Output

Connector ..... single BNC / card  
Local .....  
Gain ..... 1

#### Models Available:

Model	Description
VL12	12 Channel Add-on Board Only
VL12EX	12 Channel Junction Box
VL24EX	24 Channel Junction Box
VL36EX	36 Channel Junction Box
VL48EX	48 Channel Junction Box

#### Available Enclosures:

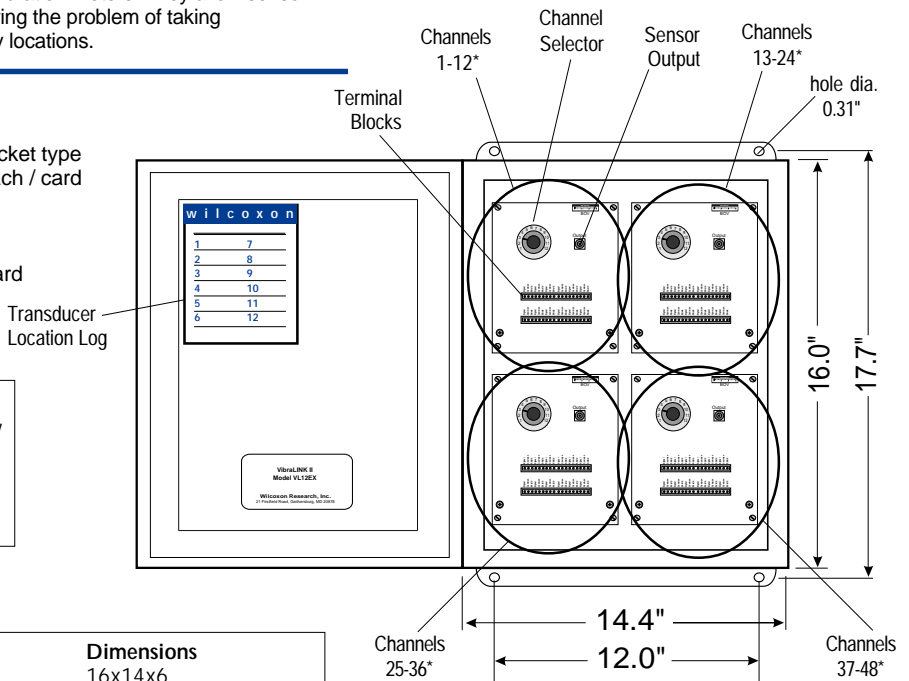
Designator	Material	Rating	Dimensions
L	Thermoplastic	NEMA 4X	16x14x6
S	Stainless Steel	NEMA 4X	16x14x6

**Other Options:**

- G Cable grip installed with insert drilled for 12 cables, 0.190" dia
- M BOV meter installed
- C Conduit fitting

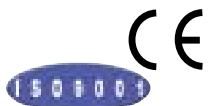
### FEATURES

- Expandable from 12 to 48 channels
- Low cost and durable construction
- For use with all 2-wire sensors
- Increases Safety and simplifies data collection in:
  - Confined or difficult locations
  - Dangerous height areas
  - Mechanical hazard areas
  - Guarded machinery
- Differential switching of both signal and common reduce problems with noise and ground loops
- Ferrite beads for RF rejection prevents EMI pick-up



**\*NOTE:** Channels are subject to the size box you purchase. Example: VL24 will only have (2) 12 channel boards.

**ACCESSORIES SUPPLIED:** Installation Instructions; Transducer log.



Due to continued research and development, Wilcoxon Research reserves the right to amend this specification without notice.

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## Instruction sheet data for VL Expandable Junction Boxes (VL-EX)

### Operation

The VL-EX's contain one rotary switch on each 12 channel group that allows the user to manually select the channel to be connected to the output BNC. Local monitoring is provided through the output BNC connector. The data collecting unit monitoring the transducers output connects to the output BNC and the user manually selects 1 of 6 or 12 channels.

### Grounding

All cable shields are tied together and routed to the ground plane. On the stainless steel enclosure, the ground plane is electrically tied to the enclosure. The lower right hand screw terminal provides a ground lug connection. For grounding non-metalic enclosures, a metallic conduit and a jumper wire can be used.

### Required Tools ("G" models only)

All "G" models include a cable-grip assembly that is factory installed before shipping. This cable-grip has been torqued to ensure proper sealing of the NEMA enclosure. Care should be taken to not rotate this assembly during routing and installation of sensor cables, and may require the use of an additional wrench to hold the cable-grip body firm while securing the retaining nut. Based on the product you intend to install, use either an adjustable wrench or a thin-walled "pump-wrench" with the following diameters to hold the cable-grip body during installation:

Enclosure Material	Thermoplastic (L)	Stainless Steel (S)
Cable Grip Material	Nylon	Nickel-Plated Brass
Wrench Flats	2.09"	1.97"
Recommended Wrench	MSC P# 88560719 McMaster P# 5551A55	MSC P# 01129618 McMaster P# 5746A14

*Please note: The cable-grip body flats are not the same diameter as the retaining nut.*

### Connection Instructions

- 1) If the VL-EX is not already in service, then remove the Printed Circuit Assembly from the enclosure. All internal parts are removable to ease modification for cable feed-through holes. When modifying the enclosure, it is recommended that the internal assembly be removed to prevent damage to components and keep them free of metal chips.
- 2) Modify the enclosure for cable entry. Remove any burrs or sharp edges. Remove any conductive metal shavings from within the enclosure.
- 3) Re-install PC assembly. PC board can be rotated 180 degrees to allow left handed door opening.
- 4) Mount enclosure on wall or structure. Pick an area large enough for the box in a place near the transducers but away from hazardous areas. External mounting brackets allow mounting of the enclosure directly to the wall. Four holes (0.31" diameter) are supplied for mounting. Mounting dimensions are 8 x 4 inches.
- 5) Strip wires as required for connection. Accelerometer cable connections for the VL-EX are terminated into 2 six channel multi-position terminal blocks.
- 6) Connect wires, observe polarity. Three positions, SIG, COM, and SHD are provided for each channel. The SIG terminal is for connection of the signal wire from the accelerometer cable and is switched to the center pin of the output BNC. The COM terminal is for connection of the accelerometer cables common wire and is switched to the shell of the output BNC. The SHD terminal is for connection of the accelerometer cable shields and it is connected to the ground plane of the printed circuit board.
- 7) Connect the transducers and the process is complete.

### Maintenance and Troubleshooting

Continuity testing- A digital multi-meter(DMM) can be used for continuity testing. Resistance should be <1 ohm between the shell of the output BNC connector and COM of the selected sensor connection. The center conductor of the output BNC and the SIG of each selected sensor connection should be <1 ohm when the selector switch is in the proper position.

An oscilloscope connected to the output BNC can be very helpful in determining if output waveforms are showing clipping or other distortion. Note: because the VL-EX use mechanical switches, no clipping or distortion will be caused by the box.

### Precautions

Contamination at the transducer termination may degrade the connection. Corrosive environments along with dirt, oil and water contribute to contamination and electrical leakage at the transducer termination's. To eliminate intermittent failures, take care when wiring connections to terminal strips.

Internally amplified vibration transducers are static sensitive devices. Suppression of high voltage transients is imperative. Use established ESD prevention techniques when handling and installing sensors.